

Personality and Nonverbal Behavior: A Complex Conundrum

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"A Boldly Sketched Portrait of Albert Durer" [the portrait is at the end; this is the caption for it:]
"Whoever examines this countenance cannot but perceive in it the traits of fortitude, deep penetration, determined perseverance, and inventive genius. At least every one will acknowledge the truth of these observations, when made." Lavater, J. C. (ca. 1844). *Essays on Physiognomy*, translated by Thomas Holcroft, 4th edition, London (publisher unknown), text pp. 33-35, image and caption from Plate 1.

The nonverbal behavior of others is often used as a clue to their personality, but does it provide a valid key to personality, or does it only seem so? In this chapter, I review the connections between personality and nonverbal behavior. From Aristotle's time until today (e.g., Young, 1993), physiognomists have been certain they can accurately discern personality solely from a person's facial features, without even attending to any other bodily features or movements. The confidence expressed by famous physiognomists like Lavater turned to respectable scientific optimism in the 1930s. However, by the 1980s pessimism grew that personality is clearly encoded in nonverbal behavior or that personality could be decoded through nonverbal behavior. The pessimism was justifiably based on mixed and unsatisfactory research results. What appears to be a simple proposition—that nonverbal behavior and personality have simple or direct connections—actually is a very difficult problem with at

least ten types of complexity for researchers to manage. Nevertheless, some progress has been made in the last two decades, based mainly on adaptations of Brunswik's (1956) lens model and attention to the ten complexities. An exemplar study that deals with most of the complexities is described in some detail.

‘It is possible to infer character from features, if it is granted that the body and the soul are changed together by the natural affections...’ Aristotle, *Prior Analytics*, 350 BCE.

‘Has he not a rogue’s face? Speak brother, you understand physiognomy, a hanging look to me...’

William Congreve, *Love for Love*, 1695

A Short History

The idea that personal qualities are encoded in human physical features already was at least 100 years old when Aristotle wrote *Prior Analytics* about 2300 years ago. For centuries, physiognomy was assumed to be obvious and true.¹ According to one website, until the time of Henry VIII, its validity was so widely assumed that it was taught in many universities

(<http://www.answers.com/topic/physiognomy>, retrieved August 9, 2005). Writers such as William Congreve used and apparently accepted physiognomy as fact in the 16th and 17th centuries, as the quotation above suggests. The 18th and 19th centuries were dominated by the works of the Swiss theologian Johann Caspar Lavater, whose pronouncements about the psychological meaning of facial

¹This must have caused much undeserved pain to individuals who were cursed with faces deemed to have negative character indications.

differences were extremely popular. His books went through about 150 editions

(<http://www.newcastle.edu.au/discipline/fine-art/pubs/lavater/>, retrieved August 9, 2005). Nineteenth-century writers such as Balzac, Hardy, and Dickens frequently used physiognomic character descriptions in their novels.

The premise of physiognomy, that personality is encoded in the face, has been discredited for decades, in part because static facial features represent only a small part of a person's nonverbal impression on others. This discrediting has not prevented contemporary pop psychology writers (e.g., Young, 1993). From da Vinci's portrait of Mona Lisa, for example, Young divined that she was a liar, stubborn, a gifted abstract thinker with an IQ above average, greedy, an unreliable friend, and a sneak; that she would punish her enemies by any means and that she needed at least nine hours' sleep each night! However, unlike a painting, human faces are dynamic and they convey different dispositional impressions depending on the person's state. For example, when different emotions are experienced by an actor, different dispositions are inferred by observers (Montepare & Dobish, 2003).

The first important scientific study relevant to the present chapter was summarized in Allport and Vernon's (1933) groundbreaking monograph. Allport and Vernon did not attempt to relate nonverbal behavior to personality dispositions. Rather, they sought to find unity (or something close to it) *among* the expressive movements of their subjects. Their hypothesis, which appears to have been rooted in the Aristotelian proposition quoted earlier that one's whole body and personality are a kind of unity in which every aspect was mirrored in every other aspect. This view was championed by German psychologists such as William Stern, who profoundly influenced Allport. The purpose of the 1933 monograph was to demonstrate the existence of consistency among a person's expressive movements, which would, in the Aristotle-Stern sense, support the very construct and existence of personality. When Allport and Vernon were writing, personality was not widely respected construct in psychology,

and therefore in need of empirical support. Allport and Vernon's results showed promise, in that two clusters of expressive movements, one 'general' and one 'specific,' were found, albeit with lower-than-desirable reliability. The book was the basis for some optimism that personality and nonverbal behavior could be profitably studied.

Nevertheless, the Allport-Vernon book did not stimulate much new published research over the next three decades; only a few scattered studies may be found from the 1930s until the early 1960s. Perhaps the first modern study that would comfortably fit in this chapter was Ralph Exline's (1963) investigation of visual interaction in groups of men and groups of women who had been categorized in terms of their need for affiliation. He found that need for affiliation was related to mutual glances, but differently for men and women. Exline's study has the further distinction of recognizing that nonverbal behavior should be examined *within interacting groups*, rather than implicitly assuming that people express themselves nonverbally without reference to others, that is, always in the same way (cf. the physiognomists).

In the four decades since the mid-1960s, a number of scientific studies (although perhaps fewer than one might expect) have been conducted on the relations between nonverbal behavior and personality, but progress has been slow and fitful. Twenty years after Exline's (1963) study, reviewers were forced to conclude that the expression of personality in nonverbal behavior "cannot be said to be strongly supported by the evidence" (Bull, 1983, p. 113) and that "[i]n general, much of the research on personality correlates has shown...relatively weak relationships to nonverbal behavior..." (Heslin & Patterson, 1982, p. 131).

Recognizing the complexity of nonverbal behavior, Patterson (1995; this volume) developed his parallel processing theory, which posits that nonverbal behavior is a balance of behavior and social cognitive judgment processes, often automatic or overlearned, but sometimes under control and in the

service of a particular goal. Plausible as it is, the theory also is difficult to test empirically and, as Patterson (this volume, p. xxx) says, it was developed “at the expense of specific, testable predictions.” This chapter, then, while acknowledging the value of parallel process theory, focuses on the more modest, but more easily researched, social judgment portion of the process. As will be seen, there are plenty of complexities even within this limited portion of the whole.

Thus, at the beginning of the 21st century, considerable research remains to be done before the complex connections among personality, nonverbal behavior, and inferences about personality made by observers of others’ nonverbal behavior will be understood, let alone its behavioral aspects as outlined by parallel process theory. This chapter summarizes recent work and offers a paradigm that might accelerate progress in the social judgment portion of the problem. The paradigm might be considered a subset of the ambitious framework proposed by Patterson (1995) for understanding nonverbal communication in general.

Key Distinctions: Encoding, Decoding, Accuracy, and Agreement

Encoding is the outward, objective, visible manifestation of personal dispositions in nonverbal behavior will be called encoding. The fundamental hypothesis of researchers in this area is that valid encoding does occur. The crucial, and still largely unanswered question remains: how much encoding occurs, and for which dispositions? *Decoding* is the use by observers of nonverbal behavior to infer personal dispositions in others. There is no doubt that decoding occurs. The interesting question concerns the accuracy of that decoding, by different kinds of observers for different dispositions under different conditions. The wild card in this endeavor, however, is *accuracy*: How correct is decoding, that is, the valid inference of personality from nonverbal behavior?

Accuracy, in this sense, is problematic in two important ways: the validity of personality measures themselves, and the accuracy of decoders as they use nonverbal cues to detect the

dispositions of others. The validity problem is beyond the scope of this chapter, but suffice it to say there are problems with self-report measures as well as problems with ratings by significant others (cf. Funder, 2003; Kenny, 1994). Despite these problems, many researchers appear assume that the personality measure they use, usually a self-report measure, is valid. Because they can be multiple ratings, and thus have a psychometric edge, ratings by several significant others may be the least-worst approach to the validity problem.

The second main problem involving accuracy is this: How well do decoders detect the (true) level of a person's dispositions from the other's nonverbal behavior? In the typical study, decoding accuracy is measured as the discrepancy between the decoder's assessment of the disposition and the actor's self-rating (or the ratings of the actor's significant others). Given the uncertainty of self-ratings, and even those of significant others (Kenny, 1994), these assessments should not be granted the status of truth, or treated as the criterion against which observers' ratings are measured. Nevertheless, they certainly have some face validity: They are, after all, the views of the actors by the actors or those who know them well.

If the premise that even these assessments are fallible is accepted, it becomes unreasonable to tarnish any lack of agreement with these assessments on the part of other observers as a lack of achievement or error. The observer's assessment has its own inherent value as the view of another person after watching the actor's nonverbal behavior, with the advantage of some perspective, detachment, and often, objectivity. Thus, the two assessments of the disposition should be granted equal ontological status, and it is preferable to characterize any difference between the two assessments as a discrepancy rather than as observer error. In sum, neither the self's nor the observer's rating is necessarily valid, and the neutral term *agreement* should be used, rather than accuracy.

The decoding of personality is itself fraught with problems. Assessments of a person's

dispositions vary with the type of information given to the judge. For example, when judges in an interview study saw either a silent videotape of an interview with a manager (that is, only the nonverbal behavior), or read a transcript of the same interview (thus, no nonverbal behavior), the correlations between their assessments of the managers' extraversion and conscientiousness were $r = .27$ and $r = .30$ respectively; that is, they shared about nine percent of their variance (Motowidlo, Burnett, Maczynski, & Witkowski, 1996). Given that the overlap between the assessments was quite low, they cannot both be accurate. Which assessment was more accurate, that based on the manager's words, as written, or that based on the manager's wordless nonverbal behavior?

Ten Complexities

With these distinctions and clarifications made, a summary of current knowledge may be essayed. However, all the following findings are subject to a blanket cautionary note, because most studies have not dealt with all the complexities of encoding and decoding research. Researchers must manage (at least) ten complexities in their research designs and analyses. By "complexity," I mean a Type I or Type II errors in the relations between nonverbal behavior and personality that may occur if a researcher relies solely on a simple Pearson correlation, or fails to take into account one or more of the accuracy or agreement issues. Some complexities are familiar and some less so; some are easier to manage than others.

The first complexity is perhaps the most obvious, but published studies that overlook it have appeared. All the measures must have adequate internal consistency and interrater reliability. Ordinarily, this should be at least .75, but .80 or better is very desirable. Adjustments for error and apologies for lower levels of reliability sometimes are made, but they are not convincing. Although interrater reliability is a prerequisite for decoding validity, even that does not guarantee decoding validity (Kenny, 1991), as exemplified, for example, by (inaccurate) stereotyping.

The second complexity concerns the relevance of the disposition's domain to the context in which the nonverbal behavior occurs, that is, for example, examining interpersonal traits in interpersonal contexts. One should not reasonably expect conscientiousness, for example, to be strongly encoded in a casual conversation, but could reasonably expect extraversion to be strongly encoded in a conversation.

The third complexity involves the potential interference with encoding of situational factors. One such factor is mutual influence of interacting participants. Some writers have assumed that the presence of others will always affect the encoding for any individual (e.g., Kanki, 1985), but the effect of others can be tested with intraclass correlation analyses (e.g., Gifford, 1994), and sometimes the effect of others is found, empirically, to be minimal.

The fourth complexity relates to another aspect of the situation, the nature of the activity or interaction during which encoding is investigated. For example, individuals may not merely enact a given behavior (e.g., smiling) more or less frequently depending on context (e.g., at a party versus a funeral), but their encoding (the *correlation* with a given disposition, regardless of the *frequency* of the act) may differ with the situation. In a study that demonstrated this, dispositional public self-consciousness was encoded in hand movements differently when participants were lying than when they were telling the truth (Vrij, Akehurst, & Morris, 1997).

The fifth complexity is a matter of clear reporting more than a problem in itself. For example, in one study, neuroticism was correlated with touching the self more, fewer expressive gestures, and more gaze aversion (Campbell & Rushton, 1978). However, the first two encodings were based on a teacher's rating of the person's neuroticism, whereas the third encoding was based on a self-report measure of neuroticism. That is, the different assessments of neuroticism related to different nonverbal behaviors. Such results should be clearly reported as based on different measures of the disposition. In

a study that illustrated the problem of considering self-ratings and ratings by others to be equivalent, self-report measures of emotional expressiveness yielded different relations to a disposition (neuroticism again) than did rated behavioral assessments of emotional expressiveness (Riggio & Riggio, 2002).

A sixth complexity is that relations between personality and nonverbal behavior can differ with different combinations of traits. For example, individuals who are shy *and* sociable avert their gaze more and engage in more self-manipulation than others (Cheek & Buss, 1981), but this is not true of the other combinations (e.g., shy but *not* sociable persons). The value of the Cheek and Buss study lies in its demonstration that combinations of dispositions sometimes reveal more about encoding than individual dispositions do.

A seventh complexity is that dispositions can be encoded by a *group* of behaviors without any particular behavior doing so (Aries, Gold, & Weigel, 1983). Sometimes a pattern or profile of nonverbal behaviors must be measured before significant encoding (in their case, dominance) can be detected. Eighth, in the same study, the encoding of dominance occurred only in same-sex groups, not in mixed-sex groups. Thus, encoding may be different depending on the sex composition of an interacting group. The ninth form of complexity is also related to sex: a given encoding relation may be true for one gender, but not in the other. For example, extraversion correlates strongly with the use of broad gestures among women but not among men (Lippa, 1998).

The tenth complexity is that personality is encoded by nonverbal behavior differently across cultures. That is, not only are there cultural differences in the amount or frequency of nonverbal behaviors (e.g., Hall, 1966; see Matsumoto, this volume), but nonverbal behavior may differentially encode (correlate with) dispositions in different cultures (e.g., Andersen & Guerrero, 1998).

To sum up, to learn whether nonverbal behavior truly encodes personality dispositions,

researchers must navigate at least ten design and analysis complexities: (1) true encoding can be obscured through the use of unreliable measures, (2) encoding should be studied in a context in which the disposition is salient, (3) others in the interaction might influence an individual's encoding, (4) encoding might occur differently when a person is engaged in different activities or purposes, (5) encoding may depend on who (e.g., self or significant others) assesses the disposition, (6) nonverbal behavior may encode combinations of dispositions without encoding that combination's constituent dispositions, (7) combinations of nonverbal behaviors may encode dispositions without the individual behaviors doing so, (8) encoding may depend on the gender composition of the group, (9) encoding sometimes differs for male and female individuals, and (10) cultural groups vary in their encoding patterns.

Encoding. Few (perhaps no) studies have been able to manage all these complexities, and so the following findings must be treated with caution. An example of relatively straightforward encoding results comes from a study of interacting female dyads (Berry & Hansen, 2000). In Big Five personality terms, more agreeable women gestured more, used more open body postures, visually attended to their interaction partner more, used fewer visual dominance behaviors, and displayed fewer negative facial expressions than did less-agreeable women. Women who were more open to experience visually attended to their interaction partners more than those who were less open to experience.

More extraverted persons seem to use more animated, expressive, and animated gestures, that is, faster and more energetic gestures using the hands farther from the body (Lippa, 1998) than more introverted persons. Children with more internal, rather than external, locus of control tendencies smile more and engage in fewer off-task activities (Carton & Carton, 1998). Individuals with avoidant attachment styles tend to choose larger interpersonal distances (Kaitz, Bar-Haim, Lehrer, & Grossman, 2004), as do those with greater trait anxiety (e.g., Patterson, 1973) and weaker affiliative tendencies

(e.g., Mehrabian & Diamond, 1971).

Decoding. Whether or not dispositions are encoded in nonverbal behavior, decoders believe they are. In an early study, personnel managers were quite confident that job application photographs revealed the applicants' character (Viteles & Smith, 1932). Observers' ratings may be reliable, which suggests accuracy, but they often do not correlate with any of the targets' physical features (e.g., Cleeton & Knight, 1924). Researchers still investigate alleged nonverbal "power codes" (Schwartz, Tesser, & Powell, 1982) and the "shared meaning" of postures (Kudoh & Matsumoto, 1985). "High-persuasive" nonverbal behavior patterns in actors (direct gaze, more gestures, fewer self-touches) are judged to be more assertive, forceful, powerful, and intelligent (Hart & Morry, 1997). Individuals who speak in a tight-lipped manner or who turn their heads while speaking may be judged as "uptight," those who speak with a hand over their mouths or smile with a closed mouth as shy, and those who smile less as too serious (Ferrari & Swinkels, 1996).

Are these accurate assessments of a target person's personality or mere "decoding errors" (Bull, 1983)? Observers appear to decode *confidently* and with greater consensus (Gifford, 1994; Lippa & Dietz, 2000), but the evidence that they do so *accurately* is mixed or even discouraging, as shown for example by the Cleeton and Knight study. On the positive side, some research shows that, *if* one is willing to define accuracy as observer agreement with target self-assessments, removing nonverbal behavior from a job interview (by conducting it by telephone, as opposed to in person) reduces accuracy (Blackman, 2002). Thus, nonverbal behavior certainly *can* contribute to accurate judgments.

Decoding Ability and the Ability to be Decoded

A variant on the study of decoding is the study of decoding *ability*, sometimes called nonverbal sensitivity (e.g., Rosenthal, 1979; see Riggio, this volume). Decoding as a skill related to the judge's own experience and background is often applied to constructs other than personality, emotion in

particular (e.g., Mullins & Duke, 2004). Apparently, more intelligent judges are more accurate (Lippa & Dietz, 2000), at least for some dispositions: more intelligent university-student judges assessed dispositional extraversion and an omnibus (across-dispositions) measure more accurately than less-intelligent university-student judges. On the other side of the lens, which dispositions are easiest to decode from nonverbal behavior? Several studies (e.g., Ambady, Hallahan, & Rosenthal, 1995; Borkenau & Liebler, 1992; Gifford, 1994; Lippa & Dietz, 2000) report that sociability or extraversion is the most legible or accurately discernable disposition. However, this may be a function of complexity II: most studies use conversations as the activity, and extraversion is particularly salient for conversations.

A Proposal

This section proposes a paradigm that may deal with the crucial accuracy problems in the most useful way. Its essential feature is that encoding and decoding both are included in the same study. Most studies have examined either encoding or decoding, which disallows the possibility of understanding the relations between the two processes, or they have compared self and observer ratings without investigating intervening variables such as nonverbal behavior. For example, one study showed that self and acquainted observer ratings were better correlated than self and unacquainted observer ratings, but the researchers did not investigate the behavioral cues on which the ratings were based (Funder & Colvin, 1988). Watson (1989) noticed this gap and called for studies of judgments that also include behavioral cues. Nevertheless, “cueless” studies are still reported (e.g., Ambady, Hallahan, & Rosenthal, 1995). For example, “sociable” actors were found to be more legible (that is, easier to “read” or accurately decode) than less-sociable actors, based on actor-observer agreement, but the pathways or mediating behaviors underlying this phenomenon were not examined. A few years later, these results were replicated, and many potential mediating cues were investigated. Extraverts

used more energetic gestures, kept their hands farther from their bodies, and changed their facial expression more than introverts (Lippa, 1998).

The proposed paradigm includes the following elements: reliably-measured personality constructs⁵ that are investigated within the context to which they apply, and three independent groups of raters are used: (1) actors' self-rated personality or raters who know the actor well, (2) raters trained in a carefully developed nonverbal behavior scoring system, and (3) observer-raters, who are unacquainted typically with the actors, so that their ratings are not influenced by previous personal experience with the actor.

More particularly or operationally, the paradigm's structure is an adaptation of Brunswik's (1956) lens model (Figure 1). Encoding (or what Brunswik called ecological validity) is represented by the lines connecting personality to nonverbal behavior. Encoding, as defined here, occurs when reliable self-assessments significantly correlate with reliably scored nonverbal behaviors. Inferences from these cues (decoding, or what Brunswik called cue utilization) are represented by the lines connecting nonverbal behavior and impression formation on the part of the observers. Decoding, as defined here, occurs when reliable observer assessments are correlated with reliably scored nonverbal behaviors. The curved line linking the ratings of the actors' dispositions with the observers' ratings of those dispositions represents what Brunswik called achievement, or what is here called agreement. The large oval signifies the context in which the judgments are made. Encoding and decoding are influenced by the context in which they occur. What transpires in a conversation may not flow the same way in a debate as during a romantic evening, a business discussion, a romantic interaction, or an interrogation,

⁵The paradigm could, of course, be used for any hypothetical construct, such as intelligence (cf.

Reynolds & Gifford, 2001), motivation, and attachment style. Personality simply is the current topic.

or in interactions within versus across cultures.

One illustration of this comes from a study of deception (Vrij, Akehurst, & Morris, 1997). In this study, actors were interviewed twice, once when they told the truth and once when they lied. Actors with higher levels of public self-consciousness used their hands differently (less) when they lied than when they told the truth. Thus, the adapted lens model in Figure 1 requires its surrounding oval to signify the context in which the encoding and decoding occur. Few studies have done what seems most productive, however: to investigate all three processes, and the relative strengths of encoding, decoding, and agreement, and to take the context into account in order to provide some understanding of *how* nonverbal behavior communicates (and mis-communicates) personality. Some notable exceptions that focus on nonverbal behavior and dispositions include those by Borkenau and Liebler (1992) and Lippa (1998).

The paradigm is employed, in part, to understand the cue-utilization policies of observers, individually or in aggregate. Some early studies focused on individual abilities, such as those of clinicians (e.g., Hoffman, 1960) and found that their judgments, as revealed through their use of cues, does not match well with their own impressions of how they use those cues. A more recent individual-level focus has been on the ability of sensitivity of individual observers (e.g., Rosenthal, 1979). When a researcher has more aggregate, nomothetic goals ('How do *people* decode?'), the study combines the ratings of "everyone"—parents, supervisors, friends, partners, peers, or members of other cultures—as the observers of interest. Of course, if observers in general or from a particular group utilize nonverbal cues idiosyncratically, the interrater reliability of their target disposition ratings will be low, and it will be inappropriate to correlate their ratings with the nonverbal behavior scores (decoding correlations) or with the targets' self-ratings (agreement correlations). Thus, studies with any sort of nomothetic goals depend on, and therefore must hypothesize, that a group of observers will reliably agree on actors'

dispositions. If a specified group of observers do not agree, then conclusions about their cue-utilization policies cannot be stated, probably because members of that group do not use the same cues.

The earliest study that used this paradigm was one by Brunswik himself in 1945 (but not reported until later (Brunswik, 1956, pp. 26-29), although the central cues he employed were, perhaps appropriately enough for a first and early study, physiognomic: actor's height of forehead, length of nose, etc. A decidedly *verbal* study using the paradigm to study extroversion in relation to vocal behavior was published two decades later (Scherer, 1978). In one study that fulfilled most of the goals of the proposed paradigm, behavioral cues were examined as mediators of the encoding-decoding process (Borkenau & Liebler, 1992). The same judges served as raters of the physical cues and as decoders, however, which compromised the independence of the behavior scores and trait ratings.

Perhaps the first study that examined nonverbal behavioral mediators and used behavior scorers who were independent of both targets and observers was conducted by Gifford, Ng, and Wilkinson (1985). That study identified nonverbal cues exhibited by job applicants that mediated (and failed to mediate) agreement between job applicant and personnel officer assessments of the applicant's social skill and motivation to work. That study, however, did not employ personality dispositions as the psychological constructs. A subsequent study, with a coordinated set of independent targets, raters, and observers, which did investigate nonverbal behaviors and how they encode dispositions as well as which of these same nonverbal behaviors are employed by observers to infer targets' personality finally appeared just over a decade ago (Gifford, 1994). The study will be described in some detail as an exemplar of the proposed paradigm. It examined the 8 dispositions that comprise the interpersonal aspect of personality and form a circumplex (Wiggins, 1979). The primary axes of the circumplex (dominance and warmth) are interpreted by some theorists as two of the Big 5 personality domains (McCrae & Costa, 1989; Peabody & Goldberg, 1989). Interpersonal dispositions were deliberately

selected because the actors in the study were engaged in a conversation; other dispositions (e.g., conscientiousness, openness to experience, and emotional stability, the other three dispositions in the Big Five) were not included because they would not have been examined in a context that should have made them particularly salient.

Interlude: Potential Outcomes of Encoding-Decoding Studies

Before describing the exemplar study in detail, it may be useful to discuss the generic potential outcomes of studies that use this paradigm. The first assumption is that all the judgments (e.g., self-ratings, behavior scoring, and observer ratings) are reliable; if some are not, they cannot be used with any pretence of validity. In general, encoding, decoding, and agreement may be weak or strong for any disposition, and the pattern of results may be different for each disposition.

The first type of potential outcome occurs when, for a given disposition, encoding, decoding, and agreement all are weak. In this case, (1) personality is not consistently reflected in nonverbal behavior (at least not in the behaviors studied), (2) observers do not use the this set of behavior cues to arrive at their inferences, and (3) observer inferences do not agree with the self- or knowledgeable other assessments of actor.

Second, if decoding is strong but encoding is weak, observers apparently are using invalid stereotypes. (One suspects, without the benefit of data, that this was the case with Lavater and his fellow physiognomists). Agreement should be weak in such a case, because there are no true relations between personality and nonverbal behavior for observers to decode legitimately.

Third, if strong encoding but weak decoding is found, observers are unable to deduce correctly which nonverbal cues reflect the actors' personality. The potential for strong agreement is present, but it is unrealized.

Fourth, if agreement is strong but both encoding and decoding are weak, observers must be

using nonverbal behaviors for decoding that the researcher has not measured. Some nonverbal cue or other must have been providing valid information about the actor's personality, or agreement would not be possible. The researcher must explore the impression formation process, perhaps through interviews with observers, to learn which unstudied nonverbal cues the observers might have been using to succeed in matching the assessments of the actors.

Fifth, if weak encoding and high agreement are found, observers again must be using valid but unmeasured nonverbal cues, unless the unlikely case that the observers are clairvoyant holds true (Reichenbach, 1938). As Wiggins (1973, p. 159) wryly notes, "(s)uch a possibility is assigned rather low priority as a contemporary scientific explanation." This is a case in which researchers must rethink their choice of cues, seeking other ones that *do* encode the disposition. One way to accomplish this might be to interview the judges, asking them to reflect on their inferences: what about the target persons *did* cause you to assess them as high or low on the given disposition?

Finally, if strong encoding, strong decoding, *and* strong agreement are found, one may conclude that the whole process is working as researchers in this area dream, and they may be able to supply a satisfying account of this assessment process. A sober second thought, however, is that actors (or their intimates) and observers *could* be agreeing on an inaccurate view of the actors' personality, something akin to a folie à deux. A more likely interpretation is that the strong mediation of objective nonverbal behaviors, reliably assessed by independent observers, would be substantial evidence that the observers' decoding is valid, given that they have been demonstrated to rely on the same objective (visible) aspects of reality as encoding. If so, the centuries-old conviction that dispositions truly are 'legible' would receive convincing support.

An Exemplar

The following study is presented partly for its results, which illustrate many specific encoding

and decoding results with personality and nonverbal behavior, but also as a way of introducing many of the intricacies of conducting encoding-decoding research, including proposed solutions to problems that arise in the course of analyzing the data in such studies. Based on the available literature, the hypotheses of the exemplar study (Gifford, 1994) were that encoding would be weak to moderate, but observers would have a strong tendency to decode. Agreement, based on recent research that indicates dispositions are communicated to different degrees (Gifford, Ng, & Wilkinson, 1985; John, 1990), was expected to vary across dispositions. For dispositions with low agreement, self-observer encoding-decoding discrepancies were expected to be high. For dispositions with high agreement, self-observer discrepancies were expected to be low.

The target participants were 60 undergraduates drawn from a psychology department participant pool. Ten all-male and 10 all-female triads were formed into conversational groups, and one group at a time was filmed as it conversed. The participants were given a list of suggested topics, but they were encouraged to converse on any topic they chose. A week or so prior to the conversation, the participants were given Wiggins' (1979) interpersonal adjective scales inventory (IAS). The IAS covers two of the Big 5 domains of personality, but it was chosen *to maximize the relevance of selected dispositions to the context*. From the top of the circumplex, these scales are ambitious-dominant, gregarious-extraverted, warm-agreeable, unassuming-ingenuous, lazy-submissive, aloof-introverted, cold-quarrelsome, and arrogant-calculating (cf. Gifford & O'Connor, 1987).

The videotapes were then scored using the Seated Kinesic Activity Notation System (SKANS IV; Gifford, 1986), in which 38 kinesic and facial behaviors are measured in one of three ways: frequency, duration, or time-sampling. A second sample of participants, 21 unacquainted peers of the targets, were shown five-minute selections from the middle of the conversations over several sessions with the audio track was turned off. Each time the tape was played, each observer was asked to focus

on only 1 of the 3 participants shown in the tape. The tape was then replayed and the observers watched another participant. Thus, all 21 observers viewed all 60 participants.

After each tape was shown, each observer completed a 40-item short version of the IAS about one target. The observers' task was demanding, so they made their ratings over several sessions. They were paid \$50 for their efforts and offered a prize of \$50 for being the most accurate (defined as coming the closest to the self ratings of the 60 target individuals; really, as noted, a measure of agreement).

Most measures (self assessments, observer assessments, and SKANS IV measures) were adequately reliable. Some behaviours, however, occurred infrequently, were difficult to score due to camera placement, or inter-judge agreement was low. Others were combined because they were highly correlated. Thus, the remaining analyses were based on 27 nonverbal behaviors.

Pearson correlation coefficients between the actors' self-assessed dispositions and their nonverbal behaviors represent the left, or encoding, half of the lens diagram. Not every significant correlation between a nonverbal behavior cue and a disposition, however, necessarily is a valid encoding link. Three specific threats to the validity or generalizability of an encoding link may be identified. First, the correlation could be influenced by the actions of others in the conversation; a valid encoding link should be empirically attributable to an individual, uncontaminated by group influence, if it is to be considered a valid personality-nonverbal behavior link. Second, correlations may be due to chance; to be valid, an encoding link should have reasonable strength and be part of an ordered pattern of correlations around the interpersonal circle. If a behavior is truly relevant to interpersonal behavior, it should not merely correlate with one disposition on the circle. Its correlations should rise and fall around the interpersonal circle in an ordered manner (Gifford, 1991). Third, the possibility of sex differences raises the issue of generalizability of a given putative encoding link to both sexes. For

example, a valid link between a disposition and a nonverbal behavior for women may not be valid for men, or vice versa. For example, using most of one's body when gesturing validly signals extraversion for women, but not for men (Lippa, 1998).

Each of these threats was considered in preliminary analyses (for details, see Gifford, 1994). In all, because of significant group influence or failure to conclusively map onto the interpersonal circle, 19 of the 27 remaining nonverbal behaviors were rejected as not demonstrably valid encoders of interpersonal dispositions. The eight nonverbal behaviors identified as valid encoders of interpersonal circle traits are head orientation, nods, arm wrap, gestures, object manipulation, left leg lean, leg movement, and leg extension. Their significant links ($p < .05$) with the eight dispositions of the interpersonal circle are displayed in one typical disposition: gregarious-extraverted, (see Figure 2; also see Gifford, 1994 for the other seven lens models).

Decoding

Correlations between the nonverbal behaviors and the dispositions as inferred by the observers were computed. All 27 of the nonverbal behaviors were used for this purpose, rather than the subset of 8 behaviors used for the encoding half of the study. This was because the goal on the left half of the lens is to determine which nonverbal behaviors *actually* encode personality (to the best of our methods' abilities), whereas on the right side the goal is to determine which nonverbal behaviors are *believed* by observers to be cues to personality. This distinction follows from Brunswik's original labels for the two sides of the lens model: ecological *validity* (left half) and cue *utilization* (right half). Significant ($p < .05$) cue utilization correlations are displayed on the right half of Figure 2; collectively, they describe the way that typical observers decode.

The Strength of Encoding and Decoding

Next, we examined the magnitude of encoding and decoding. Magnitude was computed as the

multiple correlation and percent of variance in each disposition accounted for by the nonverbal behaviors. Only nonverbal behaviors that had shown significant ($p < .05$) correlations with the dispositions were considered. Stepwise multiple regression analysis was used for this purpose. Magnitudes to be reported are conservative because, although all variables with significant Pearson correlations were given the opportunity to predict a given disposition, only those that made significant ($p < .05$) additional contributions to the equation were included. Figure 2 shows the values of multiple R and R^2 for the encoding and decoding for gregarious-extraverted.

One general tendency apparent from the results is that decoding is stronger than encoding. Beginning at the top of the interpersonal circle and proceeding clockwise, multiple correlations were (encoding followed by decoding): ambitious-dominant .54 versus .81, extraverted-gregarious .41 versus .80, warm-agreeable .30 versus .79, unassuming-ingenuous .41 versus .74, lazy-submissive .62 versus .81, aloof-introverted .54 versus .82, cold-quarrelsome .00 versus .79, and arrogant-calculating .25 versus .77. The median encoding magnitude is .41 and the median decoding magnitude is .80. Many more significant decoding links than encoding links are found.

Group Versus Individual Decoding

Despite these findings, however, decoding actually may not be much stronger than encoding. As noted, observer decoding ratings are based on 21 raters. Multiple raters almost necessarily increase the reliability of ratings. When ratings are more reliable, correlations involving them are stronger because less error is involved. Stronger correlations are more likely to be statistically significant and therefore to be included in the lens diagrams. Analyses that corrected for attenuation and estimated the reliability of single judges (see Gifford, 1994, for details), showed that one typical decoding link shrank from $r = -.58$ to $-.35$. The matched encoding link for this decoding link was $r = -.29$, not much less than $r = -.35$. Thus, observers as a *group* decode strongly, but researchers who wish to generalize

to typical *individual* observers, would conclude that decoding is not particularly reliable, and this would attenuate the seemingly large magnitude of decoding. Whether researchers examine group decoding or typical individual decoding value depends on the study's purpose. If it is to understand how observers (in general, nomothetically) decode, one would use the full observer sample; if it is to estimate the decoding skill of a single "typical" observer, the attenuation approach should be used, and if the goal is to understand how one particular observer decodes (for example, a clinician in training), one could study decoding with an n of 1. The question for the researcher is, do I wish to learn how and how well observers in general decode, how and how well a typical single observer (e.g., a typical human resource officer in a large organization) decodes, or how and how well *this* observer (for example, a person applying for a job as a human resource officer) decodes?

Particular Encoding and Decoding Links

Considerable information about particular relations between interpersonal dispositions and nonverbal behaviors is available in Figures 3 to 10 of Gifford (1994) for readers who are interested, but here only one lens model is presented, as an example, in the interest of saving space.

Agreement and Nonverbal Communication

Agreement is measured as the correlation between typical self assessments and typical assessments by observers, and it is represented in Figures 1 and 2 by the curved line at the bottom. The use of correlations overcomes several of the classic Cronbach (1955) criticisms of accuracy research. Across the 8 dispositions in the full study, agreement averaged .27 (r - to Z -transformed), which is significant ($p < .02$), if moderate in magnitude. Agreement ranged from .18 (*ns*) for both lazy-submissive and cold-quarrelsome to .45 ($p < .001$) for gregarious-extraverted and .41 ($p < .001$) for aloof-introverted. The relations between encoding and decoding fall into two categories, each with two forms. First, *matched links* may be identified. One form of matched link occurs when a nonverbal

behavior significantly encodes self assessments and is also used to a significant degree by observers to decode or infer that self assessment. Across the 8 dispositions, 14 matched links of this form were found. Matched links are underlined in Figure 2. Another form of matched link occurs when a link is significant on *neither* side of the lens: Observers are saying that a given behavior does not encode a given trait and, based on the self assessments, it does not. In this study, 105 such matches occurred.

Second, *mismatched links* may be identified. One form of mismatched link occurs when a nonverbal behavior does encode a self-assessed disposition, but observers do not utilize that cue. For example, more lazy-submissive persons manipulate objects (e.g., their clothing, pen, paper) more than others do, but observers do not utilize object manipulation as a cue to lazy-submissive. In this study, six mismatches of this kind occurred across the eight interpersonal dispositions. The other form of mismatched link occurs when observers utilize a particular nonverbal cue to form their impression, but that cue does *not* encode that disposition. For example (see Figure 2), observers believe that more gregarious-extraverted persons orient their heads toward their companions more, but (based on self-assessments), this is not so. In this study, 83 mismatches of this kind were observed across the 8 dispositions. Decoders appear to use many more cues to infer self-assessed dispositions than were necessary. As noted earlier, however, the greater number and magnitude of decoding links is due partly to psychometric considerations, that is, the superior reliability of decoding. Agreement is higher in general when there are more matched links. The existence of matched links, with their lines going from the disposition to a behavior and from the behavior to the observer's assessment clearly suggests that agreement increases when information "flows" via such matched links. Conversely, agreement is lower when many mismatched links occur. The same trend was also demonstrated earlier in a personnel selection context by Gifford, Ng, and Wilkinson (1985).

When information does *not* flow, either encoding has not occurred (no behaviors measured

encode the disposition) or the observer has used cues other than those that the encoding analysis suggests are valid indicators of a disposition. The communication of self-assessed personality was quite good (i.e., agreement was relatively high) for some dispositions. Considering that observers saw only five minutes of a soundless conversation among individuals they had never met, their decoding of gregarious-extraverted, $r = .45$, and aloof-introverted, $r = .41$, for example, is quite an “achievement.”

This study demonstrates that (1) the encoding of interpersonal dispositions in nonverbal behavior is moderate (median multiple $R = .41$), (2) the decoding of the same dispositions is moderate by individual observers and strong by groups of observers (median multiple $R = .80$), and (3) agreement is low to moderate (mean $r = .27$), yet significant ($p < .02$). Each of these will be discussed in turn. Apart from the specific magnitudes of these links, the combined findings show exactly *how* information appears to flow from the actor to the observer, that is, how personality and nonverbal behavior are connected, and how observers infer (and mis-infer) personality by watching other people.

Encoding

That encoding is at least moderate is an optimistic note in a literature that can be characterized as pessimistic (cf. Bull, 1983; Duncan & Fiske, 1985; Heslin & Patterson, 1982). These results are based on a conservative strategy that winnowed out apparently significant encoding links that manifested group influence or did not meet the criteria for behavior mapping (Gifford, 1991) and used a conservative variance-accounting strategy. Almost 40% percent of the variance in self-assessed lazy-submissiveness, for example, was accounted for. Even more encouraging, certain behaviors that have been linked to dominance or submissiveness in other encoding studies, such as postural relaxation (Mehrabian, 1981) and looking in relation to speaking (Exline, Ellyson, & Long, 1975), were not included in this study. When these behaviors are included in future studies, the evidence for encoding should be even stronger.

Dispositions that were not well encoded (e.g., cold-quarrelsome) may be encoded by behaviors that were not included in this study, may not be encoded in nonverbal behavior, or may not have been elicited often in the context of the conversations in this study. In a newly acquainted group of three students who have conversational freedom, any tendencies an individual may have toward cold-quarrelsome or arrogant-calculating have little reason or opportunity to be expressed. If so, any nonverbal behaviors that signal these dispositions will occur infrequently and not have much variance. This in turn means that correlations between disposition and behavior are unlikely to emerge.

This context-based reason for poor encoding may not always apply, however. For example, warm-agreeable is a disposition that one *would* expect to be expressed this study's conversational context, but it was encoded poorly. Researchers, then, must consider other nonverbal behaviors as potential encoders and vary the social context of their observations to encourage the expression of dispositions that may not show up in a pleasant exchange among previously unacquainted individuals before concluding that dispositions simply are not encoded in nonverbal behavior.

Decoding

Apparently strong decoding was evident for all eight dispositions (the *smallest* multiple R was .74). Borkenau and Liebler (1992) also report stronger decoding than encoding. Because observers as a group produce very reliable ratings, they appear willing to make strong inferences about the targets' personalities based on nonverbal behavior. Typical individual observers may not decode any more strongly than the equivalent strength of encoding, however.

Personality theorists must be careful when interpreting observer decodings. Observer assessments are not necessarily any more or less valid than are self ratings, particularly if neither self nor observer has any expert training. Observers may utilize "power codes" (Schwartz, Tesser, & Powell, 1982), and postures have shared meaning for observers (Kudoh & Matsumoto, 1985). This does not

mean necessarily that dominance from the self's perspective is revealed by this same set of acts, however; it merely means that observers believe it is.

In fact, the encoding and decoding of self-assessed ambitiousness-dominance involves largely different acts. It is encoded by 4 acts, but observers believe in a "power code" that includes 10 acts. Only two of acts are used in both encoding and decoding. The key question, "Are dominant persons those who are *seen* to be dominant (by others) or those who see *themselves* as dominant?" will be taken up in a later section on personality and assessment.

Agreement

Agreement, as explained earlier, depends on the decoders' appropriate use of ecologically valid cues. For example, the observers believed that 14 nonverbal cues are good indicators of target cold-quarrelsomeness, but not one of the 14 cues encoded self-rated cold-quarrelsomeness, and agreement was only $r = .18$ (*ns*). In contrast, the observers believed that 14 nonverbal behaviors signal gregarious-extraverted, and 3 of those actually do; as a result, agreement was $r = .45$ ($p < .001$). Clearly, agreement varies across dispositions. The results indicate that, in general (around the interpersonal circle), self and observer both agree and disagree about self's dispositions.

Self-other agreement depends heavily on the observer's use of appropriate nonverbal cues (i.e., those that do encode self's view of the disposition). "Dis-agreement" occurs when observers use inappropriate cues. If a way can be found to increase the reliability of self-assessment, perhaps through multiple self-assessments, error on the encoding side will shrink, and the magnitude and number of encoding links should rise, with a consequent increase in agreement.

Variations in Encoding Across Dispositions

Interpersonal dispositions (in Big 5 terms, agreeableness and extraversion, as opposed to the three others that are not particularly interpersonal in nature--conscientiousness, emotional stability, and

openness to experience) are the focus in this study, because they are the dispositions one would expect to be salient in the conversational context we examined. This restriction of dispositions studied to contexts in which they may reasonably be expected to manifest themselves or to be salient, is one of the precepts of this paradigm. In this study, the two major dimensions are treated as orthogonal axes of a circumplex; around the circumplex are eight gradations resulting from the high and low ends of the two dimensions, plus combinations of them. The resulting 8 interpersonal constructs vary in the amount they are encoded in nonverbal behavior. What I call the "grexalin" axis (the line that bisects the interpersonal circle from gregarious-extraverted to aloof-introverted) manifests the greatest agreement (the mean r for the two dispositions was .43). One implication is that grexalin is the most visible interpersonal axis. All the dispositions were strongly *perceived* (decoded), but without much agreement. Grexalin is perceived more *correctly* than the other axes. In attempting to explain this phenomenon, it is tempting to assert that grexalin is the most legible disposition because it is the most truly *interpersonal* disposition.

Implications for Everyday Social Interaction

One important implication of the findings is that when self and observer believe that different behaviors signify a given disposition (or that a given behavior signifies different dispositions), misinterpretation and conflict may result. If one person believes that the other is cold, he or she may well behave toward the other in accordance with this perception of coldness, that is, with generally negative responses. The other person consequently may be expected to be unpleasantly mystified by these actions and may then respond accordingly (that is, not very positively). The first person may then react to the second person's negative reaction negatively, and so on. In this way, the innocent use of and consequent mis-inference from certain nonverbal behaviors could seriously damage the development of relations between persons who meet for the first time.

A Process Model as a Framework

Brunswik's lens model serves as a useful way of conceptualizing social judgment, including the encoding and decoding of nonverbal behavior by actors and observers. Besides being intuitively clear, it offers a clear path for empirical demonstrations of how encoding, decoding, and agreement operate through nonverbal behavior. A companion framework, which I have adapted from Craik's (1968) framework for understanding environmental perception, which offers a comprehensive overview of the different kinds of actors, media of presentation, form of judgments, types of criteria, types of observers, and types of analyses, is portrayed in Table 1. The process model is at once daunting, in that it suggests the huge number of possibilities in this research area in contrast to how little has been accomplished, and heuristic, in that it can serve as a clear agenda for future researchers.

Conclusion

Personality and nonverbal behavior are not linked in simple ways. This accounts for the undulations in optimism from the era of physiognomy and early (1930s) scientific efforts, to the lacunae in research until the 1960s, followed by the slough of despond in the early 1980s, and the slow rise of optimism since then. Progress will be difficult, given the ten (or more) complexities, but if researchers are careful to at least describe how their studies deal with the complexities, understanding will grow. This will be a step toward a fuller understanding of both social judgment and the delicate behavioral dance involved in nonverbal behavior will follow (Patterson, this volume). Table 1 is an effort to create a process model of the problem, one that is adapted from Craik (1968), who used such a model for another area of research, environmental perception. Even this does not encompass the range of considerations that should be taken into account in any serious scientific study of personality and nonverbal behavior, but perhaps other observations made in this chapter will contribute to that goal.

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Table 1.

A Process Model for the Encoding and Decoding of Nonverbal Behavior in Personality

Actor (A)	Mode of Presentation	Form of Judgment	Sample Criteria	Context	Observer (O)	Type of Analysis
Child	In Vivo	Self-report (A)	Big 5	Conversation	Peer	A-O Agreement
Student	Video	Rating (O)	Trait Anxiety	Personnel Selection	Partner	O-O Agreement
Partner	Audio	Scored Behavior:	Self-Monitor	Deception	Employer	Encoding Correlation
Friend	Transcript	Specific	Attachment Style	Clinical	Employee	Decoding Correlation
Peer	Drawing	Pattern	Control Orientation	Attraction	Teacher	Mediators/Moderators:
Other Culture			Narcissism		Friend	Skill/Sensitivity
Employee			Avoidant		Parent	Gender
Employer			Public Self-Consciousness		Stranger	Intelligence
Stranger			Secure			Personality
						Emotional State

Figure Captions

Figure 1. The contextual lens model (Brunswik, 1956), updated.

[needs an oval drawn around it to represent context, in general]

Figure 2. The contextual lens model for gregarious-extraverted.

[needs an oval drawn around it to represent “seated conversation” as the context]



(the portrait of Durer, from the beginning of the chapter)

<http://www.newcastle.edu.au/discipline/fine-art/pubs/lavater/>,

retrieved August 9, 2005; the Durer image and the quotation from Lavater about Durer were used, with permission, from the above website of Ross Woodrow).