

# UNITS OF ANALYSIS FOR THE DESCRIPTION AND EXPLANATION OF PERSONALITY

JOHN A. JOHNSON

PENNSYLVANIA STATE UNIVERSITY, DUBOIS CAMPUS

### I. THE NEED FOR UNITS OF ANALYSIS

Every science has a nomenclature that describes and defines its domain of study. Nuclear physicists talk about subatomic particles; chemists analyze molecules and compounds; and evolutionary biologists ponder genes, populations, and species. In what sort of language do psychologists describe and explain personality?

The list of the units of analysis used by personality psychologists is wildly diverse: cognitive styles, complexes, current concerns, dispositions, folk concepts, goals, instincts, interests, motives, needs, personal projects, plans, personal constructs, strivings, sentiments, themes, types, and values are a few (cf. D. M. Buss & Cantor, 1989; Emmons, 1989, this volume, chap. 20). The length and complexity of this list suggest that our problem concerns organizing and simplifying our potpourri of conceptual units rather than choosing among them.

This chapter suggests that the apparent diversity of the proposed units of analysis masks a unity underlying them and that this unity is captured by the term *trait* (Allport, 1937). I begin by examining the meaning of *traits* and suggest that the trait notion is virtually required for a systematic understanding of personality. I then review criticisms of the trait concept and suggest that these criticisms are not always well founded.

Next I distinguish between phenotypic and genotypic traits, and discuss the implication of this distinction for the twin tasks of description versus explanation and for the validity of self-assessments versus observer assessments. This leads to the view that, in the process of assessment, the genotypic/phenotypic distinction disappears. Finally, I consider whether a special unit of analysis is necessary to describe the uniqueness of individuals, and whether type language might be as useful as trait language.

## II. TRAITS AS UNITS OF ANALYSIS

### A. The Meaning of the Trait Concept

Traits are consistent patterns of thoughts, feelings, or actions that distinguish people from one another. The reader should note three features of the foregoing definition. First, traits can refer to thoughts, feelings, *or* behavior. This point is often overlooked by psychologists who define personality only in terms of consistent behaviors. Second, trait ascription invariably involves comparisons between people. If I say that Jones is *obsessive-compulsive*, I mean that he seems to have more intrusive thoughts and guilt feelings and demonstrates more ritualistic behavior than people in general. Third, for traits to distinguish people from one another, they must display some distinctive *consistency*. If Jones's obsessive experiences and compulsive activities diminish to the point that they are no more frequent than those of the general population, then they would no longer distinguish Jones from people in general.

Traits seem to be required for science of personality, because any science involves detecting and explaining consistent patterns (Hanson, 1958). Imagine trying to construct a science of chemistry if elements and compounds did not possess stable properties—if sodium chloride were only sometimes water soluble. If people had no stable properties (i.e., traits), they could not be studied scientifically.

### B. The Situationist Challenge to the Trait Concept

Although a science of personality seems to depend on studying consistencies, the existence of traits has been questioned from World War I to the present (see Kenrick & Funder, 1988, for a review). It is primarily writers with a behaviorist orientation who doubt the existence of traits. They claim that behavior depends on social contexts and that consistencies are an artifact of a person being in similar situations (Ross, 1977). Stimulus–response behaviorism (Hendrick, 1977) seeks to identify stable  $S \rightarrow R$  laws rather than stable properties of persons.

The claim that behavior depends on situational cues seems congruent with common sense. We behave differently at wedding receptions and funerals. We behave differently in the different roles we play, for example, as employee, spouse, or parent. These examples from everyday experience are consistent with the view that social situations determine our behavior. Behaviorists have confirmed this

common sense observation countless times in their laboratories, where they show that people's behavior responds to experimental treatments or manipulations (A. H. Buss, 1989). As further evidence for the power of situations, trait critics cite Mischel's (1968) claim that personality test scores (which presumably reflect traits) seldom correlate higher than .30 with behavioral criteria.

### **C. Responses to the Situationist Challenge**

Despite the intuitive appeal of the behaviorist argument, their demonstrations fail to disprove the existence of traits for five reasons.

#### ***1. Reliable Situational Influence Requires an Enduring Capacity to Be Influenced***

First, if situations reliably control behavior, then people must have a capacity to respond to situational cues, that is, the trait of being responsive to situations. This point has been recognized even by the most vocal critics of traits (e.g., Ross, 1977, p. 176): "For instance, in accounting for Jack's purchase of a house the 'situational' explanation (i.e., 'because *it* was so secluded') implies a disposition on the part of this particular actor to favor seclusion."

#### ***2. Individuals Respond Differently to the Same Situation***

Second, even in the most (allegedly) powerful situations, such as the Asch perceptual conformity paradigm, people's responses to the situation will differ as a function of personality (Barron, 1953). This point has also been acknowledged by trait critics (Ross & Nisbett, 1992).

#### ***3. Having a Trait Means Reacting Consistently to the Same Situation, Not Different Situations***

Third, the fact that a person is inconsistent across *different* situations is completely irrelevant to the validity of the trait concept. This point is often overlooked even by trait defenders (e.g., Kenrick & Funder, 1988), who state that traits imply "*cross-situational* consistency." I regard the issue of cross-situational consistency as a red herring. Salt need not dissolve in benzene before we describe it as water soluble; likewise, persons need not exhibit identical behaviors in different environments before we can say they have traits. The trait concept implies consistent reactions to *similar* situations over time, not consistent reactions *across* different situations. Being characterized by a trait automatically implies the relevant type of situation; for example, *cooperative* means consistently complying *with reasonable requests* (Alston, 1975), not indiscriminately complying with others' wishes on every occasion.

#### ***4. Having a Trait Does Not Mean Your Reactions Are Absolutely Consistent***

Fourth, for behavior to be consistent across time (temporal continuity) it need not be identical in *every* relevant situation. For example, a *lascivious* person takes

advantage of opportunities for sex more often than the average person, but does not attempt to copulate with every person he or she meets (Johnson, 1993). This point is missed by those who criticize trait measures for not predicting behavior in a single experimental situation.<sup>1</sup> Proponents of traits never claimed that their measures could do this. Rather, trait measures predict trends in behavior over time (Epstein, 1983). A trait score is like a batting average. Knowing that a baseball player hits .300 does not allow you to predict what he or she will do in a particular at-bat, but does predict his or her performance over the course of a season.

### **5. Behavioral Inconsistency Does Not Rule Out Inner Consistency**

Fifth, the lack of consistency in behavior over time does not rule out the existence of emotional or cognitive traits. An emotional trait, for example, may be rarely expressed because of conflicts with other emotional traits. A person might consistently desire to attend parties, but might do so infrequently due to a stronger consistent desire to work (Alston, 1975). Lack of opportunity can also prevent the expression of emotional and cognitive traits. A courageous person—that is, someone who could certainly overcome fear and act decisively in an emergency—may rarely be faced with emergencies in which he or she could actually be heroic. Cognitive personality traits (e.g., persistently attending to details) likewise might not be detected unless a person is given the opportunity to demonstrate the trait. Finally, Alston (1975) also points out that needs may be (like hunger) cyclical.

## **D. Phenotypic versus Genotypic Traits**

Two forms of traits have been traditionally distinguished (Allport, 1937; MacKinnon, 1941): outer traits that can be directly observed (behavioral traits) and inner traits (emotional and cognitive traits) that must be inferred. Meehl (1956) borrowed from biology the terms *phenotypic* and *genotypic* to distinguish the two types of traits. Others (Weimer, 1974; Wiggins, this volume, chap. 4) use a linguistic metaphor. Behavioral traits are analogous to the surface structure of a sentence whose meaning is indeterminate, whereas inner traits represent the intention or deep structure that disambiguates (explains) the meaning of behavior.

Two common assumptions about the two types of traits are worth noting. The first concerns the view that outer traits are descriptions of behavior that need explanation, whereas inner traits are the causes or reasons that explain the outer traits (Alston, 1975; Johnson, 1990a; Wiggins & Trapnell, this volume, chap. 28). Second, observers are assumed to have privileged access to outer traits, and actors to inner traits. This access, in turn, is assumed to affect the validity of observer

<sup>1</sup> Trait measures can also fail to predict behavior because they lack reliability or validity (Block, 1977). When reliable, valid measures are used, Mischel's alleged .30 ceiling is easily broken (Hogan, DeSoto, & Solano, 1977).

ratings versus self-ratings of the two types of traits. Although both assumptions have merit, they are only partially correct, as I argue below.

### E. Traits as Descriptions and as Explanations

To explain behavior in terms of traits—e.g., Joe hit Fred *because* Joe is aggressive—is sometimes criticized as description rather than a genuine explanation (Weimer, 1984). Trait critics often note the apparent circularity in statements such as “He acted aggressively because he is [behaviorally] aggressive” (Rholes, Newman, & Ruble, 1990, p. 371). However, to explain a *single* behavioral act as an exemplification of a behavioral trait is a valid account of an act (Wiggins, this volume, chap. 4)<sup>2</sup>. When I say that Joe hit Fred because Joe is an aggressive person, this implies that Joe’s behavior is not unusual for him and therefore requires no further explanation.<sup>3</sup> Many nonscientists are satisfied with explanations such as “that’s typical” or “that’s his or her nature” (Young, 1975). People generally seek deeper explanations only for behaviors that are out of character or unusual.

Psychologists, on the other hand, also want to explain normal behavioral traits. One approach to this is to hypothesize inner emotional and cognitive traits that generate the behavioral traits. In many accounts, these inner traits form part of the basic level of theoretical explanation, as illustrated in the following (see Weimer, 1984):

behavioral act, “Joe hit Fred”	fact	explained nonexplainer
↑	↑	↑
behavioral trait, aggressiveness	law	explained explainer
↑	↑	↑
inner trait, aggressive feelings	theory	nonexplained explainer

In the Weimer (1984) model, “explained nonexplainers” are single events that require an explanation but themselves explain nothing. Isolated behavioral acts fit this category. “Explained explainers” are empirical regularities or laws used to explain single events, but require an explanation themselves. Common behavioral traits fall into this category. “Nonexplained explainers” are metatheoretical assumptions about nonverifiable, structural entities that explain empirical laws but are themselves beyond explanation. Unobservable, psychic structures represent a type of metatheoretical primitive.

The notion that emotional and cognitive traits underlie and explain behavioral traits is actually common sensical and “familiar to all of us since childhood” (Alston,

<sup>2</sup> Behavioral traits can also be invoked to help explain the reactions of an audience to the actor, that is, as part of a social-psychological explanation. For example, the poor morale and unproductivity of a team might be attributed to the ineffective behavioral traits of the leader.

<sup>3</sup> Alternatively, what I might really mean when I say, “Joe hit Fred because Joe is an aggressive person,” is that Joe has hostile, aggressive urges or feelings. If this is the case, I am invoking “aggressive” as a motivational concept rather than a behavioral trait.

1975, p 24). An example from Johnson (1990a) illustrates this. Suppose that Mary, a therapist, consistently treats her clients in an empathic manner. She uses reflective listening to promote accurate understanding, appears attentive and interested in her clients' problems, and often reassures and supports them. The trait *empathic* aptly describes her counseling style. Why is Mary consistently empathic?

A common sense explanation would refer to Mary's desires (emotional traits) and beliefs (cognitive traits). Presumably, Mary wants to promote her clients' psychological well-being. There are many ways to say this: Mary *desires* their well-being; she *values* their well-being; she has established their well-being as a *goal*. The precise term is unimportant—what counts is that Mary is motivated to promote her clients' well-being. Being motivated to achieve goals involves emotional processes (see Averill, this volume, chap. 21). Promoting the well-being of her clients makes Mary feel good whereas failing to achieve this goal would make her feel bad.

Mary's motives, desires, or goals provide only half of the explanation, however. We also need to know about her beliefs concerning how she can achieve her goals. Mary believes that treating her clients empathically will have positive outcomes for them. In short, Mary behaves empathically because (a) she wants to promote the well-being of her clients, and (b) believes that behaving empathically will help her enhance their well-being.

Should this seem too simple, I might note that behavioral traits often serve several goals simultaneously. Mary's empathic behavior may satisfy not only her need to promote her clients' well-being, but also her need to be liked and admired by her clients. She might also believe that her empathic style will lead to a good performance evaluation and a larger paycheck.

Furthermore, some behavioral traits may be habits that once promoted goals but now are no longer useful. Or, if the depth psychologists are correct, behavioral traits may express unconscious desires. Depth psychologists also suggest that conflicting motives can become fused and lead to a compromise activity not clearly linked to any one goal. Ethologists talk about *displacement activities*, (e.g., eating, self-grooming) that serve to relieve tension when conflicting instincts arise. Thus, there is not always a simple one-to-one correspondence between behavioral traits and underlying motivational or cognitive traits.

Even if one could identify all of the relevant motives and beliefs underlying a behavioral trait, some would regard *this* explanation as incomplete. One might further inquire into the origin of the motives and beliefs. *Why* does Mary want to be a therapist rather than a truck driver? How did she conclude that Rogerian therapy is more effective than Freudian therapy? The answers to these questions can be found in personality development (e.g., Eder & Mangelsdorf, this volume, chap. 9) and in evolutionary psychology (e.g., D. Buss, this volume, chap. 13; A. Buss, this volume, chap. 14). Developmental and evolutionary explanations complement intentional explanations (Wakefield, 1989).

Some psychologists feel that it is insufficient to explain behavioral traits in terms of goals and beliefs for yet another reason: "Scientific" explanations should transcend common sense (McCrae, Costa, & Piedmont, 1993). Theoretical physics

is often presented as a science that contradicts our common sense assumptions about the solidity of objects and the absolute nature of time and space. From this perspective, the most important concepts in personality psychology are not well represented in ordinary language. McCrae (1990) proposes *openness to experience* as an example of such a concept.

Hofstee, de Raad, and Goldberg (1992) warn us, however, about the dangers of stepping out of the area of common language: "There is nothing against this advice, as long as the pertinent outcomes do not have to be communicated in words" (p. 162). Cattell transcended ordinary language with terms such as *Harria*, *Presemisia*, *Alaxia*, and *Protension*; ultimately these terms had to be translated into common trait language to be useful to practitioners (IPAT Staff, 1979).

In summary, most psychologists regard "outer" (behavioral) traits as descriptions that need explanation, and they assume that "inner" (emotional and cognitive) traits generate and therefore explain outer traits. Behavioral traits or consistencies may be determined by the interaction of several emotional and cognitive traits. Some personality psychologists, in order to provide deeper explanations of inner traits, inquire into their genetic and physiological bases, developmental histories, and roots in the evolution of the human species. Whether a scientific conception of traits needs to go beyond ordinary trait language is a matter of current debate.

### III. ISSUES IN THE ASSESSMENT OF TRAITS

#### A. Genotypic and Phenotypic Traits from the Perspective of the Self and Others

Self-ratings of traits correlate substantially ( $r$ s in the .4–.6 range—see Johnson, 1994) with ratings of the same trait made by others. Nonetheless, in individual cases, self-ratings sometimes disagree with ratings by other persons. This raises an interesting issue: When self-ratings disagree with ratings by others, whom are we to believe? The chapters in this handbook by Funder and Colvin (chap. 24) and Robins and John (chap. 25) discuss this issue in some detail. This section addresses the accuracy of ratings of genotypic versus phenotypic traits made by the self and others.

##### 1. *Actors Can Directly Experience Their Own Inner Traits, but Observers Must Infer Others' Inner Traits*

The outer/inner trait distinction is often assumed to affect the validity of personality assessment by self-ratings versus ratings by other persons. Self-assessment of genotypic traits is potentially more valid than other-assessment of these traits because people may directly experience their own inner traits whereas observers must infer them from verbal reports and nonverbal behavior. For example, anxious individuals should be aware of their anxiety level, whereas observers must infer their anxiety from signs such as a furrowed brow, sweaty palms, tremors, and hesitant speech style. Kenrick and Stringfield (1980) report that personality scores are more valid—

i.e., self-ratings correlate more highly with other ratings—for individuals who openly express their traits (see also Funder & Colvin, this volume, chap. 24). Funder and Dobroth (1987) found interjudge agreement to be higher for traits related to be highly visible.

## ***2. Observers Can Directly Experience Others' Outer Traits, but Actors Must Infer Their Own Outer Traits***

Individuals may have direct access to their inner traits, but they cannot directly observe their own behavior. This implies that external observers may provide a more valid assessment of a person's phenotypic traits. For example, people are typically poor judges of how charming they are, but this outer trait is obvious to an observer. Cooley's (1902) concept of the "looking glass self" suggests that our understanding of our own personality is determined by the feedback reflected from others around us, at least until we are able to take the perspective of others to imagine how we appear to them (Mead, 1934). Whether we listen to a real or an imagined audience, our knowledge of our outer traits is indirect and inferential.

## ***3. Defensiveness Hinders Accurate Self-Assessment***

Although the relationship between outer/inner traits and the validity of self- and other-assessment may seem intuitively compelling, it is incomplete. Individuals may be unaware, mistaken, or self-deceived about their inner traits (Averill, this volume, chap. 21; Paulhus & Reid, 1991; Paulhus, Fridhandler, & Hayes, this volume, chap. 22; Robins & John, this volume, chap. 25). Aspects of personality that are unknown to the individual but known to others are found in the "blind area" of the Johari window (named after Joe Luft and Harry Ingram; see Luft, 1966). The Johari window is illustrated in Figure 1. In the case of blind spots, observers provide more accurate assessments of inner personality than the person observed.

Individuals may also be reluctant to describe all their inner traits as they actually perceive them, preferring instead to describe traits that they would like others to believe they have. Paulhus and Reid (1991) call this process impression management. Inner traits that are not described to others are the "secret area" of the Johari window.

	Known to Self	Unknown to Self
Known to Others	Public Area	Blind Area
Unknown to Others	Secret Area	Unconscious Area

FIGURE 1 The Johari window.

The Johari window and Paulhus' research on social desirability responding suggest that self-reports of inner traits *may* be more accurate than observer assessments, but in the case of self-deception the converse is true. We may also have "secret areas" that we choose not to reveal.

#### ***4. Self-Observer Agreement Requires a Common Understanding of Language***

Accurate knowledge of one's inner traits and a willingness to share this with others are still insufficient to ensure agreement between self-description and description of the self provided by others. Full agreement also depends on the actor and observer using the same semantic and pragmatic rules for communication. For example, a person rating himself or herself for *thoughtfulness* will provide an inappropriate rating if he or she believes *thoughtful* to mean *considerate* but the rater believes the term means *contemplative*. Misunderstandings of the meaning of trait terms occur more often than researchers may realize (Goldberg & Kilkowski, 1985).

When we assess personality with questionnaires rather than rating scales, we encounter pragmatic as well as semantic misunderstandings. Pragmatic rules are implicit social conventions about meaning that can vary across subcultures who share the same language. The impact of pragmatics on measurement validity is virtually unexplored, but I can cite two illustrations here.

First, Johnson (1997) notes that item 77 on the California Psychological Inventory (CPI; Gough, 1987), "When I get bored I like to stir up some excitement," is a phrase used by delinquents who relieve their boredom by doing something illegal. For this reason, Johnson (1997) interprets the item as reflecting (lack of) conscientiousness. McCrae et al. (1993) apparently preferred a more literal interpretation and they judged the item to reflect extraversion. We do not know how a typical respondent interprets this item.

We do know that people who focus on the narrow, literal meaning of words often miss the broader social implications of personality items and therefore respond inappropriately (Johnson, 1993). A punctual and conscientious person who answers "false" to the item, "I am never late to appointments," because he or she thinks never means literally *never* has missed the point of the item. Pragmatic rules—i.e., our social conventions of language use—allow punctual people to say, "I am never late," because we know this really means, "I am a conscientious person who is rarely late." Similarly, pragmatic rules suggest that an intellectual person should answer "true" to CPI item 152, "I read at least ten books a year," even if he or she reads only three books a year.

The point of these examples of pragmatic ambiguity is as follows. People might be perfectly aware of their actual dispositions to be delinquent, extraverted, conscientious, intellectual, and so forth, and also be quite willing to acknowledge these dispositions through the items discussed above. Nonetheless, their responses to these items will convey valid information only when the test taker and test constructor interpret the item response in the same way.

### ***5. Observer Ratings of Outer Traits Are Valid Almost by Definition***

Whereas observer ratings of another person's inner traits are only rarely more valid than self-ratings, observer ratings of outer traits are usually more accurate than self-ratings of outer traits. An exception might be a case where an observer is prejudiced against the person he or she is rating. But on the whole, outer traits are—almost by definition—whatever impressions an actor makes on observers. If an individual is perceived by others as a loudmouth, then by definition that person is a loudmouth. This implies that observer ratings constitute an “ultimate criterion” of sorts for validating self-reports of outer traits (Hofstee, 1994).

Outer traits are social constructions of reality (Berger & Luckmann, 1966). From a social constructivist perspective, the “actual” traits that are assigned to a person are whatever the majority of observers believe should be assigned. Hogan and Briggs (1986) refer to the social consensus as a person's *reputation*. A person's view of his/her own reputation may be as correct but not more correct than his/her reputation as constructed by the social group.

To summarize, self-ratings of one's inner traits tend to be more valid than observer ratings of those traits except in cases of blind areas (self-deception) or secret areas (impression management). Conversely, observer ratings of one's outer traits (reputation) are almost always more valid than self-ratings of outer traits. People must have highly developed perspective-taking skills to describe accurately the way they appear to others (Mills & Hogan, 1978).

The fact that individuals may not provide valid self-ratings in the blind and secret areas presents problems for those of us who wish to assess personality with questionnaires and self-rating scales. How does one address this problem?

One possible solution is to identify subtle items, that is, items with less-than-obvious psychological significance or implications. Different responses to subtle items covary empirically with individual differences along a trait dimension for reasons unknown to the test taker and sometimes even the test constructor. Subtle items can be found through brute, dust-bowl empiricism. Unfortunately, research has demonstrated that subtle items are almost invariably not valid (Johnson, 1993). Valid self-assessment of blind and secret areas remains a challenge for personality researchers who are attempting to build better mousetraps.

### ***6. Controversy Surrounds the Assessment of Unconscious Traits***

The Johari window contains one more pane we have not discussed: the unconscious area. Unconscious traits are the foundation of psychoanalytic theories, but are often ignored by mainstream personality psychologists working within the cognitive Zeitgeist (Hogan, 1979; Weinberger & McClelland, 1990). Some might argue that unconscious traits, because they are unseen by the self or others, are not amenable to scientific study. Others would counter that unconscious traits are like nuclear particles. We cannot see these particles, but they leave traces in cloud chambers

and certainly have a palpable impact on us. Unconscious traits similarly cannot be directly observed, but leave traces of their activity and have an impact on us. The question is whether we can devise the equivalent of a cloud chamber or Geiger counter to assess unconscious traits.

Although clinicians often rely on their own intuition to access unconscious traits (Reik, 1948), some modern researchers claim that projective tests constitute a cloud chamber for the unconscious. Projective tests are simply stimuli (inkblots, photographs, sentence fragments) with open-ended response options. Rather than responding true or false, respondents can say or write as little or as much as they like. Their responses are then scored according to a set of rules to yield an evaluation of the respondent's level on various unconscious needs or motives.

An influential review paper by Entwistle (1972) cast serious doubts on the reliability and validity of projective tests. Undaunted, McClelland and his colleagues (McClelland, 1980; Weinberger & McClelland, 1990) marshalled further evidence for the reliability, validity, and utility of projective measures. McClelland also replaced the usual psychoanalytic framework for projective testing with an ethological framework. Summarizing research on projective measures in applied settings, Hogan (1991) concluded that these tests are about as valid as objective measures.

Scores on projective tests tend not to correlate with scores on objective tests measuring the same construct (Weinberger & McClelland, 1990). This finding led McClelland (1980) to assert that projective and objective tests measure two different kinds of traits. Specifically, he suggested that projective tests tap a more primitive, biologically based, affect-laden type of trait, whereas questionnaires assess a more cognitive, symbolic type of trait. The Weinberger and McClelland (1990) chapter reviews studies indicating that projective and objective measures predict different types of activities.

Is McClelland correct to argue that qualitatively different kinds of traits exist and that we need different kinds of measures to assess these types of traits? That is the question addressed next.

## **B. Trait Measurement through Questionnaires**

### ***1. Do Different Questionnaires Measure Different Kinds of Traits?***

The Edwards Personal Preference Schedule (EPPS; Edwards, 1959) purports to measure Murray's needs, Gough's (1987) CPI allegedly assesses "folk concepts," the Guilford-Zimmerman Temperament Inventory (GZTS; Guilford, Zimmerman, & Guilford, 1976) obviously aims to measure temperaments, and the Myers-Briggs Type Indicator (MBTI; Myers & McCaulley, 1985) is supposed to capture the cognitive functions in Jung's psychological types. Do these four tests actually measure four different kinds of traits?

According to McCrae and Costa (1989; McCrae, 1989; McCrae et al., 1993; Piedmont, McCrae, & Costa, 1992) the answer to this question is clearly no. McCrae

and Costa have demonstrated that the scales on these inventories assess the same five traits measured by their own NEO-PI (Costa & McCrae, 1992): Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. In fact, McCrae and Costa have ingeniously and systematically demonstrated that virtually every major inventory assesses some or all of the “Big Five” or Five-Factor Model (FFM) traits.

A look at actual items on these inventories also suggests that they are *not* measuring different kinds of traits. Consider the following items: “I like to plan and organize the details of any work that I have to undertake.” “I always see to it that my work is carefully planned and organized.” “You like work that requires considerable attention to details.” “When you start a big project that is due in a week, do you (a) take time to list the separate things to be done and the order of doing them, or (b) plunge in?” “I like to follow a strict routine in my work.” Can you tell which item measures a need, which measures a folk concept, and which measures a cognitive style?

All the items indicate a planful and serious-minded approach to work. But anyone unfamiliar with these inventories would likely be unable to tell that they came from the EPPS, CPI, GZTS, MBTI, and NEO-PI, respectively. The empirical and semantic overlap in the items across these instruments does not imply that needs, folk concepts, temperaments, and cognitive styles are identical *concepts*. Nonetheless, the *questionnaires* seem to be measuring similar, if not identical, constructs.<sup>4</sup> If the items reflect patterns of thoughts, feelings, or actions, one might as well use the generic term *trait* to describe what they measure.

I think it is pointless to worry about conceptual distinctions between trait constructs if they are measured in identical ways or if scores from different measures behave in similar ways (e.g., predict the same criteria equally well). Kilkowski (1975), for example, provides an interesting six-page analysis of the conceptual differences between Allport’s traits and Murrays’ needs. But he does not describe different methods for measuring traits and needs.

## ***2. Do Questionnaires Measure Phenotypic or Genotypic Traits?***

A closer look at the five items listed above shows that two refer to actual planful *behavior* and three refer to a *liking* for organization. Might it be important to distinguish phenotypic (outer behavioral) items from genotypic (inner cognitive or emotional) items? Angleitner, John, and Löhr (1986) and Werner and Pervin (1986) report that different inventories contain different proportions of phenotypic and genotypic items. They then assert that item characteristics may affect test validity,

<sup>4</sup> Emmons (this volume, chap. 20) also has hinted at the futility of trying to distinguish allegedly different goal constructs from each other. As he points out, the statements in Table 2 of his chapter representing four purportedly different goal constructs—current concerns, personal projects, life tasks, and personal strivings—are very similar.

but neither research team examined whether phenotypic or genotypic items were superior for predicting nontest criteria.

Johnson (1993a) examined the ability of phenotypic and genotypic items on the CPI to predict acquaintance ratings. He found that phenotypic items predicted extraversion ratings better than genotypic items. In domains other than extraversion, however, reference to outer or inner traits was not related to validity. I think genotypic versus phenotypic wording is unrelated to validity because genotypic tendencies normally find phenotypic expression. For example, people who want to get ahead eventually act in ambitious ways; conversely, people who act ambitiously normally have ambitious motives. Thus, to endorse the genotypic item, "I have a strong desire to be a success in the world," is tantamount to endorsing the phenotypic item, "I do whatever I can to get ahead" (and vice versa).

Because personality questionnaires simultaneously assess phenotypic and genotypic traits, I have found it useful to think about personality in terms of a trait construct that incorporates both levels of personality: *self-presentational style*. Self-presentations are any behaviors (including responses to questionnaire items) guided by inner traits that create impressions in others. I believe that all noncognitive questionnaires assess self-presentational styles (Johnson, 1981; Mills & Hogan, 1978). It does not matter whether the test is intended to measure moral reasoning (Johnson & Hogan, 1981a), vocational interests (Johnson & Hogan, 1981b), attitudes (Johnson, Hogan, Zonderman, Callens, & Rogolsky, 1981), or philosophical world views (Johnson, Germer, Efran, & Overton, 1988); responses to these various inventories create a distinctive impression on those who see the responses.

Self-presentation of traits that are already well known to everyone (the public area of the Johari window) is direct and straightforward (Wolfe, 1993). In the public area of personality one can take item responses at face value. If someone endorses the item, "I am rarely late for appointments," we can accept that this person is punctual. I agree with Wolfe (1993) that personality assessment via questionnaires proceeds in a straightforward fashion in most cases, even in contexts such as personnel selection (Hogan, 1991).

Nonetheless, self-presentation on questionnaires—like social behavior in everyday life—contains both conscious, intentional and unconscious, unintentional elements. This implies that we cannot *always* take item responses at their face value; ultimately we must determine, in an empirical fashion, what an item response means (Meehl, 1945). In particular, we cannot trust item content when blind, unconscious, or secret aspects of personality are being assessed.

Clearly, persons cannot disclose blind or unconscious traits by endorsing items whose content describes the trait. An overly critical person who is unaware that he or she is overly critical cannot validly respond to an item such as "I am overly critical." What is needed is an item that allows an observer to infer the trait. A more oblique item, such as "Spare the rod and spoil the child," might be endorsed by overly critical but unaware individuals. In everyday interactions, perceptive observers can make inferences about blind or unconscious areas from another person's slips of the tongue or body language; in questionnaires we depend upon

nonobvious empirical correlates of personality items to reveal information beyond the manifest content of the item.<sup>5</sup>

During normal interaction we know that people do not always tell the truth. We may, therefore, watch for signs of dissembling such as laughing nervously, averting the eyes, and touching one's face. Questionnaire items do not give us the nonverbal cues to detect dissembling, but over the years researchers have developed various techniques for detecting intentional misrepresentation. Items on dissembling keys often contain "unlikely virtues" (see Gough, 1987; Tellegen, in press)—they describe behaviors that are socially desirable but unlikely to be literally true (e.g., "I have never told a lie"). Interpreting these dissembling scales is problematic, however, because people exaggerate their virtues in everyday life as well as on questionnaires, and unlikely virtue scales predict nontest behavior (Johnson, 1990b).

This section has argued that all personality *questionnaires* measure a trait I call self-presentational style. Do other assessment modes such as cognitive tests (Emmons, this volume, chap. 20) and projective tests also measure self-presentational style? I believe so. Although the format of cognitive tests differs from questionnaires, I believe that persons who endorse statements such as those found in Table 2 of Emmons's (this volume, chap. 20) chapter will create a distinctive impression on others. Whether scores from the measures of cognitive style and needs are empirically distinguishable from each other and from ordinary personality questionnaire scores remains to be seen.

I am less certain about projective tests. Gough (1948) long ago argued that responding to projective tests involves self-presentation. More recently, however, Weinberger and McClelland (1990) have argued that scores on projective tests are uncorrelated with scores on objective tests because responses to the two types of tests are generated from two different parts of the brain. I think it is important to link units of personality analysis to neurophysiology, but I also think much more data will be required to forge this link. Until then I will stand by my view that responses to all forms of personality assessment involve self-presentation.

## IV. ALTERNATIVES TO TRAITS

### A. Units for Capturing Uniqueness

Because each person is obviously unique, psychologists occasionally suggest that we should use special units of analysis designed to capture the uniqueness of individual personality. This position, called the *idiographic* approach, contrasts with the *nomothetic* view that we should compare individuals with a common set of units.

I believe that the idiographic–nomothetic issue concerns how detailed our descriptions are rather than what kind of units we use to describe personality.

<sup>5</sup> Sadly, however, the track record for subtle items is very poor (Johnson, 1993b). We simply have not been very successful at designing subtle but valid items.

Ordinary traits are perfectly capable of describing what is unique about us. Consider the definition of traits as patterns of consistent thoughts, feelings, or actions *that distinguish persons from one another*. Traits, *by definition*, describe how we differ from one another, and the sum of these differences defines our uniqueness.

I think the real objection of idiographic psychologists to nomothetic trait description is that a limited number of trait dimensions (e.g., the Big Five; see Section III.B.1) fail to capture the richness and complexity of a unique person. Indeed, the Big Five, even broken down into six facets each (Costa & McCrae, 1992), cannot describe *everything* about someone's personality. But to think that the Five-Factor Model or any other model of personality can completely describe a person is to misunderstand models in science (Holt 1962; Rosenblueth & Wiener, 1945). A useful model is, by definition, a simplification: it retains only the *important* features of the infinitely complex domain it represents (Eckhardt, 1979). The precise number of important traits is still a matter of debate, but we cannot expect any of our limited models to capture every detail about personality.

## B. Types versus Traits

One final possible unit of analysis in the study of personality is the *type* construct. The notion of personality types is nearly as complex as personality traits, and I will not examine all of these complexities. Grant Dahlstrom (1972) has written a definitive monograph on the meaning of type. I also recommend articles by Gangestad and Snyder (1985, 1991) and by Paul Meehl (1992). Rather than reviewing these works, I will discuss two properties of types that are most often cited as distinguishing types from traits: their holistic character and their discrete character. To anticipate my conclusion, I believe that, in practice, the trait and type concepts are actually almost indistinguishable.

### 1. Are Types Holistic?

In previous writings, I have stressed the holistic nature of the type concept (Hogan & Johnson, 1981; Johnson & Ostendorf, 1993). I conceptualized types as constellations or patterns of traits that naturally co-occurred in persons. My metaphor for a type was a chemical compound composed of simpler elements. Types, like compounds, possess *emergent* properties, that is, properties not found in the traits (elements) taken by themselves—e.g., hydrogen and oxygen do not resemble water. If types have emergent properties, then the holistic addage, “the whole is more than the sum of its parts,” applies.

In an important paper, Mendelsohn, Weiss, and Feimer (1982; see also Weiss, Mendelsohn, & Feimer, 1982) provide a persuasive empirical and conceptual argument against the holistic conception of types. If their argument is correct, and it seems to be, properties of types can be derived from an understanding of the properties of the traits that make up the type, not from an emergent configuration of trait properties. For example, the type notion “extravert” can be broken down into the traits of gregariousness, impulsivity, and excitement-seeking, and all that

is predictable about extraverts can be traced to these traits. And so on for all the other type concepts.

If type concepts are not holistic and we reconceptualize them as collections (rather than configurations) of traits, types become nearly synonymous with *broad traits*. Consider the “Big Five” traits assessed by Costa and McCrae’s (1992) NEO-PI; each trait is decomposed into narrower facets. These facets can be further decomposed into more specific thoughts, feelings, and behaviors described by individual items. So perhaps my metaphor that contrasts types as compounds with traits as elements is misleading. It may be more accurate to say that types and traits vary on a continuum of breadth.

## **2. Are Types Discrete?**

The second alleged difference between types and traits is that types are discrete or discontinuous, whereas traits exist along a continuum of values. This may be true at a conceptual level, but at the level of assessment and application, this distinction vanishes (Hofstee & de Raad, 1992). To apply typologies in a continuous manner, one need only describe a person’s degree of resemblance (on as finely a graded a scale as one desires) to as many type constructs as one desires.

## **3. But Are Traits Continuous?**

At a conceptual level, traits exist along a continuum of values. However, at the level of measurement, a person’s score on a trait questionnaire does not necessarily indicate the degree or amount of the trait possessed. In the words of Meehl and Hathaway (1946), “simply counting how many responses . . . have been made seems to be very crude; . . . [our mathematical scaling procedures] should not mislead us into supposing that we are doing anything very close to what the physicist does when he cumulates centimeters” (p. 557).

In actuality, the number of keyed responses endorsed by a person yields a probability statement about whether the positive or negative pole of the trait concept applies to him or her. This point is most clearly seen in the case of scales constructed empirically by contrasting the responses of two criterion groups (e.g., schizophrenics versus normals). If one has a very high score, it becomes more probable that we should apply the (type!) label “schizophrenic.” But a score at the midpoint does not necessarily mean that the person is moderately schizophrenic. This may be true, but technically an average score means that the probability of correctly labeling the person (as normal or schizophrenic) approaches zero. Average scores on scales constructed by rational means or internal consistency are also ambiguous. An average score on a rationally constructed scale of, say, sociability may indicate either (a) a moderate amount of sociability or (b) uncertainty about the applicability of the labels “unsociable” or “sociable” (see Baumeister & Tice, 1988).

In practice, personality test users often convert trait scores into type categories. And, contrary to popular belief, one can do this without losing much information.

Hofstee and de Raad (1992) explain:

An optimistic estimate of the proportion of true trait variance of a personality scale, after subtraction of both unreliable and method variance, is 0.5, giving a standard error of measurement of 0.7. So, a standard score would have to be below  $-1.4$  or over  $+1.4$  to be significantly ( $p = .05$ ) different from 0. To trichotomize a population into extraverts, introverts, and neither accordingly would be quite realistic in view of the large error of measurement. (p. 62)

Real-world decisions about persons are almost always binary (yes–no) or categorical (friend–foe). This means that trait scores are usually transformed into categorical terms. Consider a programmer’s task of deciding whether a particular personality description should be triggered in a computer-generated personality report (Johnson, 1996). Either the score is high (or low) enough to print the narrative paragraph or it is not. Consider an employer hiring people on the basis of personality test scores. Either their scores are sufficiently auspicious to hire the person or they are not. The same situation occurs when counselors decide what careers to recommend or which therapies to administer to clients.

I conclude, then, that the trait concept, interpreted as a facet of a person’s self-presentational style, serves as the best unit of analysis for personality research. In applied settings, however, the real world forces trait continua to be treated as discrete types.

## ACKNOWLEDGMENTS

Part of this chapter was written while I was a visiting research fellow at Universität Bielefeld, supported by a fellowship from the Alexander von Humboldt-Stiftung. I express my gratitude to Alois Angleitner and Robert Wicklund for helping to arrange my stay and to the psychology department at Bielefeld and the von Humboldt-Stiftung for their support during that time. I also thank Robert Hogan and Jerry Wiggins for their feedback on an earlier draft of this chapter.

## REFERENCES

- Allport, G. W. (1937). *Personality: A psychological interpretation*. New York: Holt.
- Alston, W. P. (1975). Traits, consistency, and conceptual alternatives for personality theory. *Journal for the Theory of Social Behaviour*, 5, 17–48.
- Angleitner, A., John, O. P., & Löhr, F.-J. (1986). It’s *what* you ask and *how* you ask it: An itemmetric analysis of personality questionnaires. In A. Angleitner & J. S. Wiggins (Eds.), *Personality assessment via questionnaires* (pp. 61–107). NY: Springer-Verlag.
- Barron, F. (1953). Some personality correlates of independence of judgment. *Journal of Personality*, 21, 287–297.
- Baumeister, R. F., & Tice, D. M. (1988). Metatraits. *Journal of Personality*, 56, 571–598.
- Berger, P. L., & Luckmann, T. (1966). *The social construction of reality*. New York: Doubleday.

- Block, J. (1977). Advancing the psychology of personality: Paradigmatic shift or improving the quality of research? In D. Magnusson & N. S. Endler (Eds.), *Personality at the crossroads* (pp. 37–63). Hillsdale, NJ: Erlbaum.
- Buss, A. H. (1989). Personality as traits. *American Psychologist*, *44*, 1378–1388.
- Buss, D. M., & Cantor, N. (1989). Introduction. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 1–12). New York: Springer-Verlag.
- Cooley, C. H. (1902). *Human nature and the social order*. New York: Scribner's.
- Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R™) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Dahlstrom, W. G. (1972). *Personality systematics and the problem of types*. Morristown, NJ: General Learning Press.
- Eckhardt, R. B. (1979). *The study of human evolution*. New York: McGraw-Hill.
- Edwards, A. L. (1959). *Edwards Personal Preference Schedule manual*. New York: Psychological Corporation.
- Emmons, R. A. (1989). Exploring the relations between motives and traits: The case of narcissism. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 32–44). New York: Springer-Verlag.
- Entwistle, D. R. (1972). To dispel fantasies about fantasy-based measures of achievement motivation. *Psychological Bulletin*, *77*, 377–391.
- Epstein, S. (1983). Aggregation and beyond: Some basic issues on the production of behavior. *Journal of Personality*, *51*, 360–392.
- Funder, D. C., & Drobth, K. M. (1987). Differences between traits: Properties associated with interjudge agreement. *Journal of Personality and Social Psychology*, *52*, 409–418.
- Gangestad, S., & Snyder, M. (1985). "To carve nature at its joints": On the existence of discrete classes in personality. *Psychological Review*, *92*, 317–349.
- Gangestad, S., & Snyder, M. (1991). Taxonomic analysis redux: Some statistical considerations for testing a latent class model. *Journal of Personality and Social Psychology*, *61*, 141–146.
- Goldberg, L. R., & Kilkowski, J. M. (1985). The prediction of semantic consistency in self-descriptions: Characteristics of persons and of terms that affect the consistency of response to synonym and antonym pairs. *Journal of Personality and Social Psychology*, *48*, 82–98.
- Gough, H. G. (1948). The frame of reference of the Thematic Apperception Test. *Journal of Clinical Psychology*, *4*, 90–92.
- Gough, H. G. (1987). *CPI administrator's guide*. Palo Alto, CA: Consulting Psychologists Press.
- Guilford, J. S., Zimmerman, W. S., & Guilford, J. P. (1976). *The Guilford-Zimmerman Temperament Survey handbook: Twenty-five years of research and application*. San Diego, CA: EdITS.
- Hanson, N. R. (1958). *Patterns of discovery*. Cambridge, England: Cambridge University Press.
- Hendrick, C. (1977). Social psychology as an experimental science. In C. Hendrick (Ed.), *Perspectives on social psychology* (pp. 1–74). Hillsdale, NJ: Erlbaum.
- Hofstee, W. K. B. (1994). Who should own the definition of personality? *European Journal of Personality*, *8*, 149–162.

- Hofstee, W. K. B., & de Raad, B. (1992). Personality structure through traits. In G.-V. Caprara & G. L. Van Heck (Eds.), *Modern personality psychology: Critical reviews and new directions* (pp. 56–72). New York: Harvester Wheatsheaf.
- Hofstee, W. K. B., de Raad, B., & Goldberg, L. R. (1992). Integration of the big five and circumplex approaches to trait structure. *Journal of Personality and Social Psychology*, *63*, 146–163.
- Hogan, R. (1979, September). *Role theory as a depth psychology*. Paper presented at the 87th annual convention of the American Psychological Association, New York.
- Hogan, R. (1991). Personality and personality measurement. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 2, pp. 873–919). Palo Alto, CA: Consulting Psychologists Press.
- Hogan, R., & Briggs, S. R. (1986). A socioanalytic interpretation of the public and private selves. In R. F. Baumeister (Ed.), *Public self and private self* (pp. 179–188). NY: Springer-Verlag.
- Hogan, R., DeSoto, C. B., & Solano, C. (1977). Traits, tests, and personality research. *American Psychologist*, *32*, 255–264.
- Hogan, R., & Johnson, J. A. (1981, September). *The structure of personality*. Paper presented at the 89th annual convention of the American Psychological Association, Los Angeles.
- Holt, R. R. (1962). Individuality and generalization in the psychology of personality. *Journal of Personality*, *30*, 377–404.
- IPAT Staff. (1979). *Administrator's manual for the 16PF*. Champaign, IL: Institute for Personality and Ability Testing.
- Johnson, J. A. (1981). The “self-disclosure” and “self-presentation” views of item response dynamics and personality scale validity. *Journal of Personality and Social Psychology*, *40*, 761–769.
- Johnson, J. A. (1990a). Empathy as a personality disposition. In R. C. MacKay, J. R. Hughes, & E. J. Carver (Eds.), *Empathy in the helping relationship* (pp. 49–64). New York: Springer.
- Johnson, J. A. (1990b, June). *Unlikely virtues provide multivariate substantive information about personality*. Paper presented at the 2nd annual meeting of the American Psychological Society, Dallas, TX.
- Johnson, J. A. (1993a). *The impact of item characteristics on item and scale validity*. Manuscript submitted for publication.
- Johnson, J. A. (1993b, August). *Sex roles do not lead to gender differences in personality*. Paper presented at the annual conference of the Human Behavior and Evolution Society, Binghamton, NY.
- Johnson, J. A. (1994). *Interpreter's guide to the Bipolar Adjective Rating Scales (BARS)*. Unpublished manuscript, Pennsylvania State University.
- Johnson, J. A. (1996). *Computer narrative interpretations of individual profiles*. Manuscript submitted for publication.
- Johnson, J. A. (1997). Seven social performance scales for the California Psychological Inventory. *Human Performance*, *10*, 1–31.
- Johnson, J. A., Germer, C. K., Efran, J. S., & Overton, W. F. (1988). Personality as the basis for theoretical predilections. *Journal of Personality and Social Psychology*, *55*, 824–835.
- Johnson, J. A., & Hogan, R. (1981a). Moral judgments and self-presentations. *Journal of Research in Personality*, *15*, 57–63.
- Johnson, J. A., & Hogan, R. (1981b). Vocational interests, personality, and effective police performance. *Personnel Psychology*, *34*, 49–53.

- Johnson, J. A., & Hogan, R., Zonderman, A. B., Callens, C., & Rogolsky, S. (1981). Moral judgment, personality, and attitudes toward authority. *Journal of Personality and Social Psychology, 40*, 370–373.
- Johnson, J. A., & Ostendorf, F. (1993). Clarification of the five factor model with the Abridged Big Five-Dimensional Circumplex. *Journal of Personality and Social Psychology, 65*, 563–576.
- Kenrick, D. T., & Funder, D. C. (1988). Profiting from controversy: Lessons from the person–situation debate. *American Psychologist, 43*, 23–34.
- Kenrick, D. T., & Stringfield, D. O. (1980). Personality traits and the eye of the beholder: Crossing some traditional philosophical boundaries in the search for consistency in all of the people. *Psychological Review, 87*, 88–104.
- Kilkowski, J. M. (1975). Traits, situations, and the logic of explanation in psychology: A selective review of the issues and evidence. *Oregon Research Institute Research Monograph 15*(3).
- Luft, J. (1966). *Group processes: An introduction to group dynamics*. Palo Alto, CA: National Press.
- MacKinnon, D. W. (1944). The structure of personality. In J. McV. Hunt (Ed.), *Personality and the behavior disorders* (pp. 3–48). New York: Plenum Press.
- McClelland, D. C. (1980). Motive dispositions: The merits of operant versus respondent measures. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 1, pp. 11–41). Beverly Hills, CA: Sage.
- McCrae, R. R. (1989). Why I advocate the five-factor model: Joint factor analyses of the NEO-PI with other instruments. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 237–245). New York: Springer-Verlag.
- McCrae, R. R. (1990). Traits and trait names: How well is Openness represented in natural languages? *European Journal of Personality, 4*, 119–229.
- McCrae, R. R., & Costa, P. T., Jr. (1989). Reinterpreting the Myers-Briggs Type Indicator from the perspective of the five-factor model of personality. *Journal of Personality, 57*, 17–40.
- McCrae, R. R., Costa, P. T., Jr., & Piedmont, R. (1993). Folk concepts, natural language, and psychological constructs: The California Psychological Inventory and the five-factor model. *Journal of Personality, 61*, 1–26.
- Mead, G. H. (1934). *Mind, self, and society*. Chicago: University of Chicago Press.
- Meehl, P. E. (1945). The “dynamics” of structured personality tests. *Journal of Clinical Psychology, 1*, 296–303.
- Meehl, P. E. (1956). Problems in the actuarial characterization of a person. In H. Feigl & M. Scriven (Eds.), *Minnesota studies in the philosophy of science: Vol. I. The foundations of science and the concepts of psychology and psychoanalysis* (pp. 205–222). Minneapolis: University of Minnesota Press.
- Meehl, P. E. (1992). Factors and taxa, traits and types, differences of degree and differences in kind. *Journal of Personality, 60*, 117–174.
- Meehl, P. E., & Hathaway, S. R. (1946). The K factor as a suppressor variable in the Minnesota Multiphasic Personality Inventory. *Journal of Applied Psychology, 30*, 525–564.
- Mendelsohn, G. A., Weiss, D. S., & Feimer, N. R. (1982). Conceptual and empirical analysis of the typological implications of patterns of socialization and femininity. *Journal of Personality and Social Psychology, 42*, 1157–1170.

- Mills, C., & Hogan, R. (1978). A role theoretical interpretation of personality scale item responses. *Journal of Personality*, *46*, 778–785.
- Mischel, W. (1968). *Personality and assessment*. New York: Wiley.
- Myers, I. B., & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.
- Paulhus, D. L., & Reid, D. B. (1991). Enhancement and denial in socially desirable responding. *Journal of Personality and Social Psychology*, *60*, 307–317.
- Piedmont, R. L., McCrae, R. R., & Costa, P. T., Jr. (1992). An assessment of the Edwards Personal Preference Schedule from the perspective of the five-factor model. *Journal of Personality Assessment* *58*, 67–78.
- Reik, T. (1948). *Listening with the third ear: The inner experiences of a psychoanalyst*. New York: Farrar, Straus.
- Rholes, W. S., Newman, L. S., & Ruble, D. N. (1990). Understanding self and other: Developmental and motivational aspects of perceiving persons in terms of invariant dispositions. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 369–407). New York: Guilford Press.
- Rosenblueth, A., & Wiener, N. (1945). The role of models in science. *Philosophy of Science*, *12*, 316–321.
- Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 174–221). New York: Academic Press.
- Ross, L., & Nisbett, R. E. (1992). Perspectives on personality and social psychology: Books waiting to be written. *Psychological Inquiry*, *3*, 99–102.
- Tellegen, A. (in press). *Multidimensional Personality Questionnaire*. Minneapolis: University of Minnesota Press.
- Wakefield, J. C. (1989). Levels of explanation in personality theory. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions* (pp. 333–346). New York: Springer-Verlag.
- Weimer, W. B. (1974). Overview of a cognitive conspiracy: Reflections on the volume. In W. B. Weimer & D. S. Palermo (Eds.), *Cognition and the symbolic processes* (pp. 415–442). Englewood Cliffs, NJ: Erlbaum.
- Weimer, W. B. (1984). Limitations of the dispositional analysis of behavior. In J. R. Royce & L. P. Mos (Eds.), *Annals of theoretical psychology* (Vol. 1, pp. 161–198). New York: Plenum Press.
- Weinberger, J., & McClelland, D. C. (1990). Cognitive versus traditional motivational models: Irreconcilable or complementary? In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 562–597). New York: Guilford Press.
- Weiss, D. S., Mendelsohn, G. A., & Feimer, N. R. (1982). Reply to the comments of Block and Ozer. *Journal of Personality and Social Psychology*, *42*, 1182–1189.
- Werner, P. D., & Pervin, I. A. (1986). The content of personality inventory items. *Journal of Personality and Social Psychology*, *51*, 622–628.
- Wolfe, R. N. (1993). A commonsense approach to personality measurement. In K. H. Craik, R. Hogan, & R. N. Wolfe (Eds.), *Fifty years of personality psychology* (pp. 269–290). New York: Plenum Press.
- Young, N. P. (1975). The psychology of explanation and the measurement of explanatory satisfaction (Doctoral dissertation, Pennsylvania State University). *Dissertation Abstracts International*, *36*, 5775B–5776B.