CHAPTER 5

To What Extent, and under What Conditions, Are First Impressions Valid?

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On November 12, 2004, a 12-person jury in Redwood City, California, found Scott Peterson guilty of killing his pregnant wife, Laci. A month later, they recommended that Peterson receive the death penalty for his crime. How did the jury come to these conclusions, and what evidence did they weigh most heavily? There was a lack of physical evidence tying Peterson to the killing of his wife and unborn baby. Instead, the jurors relied on a web of circumstantial clues—including Peterson's demeanor during the trial. They noted that in the course of 6 months of graphic testimony Peterson only cried "once or twice." They referred to his "blank stare" and his failure to show an "expression of caring." One juror explained her decision to recommend the death penalty in this way: "For me, a big part of it was at the end, the verdict—no emotion, no anything. That spoke a thousand words" (CNN.com, 2004).

The jurors made, quite literally, a life-or-death decision about Peterson. But in the course of everyday life, we all make important decisions about other people. Like the jurors in the Peterson case, we form impres-

sions of people's personal character, motives, emotions, and capacity to deceive, and we take note of the state of their relationships with other people. And like the jurors, in forming all of these impressions we pay a great deal of attention to nonverbal behavior. How accurate are these impressions, and what conditions improve or diminish our accuracy? The goal of this chapter is to survey the literature and attempt to provide answers to these questions.

The relative accuracy of interpersonal perceptions is hotly debated in the field of social psychology. On one hand, some scholars point to common errors in social judgment and conclude that, overall, first impressions are generally inaccurate. Demonstrations of the "fundamental attribution error" reveal that when behavior is shaped entirely by situational forces, perceivers will still attribute that behavior, in part, to stable dispositions (e.g., Jones & Harris, 1967; Ross, Amabile, & Steinmetz, 1977). However, other scholars suggest that in everyday interactions this "error" may actually allow perceivers to function quite effectively (Krueger & Funder, 2004). For instance, people more prone to making the fundamental attribution error tend to be more socially engaged and competent as well as more emotionally well adjusted and satisfied with their lives (Block & Funder, 1986). Block and Funder (1986) suggest that in most real-life situations attributing behavior to a mixture of *both* dispositional and situational forces may well be an appropriate strategy of inference. Another common error of social judgment is egocentrism, the tendency for perceivers to falsely assume that others share their knowledge, preferences, and attitudes (e.g., Keysar, Ginzel, & Bazerman, 1995; Ross, Greene, & House, 1977). But, like the fundamental attribution error, egocentrism may be beneficial in real-life relationships when people *do* have similar knowledge, preferences, and attitudes (e.g., Murray, Holmes, Bellavia, Griffin, & Dolderman, 2002).

Clearly, the question of whether interpersonal perceptions are generally accurate or inaccurate is a complex one. I suggest that, in addition to considering accuracy and other *outcomes* of social judgments, it may be fruitful to also consider the mental *processes* that produce judgments. This could be accomplished by considering the conditions under which judgments are rendered more or less accurate. In this chapter, I discuss relative levels of accuracy in first impressions of personality, thoughts, feelings, capacity to deceive, and social relations. For each, I review two kinds of moderators of accuracy: information-level factors (characteristics of stimuli that tend to foster or inhibit accuracy) and person-level factors (characteristics of particular judges that render them especially accurate or inaccurate).

I begin with personality. Perceivers are clearly prone to use personality to make sense of behavior. It seems important to ask, therefore,

how accurate are perceptions of personality, and what conditions foster or impair accuracy?

PERSONALITY

The ability to gauge an individual's personality quickly and on the basis of limited information is of critical importance. Consider the job interview, the blind date, or the first meeting with a potential roommate. In each of these situations, the validity of early impressions has lasting consequences for a perceiver's ability to create positive relationships. Forming impressions of personality traits occurs spontaneously, without intention or even awareness (e.g., Uleman, Newman, & Moskowitz, 1996). But to what extent are these impressions valid?

In order for researchers to establish the base rates of accuracy in personality judgments, they must tackle the thorny issue of defining accuracy in the context of such an intangible construct. As outlined by Kruglanski (1989), there are at least three ways to define accuracy. First, one could access the degree of correspondence between a judgment (such as a perceiver's impression of personality) and a criterion (such as a target's self-assessment of personality). Alternatively, one could access interpersonal consensus: the degree to which perceivers independently come to the same conclusion regarding a target's personality. A third option is to somehow measure the pragmatic utility of a judgment—such as whether a personality judgment accurately predicts a target's behavior in a given situation. The majority of researchers in this area have chosen to adopt the first or second criterion.

Using the first criterion, researchers have highlighted the ease with which judgments can be made about enduring personality traits. In perhaps the first study of its kind, Estes (1938) compared perceivers' impressions of personality with targets' self-reported assessments. After viewing 2-minute film clips of people engaged in expressive movement, perceivers formed valid impression of emotionality, inhibition, and apathy. Half a century later, Borkenau and Liebler (1992) systematically examined accuracy in perceptions of the five factors believed to summarize individual differences in personality (extraversion, agreeableness, conscientiousness, neuroticism, and openness; McCrae & Costa, 1987). Perceivers viewed 90-second video clips of targets performing standardized behavior. Their perceptions of extraversion and conscientiousness showed the highest correspondence with self-assessments; correlations were 0.42 and 0.25, respectively. Neuroticism, agreeableness, and openness were less well judged. Concerned with the use of self-assessments as the sole criterion for accuracy, Borkenau and Liebler (1993) also asked targets'

romantic partners or family members to provide descriptions of targets' personality. When these informant reports were used as the criterion for accuracy, extraversion and conscientiousness again emerged as the most discernible traits.

Some researchers have called for the use of more naturalistic paradigms in the study of accuracy in personality assessment. For instance, Kenny, Horner, Kashy, and Chu (1992, p. 96) suggested that researchers should "move back and forth between controlled laboratory ratings and more naturalistic interactions between people" in order to develop a more complete picture of accuracy in personality assessment. Recently, Gray and Ambady (2006) examined the accuracy of personality impressions stemming from naturalistic interactions. This experiment consisted of several phases. First, upon entering the lab, participants were led into a small room and were asked to view scenes from popular movies. After the scenes ended, an experimenter entered the room and explained that the materials needed for the next phase of the study were not yet available. The experimenter then sat down and engaged the participant in a short conversation about college courses, life on campus, and plans for the upcoming summer break. After about 5 minutes, the experimenter left the room and returned with a surprise task: the challenge of describing the experimenter's personality, solely on the basis of the previous 5-minute conversation. Accuracy was defined as the degree of participants' correspondence with self-reports and with reports provided by knowledgeable informants (the experiments' close friends and family members). Results revealed that participants' reports showed a high level of correspondence with these criteria; average correlations for extraversion, agreeableness, conscientiousness, and neuroticism were all above 0.64. Participants had much more difficultly inferring openness; the average correlation for this domain was only 0.18. Results also revealed that participants' impressions tended to overlap more with those provided by the experimenters' close friends (average correlation = 0.65) and less with the experimenters' self-assessments (average correlation = 0.51). This suggests that during the brief conversation the experimenters expressed a "version" of themselves—in their verbal statements, facial displays, and countless other channels of communication—that was most similar to the one they show their close friends.

Another stream of research has adopted Kruglanski's (1989) second criterion for accuracy. The conclusion, at least at this point, is again optimistic: unacquainted judges can exhibit a surprisingly high degree of consensus in their impressions of a stranger's personality. In an early study, Norman and Goldberg (1966) examined consensus in judgments of personality as a function of acquaintance. They found that, although consensus increased with increased exposure, consensus at "zero ac-

quaintance" was not zero. In other words, independent perceivers show some agreement regarding a target's personality even in the absence of interaction with that target.

Several years later, Albright, Kenny, and Malloy (1988) followed up on this work. They, too, gave perceivers no opportunity to interact with the target of their judgment. Therefore, in order to make personality judgments, they were forced to rely primarily on physical appearance. Albright and colleagues (1988) reasoned that consensus at zero acquaintance would result from the use of shared implicit theories about the link between observable physical appearance characteristics and underlying personality (for example, that good grooming and neat clothing are valid signs of conscientiousness). Results largely supported this hypothesis: on two dimensions of personality—extraversion and conscientiousness—a significant proportion of variance in perceivers' impressions (41% and 25%, respectively) was due to the stimulus target.

Many potential moderators of accuracy in personality judgment have been identified. One information-level moderator concerns the type of personality trait being judged. Across many studies, extraversion has emerged as the facet of personality that is most easily judged by naive observers (Albright et al., 1988; Borkenau & Liebler, 1992, 1993; Kenny et al., 1992). What makes this factor so transparent? Funder and Dobroth (1987) found that the behaviors that express extraversion (e.g., being cheerful and talkative) tend to be revealed relatively directly in social behavior, whereas the behaviors that express other traits, particularly neuroticism and openness, are much less visible. In most social situations, it is easy to determine whether someone is socially poised and gregarious; it is much more difficult to assess the tendency to daydream or experience anxiety. In some special situations, however, these less transparent traits begin to emerge more clearly. For instance, situations that express relative levels of creativity and cognitive complexity—like discussing philosophical issues or musical preferences—reveal openness (Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004; Funder & Sneed, 1993; Rentfrow & Gosling, 2006).

Another stream of research has examined how much information is necessary for forming an accurate impression of personality. Although research into this question has yielded a complex pattern of results, it *is* clear that with increasing acquaintance comes increasing accuracy—at least when self-assessments are used as the gold standard (Bernieri, Zuckerman, Koestner, & Rosenthal, 1994; Biesanz, West, & Millevoi, 2007; Paulhus & Bruce, 1992). This probably results from increased exposure to the target person in a range of diverse environments. However, although our naive intuition that increasing exposure yields increased accuracy may be correct, it is also true—as revealed by the zero-

acquaintance paradigm—that perceivers can be surprisingly accurate in their impressions even without the benefit of direct interaction. In a meta-analysis of the accuracy of predictions of a wide range of outcomes, Ambady and Rosenthal (1992) found that impressions formed after very brief observations were as accurate as those based on 5-minute observations. They attributed this finding to the fact that personality is often revealed in very "thin slices" of expressive behavior (see also Colvin & Funder, 1991; Funder & Sneed, 1993). And, as demonstrated by Gosling, Gaddis, and Vazire (see Chapter 14), a surprising amount of information about personality is revealed solely in the environments we construct—whether real or virtual.

Another exciting line of inquiry concerns the extent to which temporary changes in the perceiver's cognitive orientation influence the ability to infer personality. For instance, early on, Estes (1938) speculated that judges were most successful in forming impressions of personality when they relied on relatively effortless thinking. Ambady (2001) directly tested this notion by asking some participants to deliberate carefully before producing their judgments. In line with Estes's early speculation, participants who were asked to deliberate carefully produced less valid assessments than did those who were allowed to use their "gut reactions." This suggests that in some cases relying on cognitive strategies that are not consciously mediated may facilitate accuracy.

Motivation also influences accuracy. People who are more highly motivated to understand others often produce more accurate judgments of personality, probably because they behave in ways that make their interaction partner feel more comfortable in divulging relevant cues to personality (Letzring, Greve, & Funder, 2005). Somewhat paradoxically, sad mood may have the same effect. In the Gray and Ambady (2006) study discussed above, the film clips participants viewed during the first phase of the study were actually used to induce either sadness or a relatively neutral mood. Those who viewed sad clips and were therefore more sad than usual during the conversation with the experimenter subsequently produced more valid first impressions. As displayed in Figure 5.1, this pattern extended to all five facets of personality judged. Why did sad mood have a beneficial impact? It appears that sadness increases the motivation to form and maintain social connections (Keller & Nesse, 2005).

To summarize, perceivers spontaneously form impressions of personality, and these impressions—even when based on very minimal information—are surprisingly accurate. At the same time, situational and person-level factors help to shape accuracy levels. People who rely on their "gut reactions" when forming impressions tend to be more accurate, as do those who have the skill to draw out more diagnostic infor-

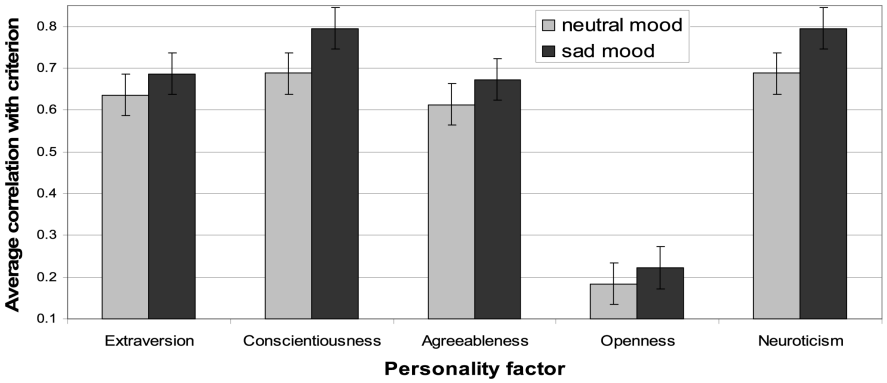

FIGURE 5.1. Accuracy in personality judgments as a function of the mood state of the perceiver and the personality factor being judged. Bars represent standard error of the mean.

mation from their interaction partners. Accuracy generally increases with exposure and acquaintanceship, but expressive behavior reveals a great deal even in small doses.

There are substantial benefits to forming valid first impressions of personality. People who are successful in this endeavor are granted the ability to predict a wide range of behaviors, including job performance (Barrick & Mount, 1991; Thoresen, Bradley, Bliese, & Thoresen, 2004), suitability as a spouse (Botwin, Buss, & Shackelford, 1997), and even preferred tactics of manipulation (Buss, 1992). However, the roots of behavior go beyond personality traits. Behavior is also governed by relatively transient constructs. In the next section I focus on whether and when perceivers can infer two such constructs—thoughts and feelings.

THOUGHTS AND FEELINGS

About 2 million years ago, the brain size of our hominid ancestors began to increase exponentially. Because brain tissue is metabolically very expensive, this dramatic growth likely served an important purpose. At around the same time in our evolutionary history, people began living in larger, more complex, groups. The social brain hypothesis (Dunbar, 1998) links these two events: it suggests that our large brains reflect the computational demands of life within complex social groups.

We use the computational capacity afforded by our big brains in the service of sophisticated social skills, including deception, deception detection, and forming coalitions. These skills require mind reading: the

capacity to recognize that other people have mental states—like thinking, believing, and wanting—that are different from one's own and that do not necessarily reflect reality. Mental states must be inferred on the basis of external cues such as facial expressions, because they are not directly observable (Siegal & Varley, 2002). Because people act on their *beliefs* about the world—rather than the true state of the world—perceiving mental states is crucial for predicting behavior.

The frequent need for mind reading could easily place an overwhelming demand on our limited supply of cognitive resources. However, recent research has established that perceivers can form inferences about mental states without usurping cognitive resources. Specifically, perceivers make inferences about goals and intentions unintentionally, without awareness, and in the absence of experimental instructions (Hassin, Bargh, & Uleman, 2002; Hassin, Aarts, & Ferguson, 2005). Upon seeing Jane chasing a taxi, for instance, most perceivers would spontaneously conclude that Jane would like a ride—*not* that she is trying to get some exercise (Hassin et al., 2005). Perceivers are so hungry for this kind of information that they spontaneously ask and answer questions about what drives behavior (e.g., Heider & Simmel, 1944). Developmental psychologists have discovered that children begin to have "first-order beliefs" between the ages of 4–6 (Wimmer & Perner, 1983). That is, they begin to understand that other people have their own distinct mental representations of the world (e.g., "John thinks that the toy is in the box").[1] A few years later they begin to develop competence in understanding second-order, or embedded, beliefs (e.g., "John thinks that Mary thinks the toy is in the box"). These kinds of inferences underlie much of our sophisticated social reasoning and behavior.

Although most individuals succeed in complex mind reading by the time they are school-age, some disorders, including autism, disrupt the development of competence. Individuals with autism show a selective impairment in the ability to use nonverbal behavior, particularly eye movements, to infer mental states (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). Abnormalities in the neural network known as the "social brain" (which consists of the medial, inferior frontal and superior temporal cortices, and the amygdala) may be responsible for these deficits (Golan, Baron-Cohen, Hill, & Golan, 2006; Brothers & Ring, 1992). Whatever its cause, an ability to infer mental states makes the social world seem unpredictable and incomprehensible. Confusion and withdrawal likely contribute to the social impairment often apparent in autism spectrum disorders (e.g., Hill & Frith, 2003).

On the other hand, biological processes can sometimes *facilitate* the ability to infer mental states. Recognizing that the hormone oxytocin plays a key role in prosocial behavior and affiliation (e.g., Young &

Wang, 2004), and that affiliation results, in part, from having a clear understanding of social situations, Domes, Heinrichs, Michel, Berger, and Herpertz (2007) studied whether oxytocin facilitates the inference of mental states. Consistent with this hypothesis, Domes and colleagues found that a single dose of oxytocin substantially improved men's ability to interpret subtle facial cues to mental states. The authors speculate that oxytocin enhances the reward of social encounters, thus promoting the motivation to understand others and to engage in social interactions (Insel & Young, 2001). In sum, person-level biological factors can powerfully impact social connections by altering the motivation and knowledge necessary for reading minds.

Understanding others and predicting their behavior demands an accurate reading not only of their beliefs and other mental states but also of their feelings. Emotion recognition—the ability to identify subtle cues to affective states like sadness, happiness, and anger—is a necessary first step toward successful interaction (Custrini & Feldman, 1989). The bulk of reliable information about emotional state is transmitted through nonverbal cues, particularly facial displays and vocal tone (Nowicki & Duke, 2001).

Skill in interpreting these signals confers the ability to avoid life-threatening situations and discover opportunities for growth and joy. It is not surprising, therefore, that most healthy adults are experts in emotion recognition from the face (e.g., Isaacowitz et al., 2007) and the voice (Johnstone & Scherer, 2000). Our expertise is endowed: researchers have identified biologically programmed systems that govern the automatic and effortless recognition of emotional displays (e.g., Dimberg, 1997; Dimberg, Thunberg, & Elmehed, 2000; Whalen et al., 1998), and the so-called "basic" emotions are recognized at above-chance accuracy across cultures, both literature and preliterate (Ekman, 1972; Izard, 1971).

As with mind reading, some factors do influence emotion recognition expertise. Person-level factors include age and health. Preverbal children depend entirely on nonverbal communication in order to interact with the social world. To aid in their survival, they can interpret facial signs of emotion as early as 3 months—even earlier if the emotion is expressed by the infant's own mother (for a review, see Walker-Andrews, 1997). Preschoolers can verbally label facial expressions of emotion at above-chance levels (e.g., Widen & Russell, 2003), but they do not acquire full proficiency until about age 10 (Walker-Andrews, 1997).

Adults with certain developmental disorders and psychiatric illnesses experience some of the same difficulties. Autism seems to present a particular challenge in recognizing sadness (Boraston, Blakemore, Chilvers, & Skuse, 2007), and people with schizophrenia (Feinberg,

Rifkin, Schaffer, & Walker, 1986), social anxiety (Montagne et al., 2006), and depression (Feinberg et al., 1986) all struggle with both emotion recognition and social adjustment. The neural systems that underlie emotion recognition may be abnormal in persons with these disorders.

One information-level moderator of emotion recognition is the match, in terms of cultural group membership, between the target and the perceiver. Although there is evidence for cross-cultural recognition of emotions (e.g., Ekman, 1972; Izard, 1971), it appears that emotional expressions may lose some of their meaning when translated across cultural boundaries. In a meta-analysis of the available data, Elfenbein and Ambady (2002) found that emotions tend to be more accurately understood by perceivers who are members of the same national, ethnic, or regional group as the individual who expressed the emotion. Subtle variations in expressive style and underlying emotion concepts may be responsible. Elfenbein and Ambady (2002) specifically point to culture-specific elements of emotional behavior that must be learned, mostly by growing up in the culture but also through exposure to the culture via television or other mediums.

To summarize, we generally develop an expertise in inferring mental and emotional states by late childhood, and for good reason. Understanding others' thoughts and feelings is essential to understanding the social world and building vital social support systems. However, biological events can influence the activation of the neural systems that are dedicated to these tasks, thus impairing or facilitating accuracy. Less drastic changes to the nature of the available stimuli, such as the cultural group membership of the target, produce more subtle effects on accuracy.

Although I have discussed mental state and emotional state attribution separately, perceivers spontaneously form inferences of both thoughts and feelings (Ickes, Stinson, Bissonnette, & Garcia, 1990). Next, I explore what happens when targets actively try to hide their true thoughts or feelings. How effective are their attempts to mislead perceivers, and under what conditions can perceivers accurately detect lies?

DECEPTION

Lying is a ubiquitous part of social life. As DePaulo and colleagues (DePaulo, Kashy, Kirkendol, Wyer, & Epstein, 1996) note, most lies are relatively harmless, told in order to avoid friction and maintain harmony in relationships. "Little white lies," including those about the attractiveness of a friend's new haircut, are good examples. Other lies, however, are less innocuous. Consider the false denial of marital infidelity, or the deliberate misreporting of a company's assets. In these kinds of cases, the

successful deceiver can maliciously manipulate individuals and organizations in order to advance his or her particular self-interests. So, it seems reasonable to ask: how successful are perceivers in distinguishing truths from lies?

Unfortunately for the perceiver, it appears that skills in detecting deception lag behind skills in perpetrating deception. A growing body of literature—including at least 100 estimates of lie detection ability—finds that the typical perceiver often fails to detect lies. The average accuracy rate is 54%, only slightly better than that afforded by chance guessing (Bond & DePaulo, 2006).

Why are base rates of accuracy so low? There are several possible explanations. First, perceivers often fail to receive prompt and accurate feedback regarding their detection performance (DePaulo & Pfeifer, 1986). As a result, they cannot assess and refine their judgmental strategies. Second, detecting deception requires a lot of cognitive flexibility. One must gather all observable cues—from the verbal and nonverbal streams of behavior—and then reconsider this evidence in light of information about the deceiver's goals, pursuits, and personal character. Perceivers often find it difficult to step this far outside their own perspective (e.g., Keysar, 1994). And finally, the cues to deception may be too idiosyncratic for perceivers to develop a general judgmental strategy that applies to a whole group of targets. Over time, and with increased exposure, it may be possible to identify a close friend's deceptive behavior patterns by comparing behavior expressed during deception with behavior expressed typically; however, these behaviors may not apply to one's colleague or friendly acquaintance.

The relationship between the liar and the lie detector is indeed emerging as one potential moderator of accuracy in the detection of lies. In a longitudinal study, Anderson, DePaulo, and Ansfield (2002) examined how lie detection accuracy changes over the course of relationships. They recruited pairs of same-sex friends, measured perceived closeness, and asked one member to tell truthful and fabricated stories. The other member's job was to distinguish truths from lies. Overall, accuracy did not improve significantly over the course of 5 months. However, change over time was moderated by relationship closeness; close friends showed a substantial and significant improvement in lie detection accuracy (accuracy increased from 47% to 61%), but less close friends showed a small *decrease* in accuracy. The authors speculate that close friends are more motivated to learn to interpret cues to deception (and potentially many other internal states) more accurately over time.

One might expect expertise, experience, and formal training to bolster lie detection accuracy. On the contrary, in a meta-analysis of the literature, Aamodt and Custer (2006; see also Vrij, 1993; Vrij & Semin,

1996) found that "professional lie catchers" (such as police officers, detectives, judges, secret service agents, and parole officers) were no more accurate at detecting deception than were students and other citizens. The professionals had an average accuracy rate (56%) only slightly higher than novices (54%). It could be that formal training disrupts the normal ways in which we learn to recognize cues to deception. More specifically, formal training may focus our attention on "salient and plausible," but nondiagnostic cues (Wilson & Schooler, 1991, p. 182; Kassin & Fong, 1999).

By contrast, one particular group of individuals may be especially accurate in recognizing deception. According to Coyne's (1976) interpersonal model of depression, depressed people may be more sensitive than healthy individuals to a special class of deception: phoniness. According to the model, people struggling with depression are especially hungry for support and reassurance from others. Their appeals for support and reassurance are often met with a mixed reaction, a form of sympathy combined with irritation. A friend or family member may respond by professing a desire to help, but this verbal message may be combined with subtle nonverbal signs of hostility. The model states that depressed people can see through the false reassurances and become even more depressed, thus perpetuating the cycle. Consistent with this, Lane and DePaulo (1999) found that people with elevated levels of depression symptoms were *more* accurate than healthy controls at spotting false reassurances and phoniness. It is unclear whether increased sensitivity to insincerity is a cause or a consequence of depression, or some combination of the two.

When perceivers *do* successfully distinguish truths and lies, they rely heavily on streams of expressive behavior, including facial displays, gestures, and tones of voice. Are any of these channels particularly revealing of deception? Some work has explored this potential moderator of accuracy. Ekman and Friesen (1969) postulated a hierarchy of "leakiness," or uncontrollability. Verbal statements are believed to be the most controllable and therefore the least leaky channel of communication, followed by facial displays, gestures, and vocal tone. Vocal tone may be the leakiest channel of communication because the speaker's perception differs from that of the listener; because the voice sounds different to the speaker and the listener, the speaker has difficultly monitoring and modulating it (Ekman, 1992). Indeed, deception is easiest to detect from changes in the tone of voice (e.g., DePaulo, Lassiter, & Stone, 1982; Heinrich & Borkenau, 1998).

The bulk of research on deception detection comes from carefully controlled laboratory studies, when the liar's motivation to be successful may be minimal. However, in a meta-analysis of the literature, DePaulo

and colleagues (2003) examined whether the cues to deception become more transparent during "high-stakes" lies, when the liar has more motivation to be successful. Their analysis revealed that when liars are more motivated to succeed, they become tenser; specifically, they use less eye contact and a higher pitched voice. Similar results were reported by Mann, Vrij, and Bull (2004) in a study of people's behavior during real-life high-stakes situations, including police interrogations. It is as yet unclear whether this greater transparency during higher-stakes situations results in greater accuracy on the part of perceivers.

SOCIAL RELATIONS

Up to this point, I have discussed whether, and under what conditions, naive observers can glean insight into another individual's thoughts, feelings, and personal character. I have noted the utility of first impressions—how accurate judgments foster the ability to understand and predict an individual's behavior. Thoughts, feelings, and personal character are all constructs that exist *within* people. At the same time, it also is important for perceivers to understand constructs that exist *between* people (Bernieri & Gillis, 2001). Throughout our evolutionary history, we have had a basic need to make quick and accurate assessments of others' relationship patterns. This is essential for identifying, for instance, whether a certain group of individuals is forming an alliance that may be threatening to one's safety or resource availability. Even nonhuman primates show an ability to quickly scan the social environment and recognize relationship patterns (Cheney & Seyfarth, 1990).

Among humans, how observable are the signals to relationship type? Costanzo and Archer (1989) explored this question by presenting study participants with a series of short video clips portraying people interacting in a variety of natural situations. Participants were asked to answer interpretative questions about things like kinship (e.g., "Who is the child of the two adults?"), relationships (e.g., "Are these individuals friends or romantic partners?"), and status (e.g., "Which person is the other person's boss?"). No obvious clues to the correct answer were included in the video clips, and so accurate responses depended on a correct interpretation of available verbal and nonverbal cues. Average performance on this measure, the Interpersonal Perception Task, is well above chance levels (Costanzo & Archer, 1989). This suggests that perceivers can categorize relationship type with only minimal information at their disposal.

In addition to identifying the type of relationship people share, perceivers are also often faced with the task of making inferences

about the *quality* of people's relationships. Imagine being romantically interested in someone who is currently involved in another relationship. It would be important, in this case, to know whether that relationship is flourishing or faltering. Rapport is defined as the extent to which a relationship is pleasant, engaging, and harmonious (Bernieri & Gills, 2001). When two people feel rapport toward each other, they express it in their attention toward each other, the positivity of their behavior, and the coordination of their movements (Tickle-Degnen & Rosenthal, 1990).

How well can perceivers interpret these cues? Bernieri, Gillis, Davis, and Grahe (1996) explored this question by asking participants to view brief (50-second) video clips of opposite-sex strangers interacting. They asked the perceivers to infer the degree of rapport felt by the interaction partners, and they compared these responses with the interaction partners' own level of felt rapport. They also systematically coded a variety of nonverbal behaviors expressed during the conversations. Bernieri and colleagues (1996) first determined that a small subset of behaviors did reliably express interaction partners' level of rapport, confirming that a great deal of information is revealed in "thin slices" of expressive behavior (Ambady & Rosenthal, 1992). However, the outside observers did not appear to correctly use this information. Correlations between perceivers' and interactants' judgments of rapport were modest, averaging at 0.19 in one study and 0.35 in another. (In these studies, judgmental accuracy was considered to be greater than that expected by chance alone if it was above 0.28.) Why were the correlations so modest? The authors speculate that rapport, "defined as a relational variable between two or more individuals, may be too complex and difficult to perceive, assess, and quantify with a single number" (p. 123). While perceivers have little difficulty categorizing the type of relationship that two people share, they have trouble quantifying the quality of that relationship.

As with judgments of personality, mental states, emotional states, and deception, several factors moderate the ability to make valid inferences about social relations. In the rapport study discussed above, about a third of the perceivers achieved a level of accuracy significantly higher than chance (Bernieri et al., 1996). What separates these perceivers from their less accurate counterparts? Individual differences in some facets of personality may be involved (Bernieri & Gillis, 1995), although variation in perceivers' motivation to perform well likely plays a more substantial role. For instance, people who are more motivated to understand others—as reflected in higher ratings of social skill and competence—perform better on the Interpersonal Perception Task (e.g., Costanzo & Archer, 1989; Schroeder, 1995). On the other hand, people who are highly preoccupied with themselves and their perceived shortcomings

perform worse on the same task (Aube & Whiffen, 1996). Knowledge about social relations is also an important person-level moderator. People who have had advanced theatrical training score higher on the Interpersonal Perception Task, perhaps because their theatrical training sensitizes them to the meaning of particular gestures, facial displays, and vocal patterns (Bush & Marshall, 1999; see also Costanzo, 1992).

Information-level moderators of the ability to infer social relations have also been identified. In general, conditions that promote the expression of subtle nonverbal cues to rapport and relationship type will enhance accuracy. For instance, it is difficult to infer the level of rapport felt between two people when they are engaged in an activity that heavily constrains their behavior (Puccinelli, Tickle-Degnen, & Rosenthal, 2004). In these kinds of situations, behavior is governed more by social norms than by true feelings and beliefs. More diagnostic information is available in situations that do not constrain behavior. Diagnostic information is also more reliably expressed in nonverbal channels of communication. Using an early version of the Interpersonal Perception Task, Archer and Akert (1977) compared the performance among perceivers who viewed video clips or simply read transcripts of the conversations. Those who viewed video clips—and who therefore were exposed to dynamic facial displays, gestures, and other body movements—made more accurate judgments of relationship type.

CONCLUSION

When it comes to perceiving other people, we all make mistakes. We tend to project our own thoughts, feelings, and beliefs onto the canvas of another's mind. We often lack the motivation or ability to sufficiently adjust from this perspective, which results in impressions that are egocentrically biased. We can also be blind to the situational forces that shape other people's behavior, preferring to attribute that behavior to stable dispositions.

But along with these mistakes comes an ability to use available information—particularly in the form of facial displays, gestures, and other nonverbal cues—to infer states and traits that are not directly broadcast to us. Although perceivers may be biased toward attributing behavior to personality, their impressions of personality are often remarkably accurate (Ambady, Bernieri, & Richeson, 2000). With only a brief glimpse at expressive behavior, perceivers can determine to what extent another individual is generally extraverted or introverted, conscientious or careless. This accuracy extends to more fleeting states; starting even in infancy, perceivers develop an ability to read the non-

verbal signs of thoughts and feelings. Only when an individual actively tries to portray *deceptive* thoughts and feelings does our accuracy falter. And when it comes to impressions of social relations, we are adept at categorizing the type of relationship that other people share but not at describing—at least verbally—the quality of that relationship.

To better understand the wide range of moderators of accuracy, it may be helpful first to break down the process of social judgment into its component parts.[2] According to Funder's Realistic Accuracy Model (1995, 1999), there are four stages of social inference. First, the construct being judged must produce a behavioral effect. These behavioral effects are said to be *relevant* to the trait being judged. To use one of Funder's (1995) examples, the act of saving a family from a burning house is a dramatic example of a behavioral cue that is relevant to the trait of courageousness. Second, this behavior must be made *available* to the perceiver. Although the act of saving people from a burning house may be a highly relevant sign of courageousness, it is a rare occurrence, not ordinarily available for a perceiver to witness. Next, the perceiver must *detect* the relevant available information. If the perceiver is distracted or simply uninterested in witnessing an act of heroism, behavioral information that *is* emitted will not be factored into a first impression. Finally, the relevant, available, and detected cues must be *utilized,* or correctly interpreted. At this stage, the perceiver must decide whether the act of heroism is truly a sign of courageousness or the cynical attempt of a future politician to woo the news media.

The *information-level moderators* I have discussed in this review have their impact during Funder's first two stages of social inference. Regarding deception, high-stakes situations may increase a perceiver's ability to distinguish truth from lies, because they increase the tendency to produce relevant cues, such as decreased eye contact and a higher-pitched voice (DePaulo et al., 2003). All five facets of personality are associated with relevant behavioral cues, but the cues to Extraversion and Conscientiousness tend to be more readily available in typical social situations. As a result, perceivers are more adept at inferring these aspects of personality (Albright et al., 1988; Borkenau & Liebler, 1992, 1993; Kenny et al., 1992). The same is true for judgments of social relations. There are several behavioral signs of rapport, but situations that heavily constrain behavior do not present much opportunity for people to behave in ways that reveal their rapport. As a result, perceivers are less adept at judging rapport in these situations (Puccinelli et al., 2004).

The *person-level moderators* I have discussed have their impact during Funder's (1995, 1999) final two stages. In many cases, I have discussed factors that influence a perceiver's motivation to detect and interpret relevant and available cues. Sadness appears to make perceivers

more motivated to detect and interpret behavioral cues to personality (Gray & Ambady, 2006). By increasing the reward value of social encounters, oxytocin increases the motivation to understand other minds (Domes et al., 2007). Close friends are more motivated to learn to interpret each other's cues to deception (Anderson et al., 2002). Similarly, as compared to people who are highly self-involved, sociable people are more highly motivated to detect and utilize behavioral cues to social relations (e.g., Costanzo & Archer, 1989; Schroeder, 1995). Knowledge is another factor that has a widespread influence on detection and utilization. Formal training can bolster the ability to categorize social relations by providing information about behavioral signs of kinship and intimacy (Costanzo, 1992). On the other hand, it can impair the ability to detect lies by focusing perceivers' attention on cues that are not relevant (Kassin & Fong, 1999). Finally, autism, depression, schizophrenia, and other psychological disorders likely diminish interpersonal sensitivity by decreasing both motivation *and* knowledge. Feeling that the world is a confusing and hostile place must not encourage the motivation necessary for acquiring knowledge.

In sum, first impressions are sometimes accurate and sometimes inaccurate. Accuracy depends partly on the construct being judged, partly on the information available to the perceiver, partly on the perceiver's motivation and ability to understand others, and partly on a host of other factors not covered in this review. Research that explores *both* the outcomes and the process of first impressions—as exemplified in this volume—will set the stage for a deeper understanding of the accuracy of first impressions.

ACKNOWLEDGMENT

Preparation of this chapter was supported by a grant from the National Institute on Disability and Rehabilitation Research (U.S. Department of Education; Grant No. H133P050001).

NOTES

1. New research, using paradigms that do not rely on a child's ability to respond verbally to questions tapping belief attribution, suggests that mental state attribution may actually begin to emerge as early as age 1 (Surian, Caldi, & Sperber, 2007) or 2 (Southgate, Senju, & Csibra, 2007).
2. Funder's model primarily refers to the process of forming impressions of personality; this review applies it more generally to the process of social inference.

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