

## 2

THE EVOLUTION OF THEORIES  
OF INTERACTIVE BEHAVIOR

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Speculation about the role and impact of nonverbal behavior in the human condition has been present for centuries in philosophy, science, and literature (see Knapp, this volume). Nevertheless, the development of systematic and focused empirical research on nonverbal behavior is a relatively recent phenomenon, growing rapidly from the late 1950s through the present day. Although the vast majority of this work consists of empirical research, theoretical scholarship has also been important, not only in developing a broader understanding of nonverbal communication but also in shaping subsequent empirical work. This chapter focuses on some of this theoretical development. In particular, I discuss *theories of interactional nonverbal behavior* (i.e., patterned cues in face-to-face contexts).

Although nonverbal communication operates in a wide variety of contexts, it is especially important in face-to-face interactions. In such interactions, patterns of behavior are “negotiated” subtly and move typically toward some degree of stability. Partners’ behavior patterns might converge and be similar in form, or they might diverge and be dissimilar. Simultaneously, interactants make a wide variety of judgments about their partners and the interaction. So, how do we explain the complex

cognitive and behavioral adjustments in a wide range of face-to-face encounters? This is the central question underlying the theories discussed in this chapter. The purposes of this chapter are (1) to trace the development of theories of interactive behavior and (2) to discuss, in some detail, a more comprehensive, *parallel process model* of nonverbal communication (see also Patterson, 2001). Although this chapter focuses specifically on the behavioral give-and-take between people, these theories have important implications for a wide variety of topics in nonverbal communication, including emotions, deception, influence, impression management, and intimacy.

Even though this chapter highlights the parallel process model of nonverbal communication, it is important to appreciate the how and why of the changing theoretical landscape over time. Because newer theories build necessarily on earlier theories and on the research stimulated by them, it is useful to consider the course of these developments. As a participant in these efforts over the last 30 years, I cannot claim an absence of bias regarding the merits of particular theories. Nevertheless, perhaps I can provide an insider's perspective on the evolution of theories of interactive behavior.

### ◆ *Early Theories*

With few exceptions, the advent of systematic empirical research on nonverbal communication was marked by a focus on one behavior or channel at a time (e.g., Exline, 1963; Sommer, 1959). For example, researchers studying spatial behavior did not generally concern themselves with the simultaneous changes in gaze or facial expressions. Instead, investigators often examined how culture, gender, personality, or the specific situation affected the behavior of interest.

Although these were all interesting issues, this line of research provided little insight into the dynamic relationships across nonverbal behaviors as people interacted with one another. The landscape changed dramatically, however, with the publication of a 1965 article by Argyle and Dean.

### *EQUILIBRIUM THEORY*

In their equilibrium theory, Argyle and Dean (1965) focused on how individuals maintain a comfortable or appropriate level of behavioral intimacy or involvement in interactions. They proposed that a small set of behaviors, including distance, gaze, smiling, and verbal intimacy (self-disclosure) determines the overall level of involvement in an interaction. As the underlying intimacy in a relationship increased, for example, from initial strangers to acquaintances to good friends or lovers, the comfortable level of involvement also increased. Over the course of any specific interaction, there was pressure to maintain a balance, or equilibrium, in the level of involvement. For example, if a stranger approached too closely, one might turn away and avoid eye contact. This kind of adjustment was termed *compensation* because the reduction in gaze compensated for the too close approach.

Equilibrium theory was especially important because it was the first attempt to explain the momentary behavioral adjustments that people make over the course of an interaction. Early empirical research not only supported equilibrium theory, but it also expanded the range of relevant behaviors (for a review, see Patterson, 1973. In addition to the behaviors Argyle and Dean (1965) proposed, body orientation, lean, touch, posture, and expressiveness also contributed to the overall involvement between interaction partners (see Andersen, Guerrero, & Jones, this volume).

Over time, however, two distinct limitations to equilibrium theory became evident. First, the results of a few studies directly contradicted the predictions of equilibrium theory (e.g., Breed, 1972; Chapman, 1975). Instead of compensating for increased involvement, individuals in these studies increased, or *reciprocated*, the higher involvement of a partner. Second, the majority of the empirical research supporting equilibrium theory involved confederates who acted in a relatively extreme fashion toward their unsuspecting partners in settings where the research participants had little control over their immediate environments. Examples of this research included studies of spatial invasion, staring, or the initiation of unexpected touch. Under these circumstances, it is not surprising that most people compensated. That is, they left the setting, turned away, or avoided gaze in response to the confederate's increased involvement. This kind of pattern might not be expected between good friends interacting on their own territories. In fact, reciprocation might be more common in interactions between friends, family member, or lovers. A different approach was needed to explain both compensation and reciprocation between strangers and intimate partners.

#### AFFECT-BASED THEORIES

From the mid-1970s to the mid-1980s, a number of different theories were advanced to explain compensation and reciprocation across a wide range of relationships. Because there was research linking arousal to increased levels of nonverbal involvement (e.g., Gale, Lucas, Nissim, & Harpham, 1972; McBride, King, & James, 1965), arousal seemed a likely mediator of nonverbal adjustments. Although several theories shared a common emphasis on arousal in

explaining patterns of compensation and reciprocation, important differences were also evident.

My own *arousal-labeling theory* proposed that the experience of arousal in response to a change in the partner's nonverbal behavior precipitated a labeling or self-attribution process (Patterson, 1976). This process was the mechanism at the core of Schachter and Singer's (1962) two-factor theory of emotions. The arousal-labeling theory predicted that if the partner's change in nonverbal involvement (e.g., a close approach, touch, and a high level of gaze) was sufficient to produce arousal, individuals initiated the labeling process. Next, if the resulting emotional state was positive (e.g., liking, love, comfort), then the individual would reciprocate the partner's increased involvement. Thus, a close approach, smile, and touch from a good friend would increase arousal, be labeled as liking, and lead to reciprocating the friend's high involvement. This reciprocation might take the form of smiling back at the friend and increasing gaze. If similar behavior was initiated unexpectedly by a stranger, arousal would also be increased, but it would be more often labeled as discomfort and lead to compensation. Thus, the recipient might turn away and avoid gaze in attempting to reestablish some degree of comfort and control in the setting.

Around the same time, Burgoon proposed an *expectancy-violations model of personal space* (Burgoon, 1978; Burgoon & Jones, 1976). Although this theory focused originally on the effects of preferred interaction distances on communication outcomes, such as communicator credibility and attractiveness (Hale & Burgoon, 1984), its extension to effects on nonverbal involvement was fairly direct. Specifically, when expectations about preferred levels of involvement are violated, arousal is increased, and a labeling or interpretation

of the arousal is made, as in the arousal-labeling model. In general, the expectancy-violations model predicts a compensatory adjustment to more extreme violations of expectancies and a reciprocal adjustment to low-level violations of expectancies. This pattern is qualified, however, by the reward value of the partner. For example, the same moderate level violation of increased involvement initiated by a high- versus low-valued partner would produce very different adjustments. Specifically, the violation by the high-valued partner would be labeled positively and lead to reciprocation, whereas the same violation by the low-valued partner would be labeled negatively and lead to compensation (Hale & Burgoon, 1984).

Another theory focusing on the central role of arousal and how it is labeled was the *cognitive valence model* (Andersen, 1985). In this theory, reactions to a partner's change in nonverbal involvement were a product, first, of the intensity of the arousal change and, second, of how moderate levels of arousal change might be labeled. Specifically, if a partner's behavior precipitated little or no change in one's arousal, no behavioral adjustment (compensation or reciprocation) was required. In contrast, if the partner's behavior precipitated a large increase or decrease in arousal, then that would be experienced negatively and result in compensation. It was only when the arousal change was in a moderate range that several valencing factors determined the affective experience of an individual. Specifically, social norms, relationships, perceptions of the partner, the environmental context, and other personal characteristics of the individual shaped the experience of the arousal. Like the other theories, negatively labeled or valenced arousal led to compensation, and positively labeled or valenced arousal led to reciprocation.

These three theories predict that an individual's affective state following a partner's

change in nonverbal involvement is the proximate determinant of behavioral adjustments. In each case, the labeling or attribution of one's arousal is critical. The fourth affect-based approach, *discrepancy-arousal theory* (Cappella & Greene, 1982), however, proposed a very different explanation. Although Cappella and Greene suggested several distinguishing characteristics of their approach, the one that set it apart from other affect-based theories most clearly was its emphasis on arousal alone as the critical mediator of nonverbal adjustments. Cappella and Greene argued that in the course of interaction, adjustments happen so quickly that there is literally not enough time for a labeling, or attribution, process to mediate the behavioral changes. In other words, behavioral adjustments to a partner's change in involvement are more rapid than the presumed cognitive mediating processes. Consequently, they proposed that arousal alone, which could be activated very rapidly, was the critical mediator of nonverbal adjustments (Cappella & Greene, 1982).

According to discrepancy-arousal theory, as an interaction starts, there is a more or less automatic comparison between the actual and the expected levels of involvement. In general, as the discrepancy between the expected and the actual level of involvement increases, so does arousal. A critical link in this theory is the relationship between the intensity of arousal and a person's resulting affect. Specifically, Cappella and Greene (1982) suggested that the valence and intensity of affect follow a curvilinear relationship with arousal. That is, low to moderate levels of arousal produce increasingly positive affect, but as arousal increases beyond moderate levels, affect becomes less positive. With increasingly high levels of arousal, affect becomes increasingly negative. At this point in the sequence, one that happens very rapidly, the predicted behavioral adjustments parallel those in the other

affect-based theories. That is, the greater the positive affect that one experiences, the greater the reciprocation of the partner's nonverbal involvement, and the greater the negative affect that one experiences, the greater the compensation for the partner's nonverbal involvement.

Although these four theories propose distinct processes mediating behavioral adjustments, it is very difficult to structure a critical test of their relative merits (but see Andersen, Guerrero, Buller, & Jorgensen, 1998). In most cases, the theories make similar predictions for a specific set of circumstances. For example, each of the theories predicts that *substantially increased involvement* (close approach, sustained gaze, a smile, and touch) *from a disliked other precipitates compensation* (turning away and gaze avoidance). Each of the theories also predicts that *similar increased involvement from a well-liked other precipitates reciprocation* (increased gaze, a smile, and touch).

Actually measuring the hypothesized mediating processes (arousal change and cognitions) as they occur in interactions, however, is demanding. Although the monitoring of physiological arousal in structured interactions has been done occasionally (e.g., Coutts, Schneider, & Montgomery, 1980; Whitcher & Fisher, 1979), most of the research on interactive behavior does not include physiological measures. In two studies in our own laboratory that did employ physiological measures, we found only very limited support for the predicted increase in arousal following confederates' increased nonverbal involvement toward a subject (Ickes, Patterson, Rajcecki, & Tanford, 1982, study 2; Patterson, Jordan, Hogan, & Frerker, 1981). In addition, the intrusive nature of physiological measures also reduces the external validity of the results. It is probably fair to say that arousal *can* mediate nonverbal adjustments, especially when a partner's behavior is extreme,

but the few studies actually employing physiological measures have not demonstrated that arousal is a necessary mediator.

Assessing the role of cognitions in this kind of research is difficult because these measures have to be taken after the interactions. Thus, it is only after the interaction is completed that individuals might rate what they think about their partners, themselves, and the interaction. Alternatively, research participants might list the specific thoughts they recall from the interaction, sometimes prompted by a videotape replay of the interaction (Ickes, Bissonnette, Garcia, & Stinson, 1990; Patterson, 1983, p. 170). Such measures can provide some insight into what people might have been thinking during the interaction, but it is not the same as being able to assess those cognitions as they happen.

Assessment is further complicated by the fact that reported cognitions and attributions are often the product of the behavior, not the cause of the behavior (Bem, 1972). Thus, positive ratings of a confederate after an interaction do not necessarily mean that positive cognitions mediated a reciprocation pattern. Rather, behavioral adjustments could have happened for other reasons and, in turn, precipitated the cognitions. That is, the reported evaluations might not be present at the time of the actual behavior, but when participants are queried, they can provide such judgments based on their behavior. Such a sequence would be inconsistent with the predictions of these early theories. Of course, the sequencing issue would not apply to Cappella and Greene's (1982) discrepancy-arousal theory, because it excludes the role of cognitions in mediating adjustments specifically.

Although these issues are important concerns regarding these early theories, there were more basic limitations to all the theories. First, all the theories were *reactive* in

nature. That is, they provided a kind of mechanistic explanation for predicting one person's reaction, given a particular behavior pattern from a partner. Even if the proposed mechanisms captured adequately the processes involved in nonverbal adjustments to partner's behavior, they were mute about the initiation of a particular interaction. That is, what is the reason behind the initial behavior in an interaction? Furthermore, once started, some sequences may not actually be reactive anyway. That is, sometimes individuals are not simply responding to their partner's immediately preceding behavior; rather, both parties are sometimes acting out a common script. An example of this kind of occurrence is the scripted routine in greetings.

The second major limitation to all the early theories was that they were all *affect driven*. Although the theories differed in just how individuals arrived at a particular affective state following a partner's behavior, the common prediction across the theories was that negative affect (e.g., anxiety or fear) precipitated compensation and positive affect (e.g., liking or love) precipitated reciprocation. Common sense and empirical results (Ickes et al., 1982) indicate that this is often not the case. For very practical reasons, there are times when we cannot let our feelings determine our behavior. In a similar fashion, it may be inappropriate, or at least risky, to respond with a high level of involvement to someone we like very much. In both cases, we manage our behavior to create a desirable impression in spite of our underlying feelings (for more on impression management, see Keating, this volume). That is, there is disconnect between what a person feels and the person's overt behavior. These limitations in the early theories prompted me to develop a different perspective on interactive behavior, one grounded in the functions served by particular behavior patterns.

### ◆ *A Functional Perspective on Nonverbal Exchange*

The basic assumption of the functional model is that interactive behavior is pragmatic. That is, nonverbal behavior can serve a number of different functions in social settings (Patterson, 1982, 1983). In the pursuit of particular goals, we not only react to our partners; we also initiate behavioral patterns to influence them. The pursuit of specific goals may also require behavior inconsistent with its underlying affect, contrary to the assumption of the theories reviewed in the last section. Affect in the functional model still provides a critical role in the initiation of, and reaction to, patterns of nonverbal behavior as a kind of "default" setting in interactions. The initiation of particular goals, however, such as gaining compliance from another person or deceiving someone, can override the role of affect in determining nonverbal behavior. Of course, this does not mean that these goal-oriented patterns are necessarily well done or successful.

Interactive behavior is, however, constrained by several determinants (Patterson, 1991). Specifically, as emphasized in this handbook, biology, culture, gender, and personality shape habitual patterns of interaction. The combination of genetic hardwiring, the social and cultural environments, and experience over time determines our behavioral predispositions, physiological reactivity to the social environment, and cognitive expectancies about others. In effect, this is the "baggage" that each of us brings to social settings and affects both the functions directing the interaction and the modal patterns of nonverbal involvement shown. That is, some of what we are as individuals is common in the hardwiring selected over the course of evolution, but culture, gender, and personality increase variability in the way we view our social worlds and relate to

others (see chapters by Floyd, Hall, Gifford, and Matsumoto, this volume). The proposed linkages among the various determinants, mediating processes, and interaction outcomes can be seen in Figure 2.1.

Because this approach emphasizes the functions of interaction and recognizes that affect alone cannot determine particular patterns of nonverbal involvement, the focus moves away from simply predicting either compensation or reciprocation. Although people sometimes make reactive adjustments of compensation and reciprocation, in the functional approach, individuals are portrayed as more proactive in initiating specific patterns of behavior in the service of different goals. Because it is inappropriate to characterize such goal-driven patterns as simply compensation or reciprocation, a different kind of outcome metric was proposed for the functional model: the stability of nonverbal exchange.

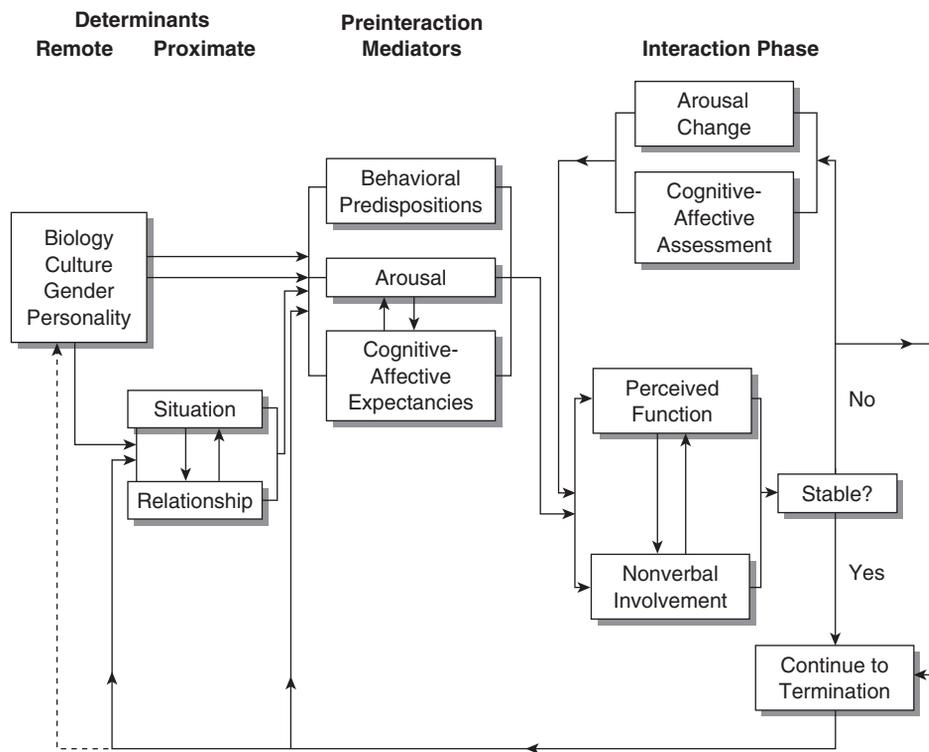
When the perceived function of a given interaction is shared by the partners, interactions will tend to proceed in a relatively stable and predictable manner. As partners' similarity in culture and personality increases, the probability that expectancies and behavioral predispositions will be more compatible also increases. In turn, this increases the likelihood that nonverbal exchange will be more stable and predictable. Of course, there are exceptions to this generalization. For example, individuals who are complementary on the dominance-submissiveness dimension will typically have more stable interactions than those who are similar (see Burgoon & Dunbar, this volume, for more on the dominance-submissiveness dimension). When individuals have a sense of instability in the interaction, the model proposes that they are likely to experience arousal change and initiate a cognitive-affective assessment of the situation (see Figure 2.1, right half). Depending on the level of arousal change and the cognitive-affective

assessment, individuals may reevaluate the purpose (perceived function) of the interaction as they are also making nonverbal adjustments. Over time, these covert and overt adjustments promote stability in the interaction; but if they do not work, an early termination of the interaction is likely.

The functional approach emphasizes the utility of nonverbal communication in serving several general functions including (1) providing information, (2) regulating interaction, (3) expressing intimacy, (4) exercising influence, and (5) managing impressions (Patterson, 1991). Furthermore, similar patterns of behavior may be driven by different functions. For example, the same close approach, smile, and touch might reflect intimacy or simply be an attempt to manipulate the partner. Although the functional perspective captures the complex nature of nonverbal communication better than the affect-based theories, it does come at a cost. Specifically, the functional model does not attempt straightforward, directional predictions of behavioral adjustments, like those made by the affect-based theories. As a result, it falls short on an important quality of a good theory: being easily testable. On the other hand, because individuals can be proactive in meeting their goals and act independently of their underlying feelings, the task of framing specific predictions will necessarily be difficult. An interesting application and extension of the functional model can be seen in the area of social stigma and intergroup interactions (Hebl & Dovidio, 2005; see also Dovidio, Hebl, Richeson, & Shelton, this volume).

### ◆ *Interaction Adaptation Theory*

In an ambitious attempt to resolve the inconsistencies between empirical results and various theoretical explanations, Burgoon



**Figure 2.1** An Illustration of the Functional Model of Nonverbal Communication

and her colleagues (Burgoon et al., 1998; Burgoon, Stern, & Dillman, 1995) proposed the interaction adaptation theory (IAT). In this theory, several basic concepts are proposed as the major determinants of behavioral adjustments in interactions. The first three are the required (R), expected (E), and desired (D) levels of functionally driven behavior patterns. The R component refers to biological needs and drives, often operating outside of awareness, that influence interactive behavior. The E component refers to social factors, including knowledge of the setting, social norms, and the partner's typical behavior in the setting, that combine to determine behavioral expectancies. The D component refers to a range of individual factors, including personality characteristics, attitudes, and moods unique to a particular individual. These three factors, in turn, combine to

determine a person's interaction position (IP)—that is, the dominant behavioral predisposition likely for a given setting with a particular partner. In other words, one's IP is an estimate of the actor's likely behavior shaped by biology, experience, individual characteristics, and expectancies about a partner.

The particular valence and level of involvement represented in a person's IP are highly variable and dependent on the weight of the contributing R-E-D components. For example, if a particular interaction has implications for a person's safety and welfare, R will influence the final IP. If the setting and interaction are constrained by social norms—for example, in a job interview—the effect of E will be primary in determining IP. Likewise, if the situation is less structured and social norms are minimized, the personality characteristics and

momentary affect will result in D being more important than R and E. Predictions about the course of interaction adaptation are possible only when the partner's actual interactive behavior (A) is known and compared to the actor's IP.

In general, IAT predicts that when A matches or is only slightly discrepant from IP, an actor should match or reciprocate the partner's behavior. As the discrepancy between A and IP gets larger, actors are more likely to engage in cognitive assessment and behavioral adjustment. According to IAT, there is pressure to minimize the discrepancy between A and IP to stabilize the interaction. The predicted behavioral adaptation is toward the factor (either A or IP) that is more positively valenced. For example, suppose the actor expects a high level of involvement (IP) from a partner, but the partner initiates a much lower level of involvement (A). In this case, the actor should compensate by trying to enlist greater involvement from the partner and, in the process, reduce the discrepancy between A and IP. If the actor expects a lower level of involvement (IP) from the partner, but the partner initiates a much higher level of involvement (A), then the actor should converge with or reciprocate the partner's high involvement. In the latter case, as in the former, the discrepancy between A and IP is reduced with the actor's behavioral adjustment.

In an experiment involving interactions among same- or cross-culture dyads, mixed support was found for the predictions of interpersonal adaptation theory (Burgoon et al., 1998). In general, partners adapted to one another as a function of their individual and cultural characteristics as predicted by interpersonal adaptation theory and by other theories reviewed here. Perhaps the most important contribution of interpersonal adaptation theory, however, is its emphasis on the pervasive pressure for behavioral adjustments, typically in the

form of matching and reciprocity, which promote coordination and similarity across interactants.

### ◆ *Parallel Process Model of Nonverbal Communication*

#### SETTING THE CONTEXT

The theories discussed thus far have focused primarily on how individuals *behave* in interactions. Specifically, they address how we can explain, and potentially predict, patterns of nonverbal involvement in social settings. Early theories were primarily reactive in nature and stressed the importance of affect in precipitating nonverbal adjustments. The functional model and IAT recognized the necessity of trying to explain not only reactive adjustments but also behavior initiated by actors. Although individual actors engage necessarily in some cognitive activity in the process of managing nonverbal involvement, the focus in both the earlier and the later theories was clearly on *behavior*—that is, the encoding or sending of nonverbal communication.

Whereas the decoding or receiving of nonverbal behavior had been generally neglected in theories of interactive behavior, the opposite was the case in developing research and theory in social cognition (see, e.g., Fiske & Taylor, 1995; Kunda, 1999). This work, conducted primarily by social psychologists who were part of the “cognitive revolution” in psychology, provided a new perspective on the old issues of person perception and social judgment. For example, information-processing theories (e.g., Brewer, 1988; Fiske & Neuberg, 1990) focused largely on how a perceiver might attend to and process a person's characteristics, appearance, and category membership in forming an impression. These theories recognized that these processes sometimes

operate relatively automatically and sometimes require effort (see Lakin, this volume).

A similar view of combined automatic and effortful (controlled) processes was pivotal in a theory of how perceivers move from behavioral observations to attributions (Gilbert & Krull, 1988; Gilbert, Pelham, & Krull, 1988). Specifically, Gilbert and his colleagues proposed that the first two stages of judgment, categorizing the behavior (e.g., friendly behavior) and next drawing a dispositional inference (e.g., friendly person), happen more or less automatically with little or no cognitive effort. Perceivers might, however, initiate an additional correction stage if they are sufficiently motivated and have the cognitive resources necessary to do the correction (Gilbert & Krull; Gilbert et al.). Around the same time, Bargh (1989, 1990) was making a strong case for automatic social judgments being the norm, not the exception, in forming impressions. Such automatic judgments were not, however, without purpose. For example, Fiske (1992) emphasized the pragmatic link of social cognition to interactive behavior in a reprise of William James's (1890/1983) observation from a century earlier that "thinking is for doing" (pp. 959–960). In a similar fashion, the ecological theory of social perception (McArthur & Baron, 1983) proposed that people are attuned particularly to perceiving the social affordances of others (e.g., Is this person good or bad for me?) quickly and accurately.

Although these researchers did not frame their mechanisms as part of a "communication" process, they were actually addressing the receiving side of communication. The parallel process model is an attempt to integrate the two sides of communication—social behavior and social judgment—into a single framework. Communicators send and receive nonverbal messages simultaneously in the service of specific goals. Just as changing our behavior (and often our

appearance) to influence others is adaptive, attending selectively to and processing nonverbal information from others is also adaptive. Although much of our sending and receiving is relatively automatic, not all of it is, and changing circumstances can require considerable cognitive effort in social settings. The parallel process model frames the encoding and decoding processes of nonverbal communication in a single system, driven by a common set of determinants and mediating processes. The next section discusses the basic structure of the model and Figure 2.2 provides an illustration of the linkages among the determinants and processes in the model.

#### OVERVIEW OF THE PARALLEL PROCESS MODEL

*Determinants.* The determinants in Figure 2.2 (left side) identify the most important, though not the only, factors affecting the sending and receiving of nonverbal communication. These determinants constrain our habitual ways of communicating. That is, the effects of biology, culture, gender, and personality predispose us to communicate in a relatively consistent fashion over time. *Biology* also reflects the role of evolutionary pressures in shaping adaptive, hardwired patterns of communicating with others (see Buck & Renfro Powers, this volume, this volume; Floyd, this volume). For example, the positive, nurturing response to the baby-face appearance of infants is advantageous to their survival (Zebrowitz, 1997, chap. 4). Special sensitivity to facial expressions as signals of interpersonal intent may also be the product of natural selection (Fridlund, 1994; Fridlund & Russell, this volume).

Although natural selection has left us with some common, adaptive patterns of communication, culture, gender, and

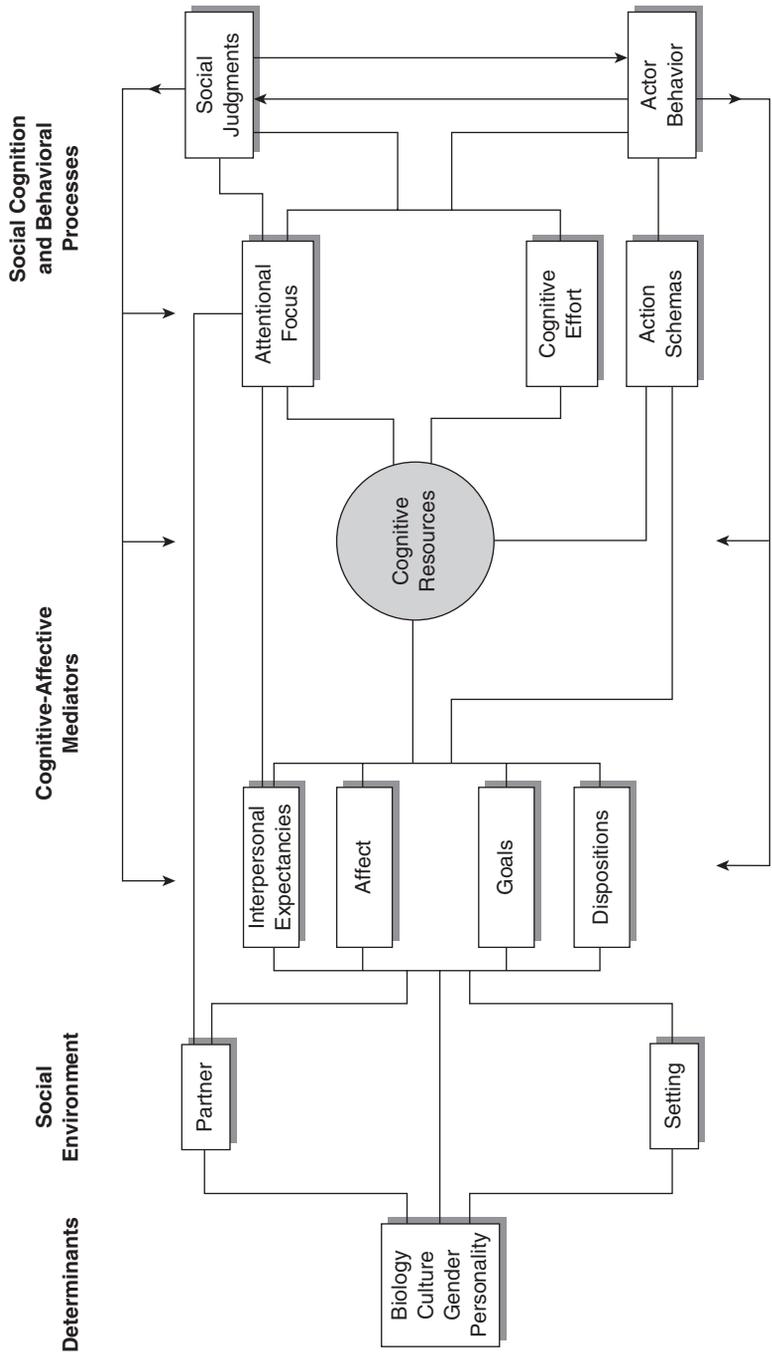


Figure 2.2 An Illustration of the Parallel Process Model of Nonverbal Communication

personality introduce increased variability in communication. For example, even though there is some degree of universality in expressive reactions, differences across *culture* are also evident (Elfenbein & Ambady, 2002; Russell, 1994; see also Matsumoto, this volume). Next, the effect of *gender* might be seen as the joint product of biology (the hardwired patterns) and culture (societal norms) in shaping patterns of nonverbal communication (see Hall, this volume). Finally, individual differences in *personality* also contribute to contrasting styles of nonverbal communication (see Gifford, this volume). Thus, the combined effects of the determinants produce both basic commonalities and differences in nonverbal communication.

*Social Environment.* Because the determinants also affect our choices of social environments, they have another, indirect influence on nonverbal communication, as seen in the second stage of the model. Interactions occur with specific partners in particular social settings. Because we interact differently with different people and in different settings, the social environment constrains our patterns of nonverbal communication. Just as we select settings, so do settings select us: I like to play golf, but the exclusive country clubs in St. Louis have little interest in having me as a member, even if I could afford to join them. The combined effect of self- and setting-selection processes results in greater homogeneity among people in most settings (Barker, 1968; Wicker, 1979). In turn, this increased similarity among people in specific settings not only facilitates greater accuracy in making social judgments of others (Funder, 1987; Swann, 1984) but also facilitates behavioral coordination in interactions.

*Cognitive-Affective Mediators.* The determinants and the social environment set the

context for interaction, but the cognitive-affective mediators are the processes that guide the course of communication. *Interpersonal expectancies* affect the social judgment and behavioral processes in nonverbal communication simultaneously. For example, expectancies can create a self-fulfilling prophecy in which actors' own behavior facilitates the behavior expected of a partner, without the actors' awareness of their role in the process (Rosenthal, 1974). Nevertheless, a partner's subtle appearance cues or behavior can also signal underlying dispositions (Jussim, 1991; Zebrowitz & Collins, 1997), resulting in an accurate judgment and not a self-fulfilling prophecy. *Affect* is a product of an individual's momentary disposition and goals, his or her relationship to the partner, and the setting constraints. Affect can influence both the formation of social judgments (e.g., Alloy & Abramson, 1988) and the patterns of nonverbal involvement, as seen in the early theories reviewed in this chapter. *Dispositions* refer to actor states precipitated in a specific social environment. The more obvious dispositions are linked to actors' personality characteristics (see Gifford, this volume). For example, the experience of social anxiety in a particular interaction can lead to decreased involvement (larger interpersonal distances and decreased gaze) and can affect social judgments adversely (Patterson & Ritts, 1997). *Goals* may be the most important of the mediators because they are the cognitive representations of desired states for which people strive (Berger, Knowlton, & Abrahams, 1996). Furthermore, goal-directed behavior, and even the goals themselves, can be activated automatically (Bargh & Chartrand, 1999).

The final mediator in the model, *cognitive resources*, refers to the total cognitive capacity available for managing our everyday activities. In social interactions, cognitive resources may be focused on a wide variety of concerns. For example, people

might be preoccupied with personal problems, financial difficulties, or looming deadlines even as they are having a conversation at work. Because the total pool of cognitive resources is limited, the investment of substantial resources in matters outside of the interaction necessarily means that there is less that can be applied to the sending and receiving of nonverbal messages. In addition, whatever resources are committed to the immediate social situation can be variously distributed toward the self, the partner, the setting, or the topic of conversation.

*Social Judgment and Behavioral Processes.* The interaction processes are in the final stage of the model, with the social judgments represented in the top of Figure 2.2 and behaviors in the bottom half. Consistent with a functional approach, both social judgments and behaviors operate in concert for a common goal. Although each “track” can engage substantial cognitive effort, they typically operate on automatic. For example, on the social judgment “side,” simply noticing an outgroup person may be sufficient to activate a stereotypic judgment (Bargh, 1989). On the behavioral “side,” the cognitive representation of a particular goal, such as trying to impress another person, can be sufficient to trigger an automatic behavioral script. A particular goal, however, not only directs an actor’s behavior but also directs the kinds of judgments made about the partner. For example, an actor trying to make a positive impression is more focused on metaperspective judgments (e.g., What does she think of me?) than on direct perspective judgments (e.g., What kind of person is she?). Thus, social judgment and behavioral processes operate typically on automatic as they complement each other in the pursuit of particular goals. The next section takes a closer look at the conditional links among selected component processes in this model.

#### *DYNAMICS OF PARALLEL PROCESSING*

*Goals.* A basic assumption underlying the parallel process model, and one consistent with the earlier functional model, is that communication is adaptive and goal oriented. In social settings, people read their social environments (decoding) and send nonverbal messages (encoding) simultaneously to others around them in the pursuit of particular goals. Although specific goals guide the operation of the parallel encoding and decoding processes, this does not mean that people must be consciously aware of the goals they are pursuing. Sometimes goals are triggered automatically and outside of awareness by the social environment (Bargh, 1997).

The relationship between the social judgment and behavioral processes in securing a particular goal is a complex one. Although it is assumed commonly that an actor’s social judgments at Time 1 direct the actor’s behavior at Time 2, specific goals can alter this sequence. Sometimes behavioral strategies may be initiated to test social judgments. That is, an individual might “float a trial balloon” to get a reading of a partner’s sentiment on a particular issue without making a direct inquiry. For example, in dating relationships, one person might escalate behavioral intimacy to determine the partner’s readiness for a romantic relationship. Another behavioral strategy might be playing hard to get as a means of testing a partner’s interest and commitment. In addition, actors’ scripted behavioral routines may operate independently of their social judgments of their partners (e.g., being pleasant to the disliked boss), consistent with a functional view of nonverbal communication.

Although the specific goals that drive nonverbal communication can vary widely, most people are also constrained by two broader metagoals (Berger, 1997, chap. 2).

First, we tend to pursue our communication goals in an *efficient* manner, minimizing effort. Fiske and Taylor (1995, chaps. 4–7) characterize perceivers as “cognitive misers” as they make judgments of others. Second, most people employ the behavioral strategies that are *appropriate* and follow social norms and customs (Berger, 1997, chap. 2). Thus, people typically take the path of least resistance and avoid calling undue negative attention to themselves.

*Social Judgments.* In general, research indicates that most initial social judgments happen more or less automatically, often outside of conscious awareness (e.g., Bargh, 1994; Brewer, 1988; see also Lakin, this volume). When the information about others (i.e., appearance and behavior) is ambiguous or inconsistent, considerable cognitive effort might be engaged in resolving a final judgment, but only if the perceiver is motivated to do so (Gilbert et al., 1988). Nevertheless, more is not always better when it comes to cognitive effort in making judgments. Rapid judgments from “thin slices of behavior” are, more often than not, accurate (Ambady & Rosenthal, 1992), and increased cognitive effort can even lead to more errors in judgment (Patterson & Stockbridge, 1998; Wilson & Schooler, 1991). When additional reflection is needed in making a judgment, it is possible only when there are sufficient cognitive resources available to the individual. If a person is distracted, worried, tired, or investing considerable effort in managing behavior, then corrections to an initial judgment are unlikely. Thus, the initial automatic judgment will dominate.

*Social Behavior.* Sending nonverbal communication, like receiving it, engages a variety of processes (from relatively automatic to more controlled). On the automatic end, our behavioral repertoire encompasses a wide range of basic, hardwired patterns of

approach and avoidance that have undoubtedly been selected over the course of evolution. These would include expressive reactions that signal a person’s intended course of action (Fridlund, 1994; see also Fridlund & Russell, this volume). Automatic patterns of increased involvement (e.g., close approach, gaze, and touch) might be activated in response to increased attraction or a need for comforting and supporting another person. In contrast, decreased involvement or behavioral avoidance may be precipitated by dislike, fear, or embarrassment. Besides the hardwired, affect-driven patterns, other patterns become automatic over time as a function of experience and learning. For example, most of us learn over time how to “make a good impression” when there is a lot at stake. The cognitive representations of these automatic sequences may be described as action schemata (see Figure 2.2, bottom) and can be initiated with little or no cognitive effort (Abelson, 1981; Vallacher & Wegner, 1987).

Another way to conceptualize the dynamics of behavioral processes is in terms of potentially competing response systems—that is, automatic versus controlled. Metcalfe and Mischel (1999) proposed such an approach in their “hot/cool system analysis” of the conflict involved in the delay of gratification. The “hot” response is the automatic approach to immediate gratification, which is initially under stimulus control (Metcalfe & Mischel, 1999), like Bargh’s (1997) automatic actions. The hot system develops early and is simple, reflexive, and emotional in nature, like the affect-driven reactions discussed in the early theories in this chapter. In contrast, the “cool” response is a product of self-control. The cool system develops later and is more complex, reflective, and cognitive in nature. Strack and Deutsch (2004) proposed a model similar to the hot/cool system that engages both reflective and impulsive

processes as determinants of social behavior. Specifically, the reflective system is based on knowledge about facts and values, whereas the impulsive system is based on associative links and motivational orientations (Strack & Deutsch, 2004). The predictions of both theories are consistent with the dynamics of the parallel process model—that is, stress and the lack of cognitive resources increases the probability of automatic actions and decreases the probability of controlled or effortful actions.

*Coordinating Parallel Processes.* The dynamic relationship between the parallel social judgment and behavior processes is constrained first by the influence of the determinants (biology, culture, gender, and personality) and the social environment (see Figure 2.2). Thus, we all come into particular settings with some stable tendencies in social judgments and social behavior. Automaticity in social judgments and behavior usually works well enough in navigating our social environments (Bargh, 1997), but it also provides another advantage: cognitive efficiency. Automatic processes do not, however, always work. When more controlled judgments and behavior are required, an individual needs to have the available cognitive resources and be motivated to apply those resources. If a person is stressed, cognitive resources are minimal, and controlled judgments and behaviors have low strength, then automatic judgments and behaviors will still tend to dominate.

What happens when we fail to achieve our specific goals? If we are sufficiently motivated, the feedback process can lead to adjustments in expectancies, affect, dispositions, and even the goals themselves (see Figure 2.2). Unless appropriate automatic adjustments are accessible, the subsequent recycling through the parallel processes requires additional resources and effort to activate more controlled processes.

Although the application of cognitive resources in reconsidering a faulty judgment, or in monitoring and managing behavior, may be effective, there is no guarantee that this will be the case. Additional adjustments may be required or individuals may simply terminate the interaction. Across interactions, the residual and cumulative effects of previous encounters shape subsequent goals, expectancies, affect, and dispositions.

### ◆ *Conclusion*

This chapter has traced the evolution of interaction theories from Argyle and Dean's (1965) equilibrium theory to the parallel process model of nonverbal communication (Patterson, 2001). As someone invested in these developments for more than three decades, it seems to me that there are some discernible trends over time. The early theories were reactive in nature, explaining and predicting behavioral adjustments given a partner's initial behavior. These theories differed in terms of the specific mediating processes, but they all emphasized a person's affective reaction as the proximate determinant of compensatory or reciprocal adjustments to a partner's nonverbal behavior. Although the early theories dealt only with reactive adjustments and did not appreciate that strategic adjustments may well be inconsistent with the underlying affect, they did offer specific, testable predictions.

In contrast, the functional model (Patterson, 1982) and interpersonal adaptation theory (Burgoon et al., 1995) moved away from simple reactive processes and emphasized that nonverbal adjustments are adaptive. That is, nonverbal patterns are shaped by different functions in different settings. Thus, people are agents not only

reacting to others but also initiating behavior with specific ends in mind. Both theories also recognized that determinants such as biology, culture, gender, and personality shaped the course of interactive behavior. Although these theories painted a more representative picture of the complexity of interpersonal behavior, they did so at the expense of specific, testable predictions, characteristic of the earlier theories. Around the same time—that is, during the 1980s and 1990s—the burgeoning research in social cognition provided new and interesting insights into the dynamics of social judgments. Although their perspective was different, social cognition researchers were actually studying the decoding or receiving side of nonverbal communication.

I developed the parallel process model as a means of integrating two separate research paradigms—one focusing primarily on the behavioral processes and the other on the social judgment processes of nonverbal communication—into a unified theoretical framework (Patterson, 2001). Consistent with the increased appreciation of automatic behavioral and social judgment processes (Bargh, 1997), the parallel process model emphasizes the efficiency and utility of automatic processes in negotiating our social environments. Some interactions, however, require the initiation of controlled processes, possible only when there are adequate cognitive resources and the motivation to apply them. Thus, the actor in the parallel process model maintains a delicate balance between behavioral and social judgment processes, typically operating on automatic, in the service of specific goals. I think that the dynamics of the parallel process model are a closer approximation of the complexity of interactive behavior than those in previous theories, but I have no illusion that this is the final word on the topic.

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