

Cognitive Assessment of Personality and Psychopathology

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A cognitive orientation now pervades much of clinical psychology. No longer controversial or "revolutionary," cognitive explanations of clinical disorders as well as accompanying treatment interventions have rapidly proliferated during the past decade. Although the cognitive principles and constructs which clinicians have proposed markedly differ from one explanation or intervention to the next, all share a common denominator. Cognitive explanations assume that distinct patterns of dysfunctional thoughts either cause or maintain corresponding patterns of maladaptive behavior and emotion. Similarly, cognitive interventions seek to remove dysfunctional and/or substitute functional thoughts, assuming that alleviation or even disappearance of maladaptive behavior and emotion will follow.

Despite promise, both trends ultimately risk conceptual stagnation because of limited scope: The conceptual analyses highlight the role of cognitive *products*, or what the individual consciously thinks. Rarely, though, do clinical explanations or interventions explore the cognitive *mechanisms* and *processes* that distort what the individual consciously thinks (e.g., Ingram, 1984b; Kihlstrom & Nasby, 1981).

Refining cognitive explanations and interventions in clinical psychology requires a finer level of analysis, one that specifies how cognitive mechanisms and processes operate to produce and relieve disordered thoughts, emotions, and actions. Progress here, we believe, necessitates and presupposes an integrative model and technology of cognitive assessment. Although strategies and techniques of cognitive assessment have also proliferated recently (e.g., Kendall & Hollon, 1981; Kendall & Korgeski, 1979; Merluzzi, Glass, & Genest, 1981), few permit reasonable inferences about more than cognitive products. Arguably, many do not even assess what a person thinks but instead what a person reports thinking or, more often, reports having thought.

The cognitive perspective that currently dominates experimental psychology, the information processing paradigm (e.g., R. Lachman, Lachman, & Butterfield, 1979; Merluzzi, Rudy, & Glass, 1981), may address the limitations and oversights of cognitive assessment—somewhat. For example, experimental psychopathologists have extensively and profitably borrowed constructs and methods from the information processing paradigm to specify mechanisms and processes that may define the core deficits (or excesses) of several disorders, including schizophrenia, infantile autism, mental retardation, and organic brain syndromes. Already clinicians and psychopathologists have translated many of the experimental methods to assess organic brain syndromes. Eventually we expect that similar developments will transform and refine clinical assessment of other disorders (especially psychotic conditions) that seriously disrupt or prevent adaptive functioning.

Cognitive assessment of most disorders, however, cannot directly and indiscriminantly borrow either constructs or methods from the information processing paradigm and hope to succeed (cf. Kihlstrom & Nasby, 1981; R. J. Landau & Goldfried, 1981). For example, consider the cognitive analyses of the schizophrenic disorders which experimental psychopathologists have advanced. Although diverse, the explanations basically assume that one or more components of the information processing system have run amok: Selective mechanisms that control attention to and filtering of input break down, the processing of information occurs too slowly, sensory memory decays too quickly, and so forth. If the reader will pardon a computer metaphor, the explanations all implicate the "hardware" or the actual mechanics of the information processing system. The content of the information that the system processes, however, receives little, if any, notice. Accordingly, the experimental methods which cognitive psychopathologists have devised to examine schizophrenic disorders sample quite arbitrarily from the universe of content: Geometric shapes, strings of digits or letters, lists of words, narrative prose, and the like, do equally well.

The majority of individuals who seek and receive clinical services, however, do not suffer from an "across-the-board" breakdown of one or more control structures or processes. Instead, one can trace most of the cognitive problems of

most clients to a specific domain of content—namely, social information. Most clients misconstrue particular individuals or facets of the self, distort recollections of personal experiences and social events, adopt inadequate or inappropriate strategies of interacting socially when particular encounters arise, and so forth. The mechanics of the information processing system per se operate just fine. Rather, the major problem implicates “software” (again, pardon the metaphor) or the social beliefs and knowledge that the system contains and the cognitive rules according to which the system operates when processing social information.

Until the late 1970s, experimental psychologists and psychopathologists who advocate the information processing paradigm have failed to address social cognition, which may explain the reluctance of most clinicians who favor a cognitive perspective to consider, let alone embrace, the approach (cf. R. J. Landau & Goldfried, 1981). The recent emergence of a *social-intelligence* viewpoint in personality (Cantor & Kihlstrom, 1983; Mischel, 1984) may provide a suitable compromise, since both the relevant domain of content and requisite level of analysis occupy center stage. Unlike the information processing paradigm, the social-intelligence viewpoint specifically emphasizes social cognition, as well as the behavioral and emotional antecedents and consequents of processing social information. But, unlike the cognitive principles and level of analysis which clinicians have preferred, the social-intelligence viewpoint also has adapted constructs and methods from the information processing paradigm to examine more finely the mechanisms and processes that control social cognition, and, therefore, retains a major asset of the information processing paradigm as well as the particular focus which clinicians who endorse a cognitive perspective will appreciate. In this chapter we examine some of the implications of this viewpoint for the clinical assessment of personality and psychopathology.

Toward an Integrative Model of Cognitive Assessment

Briefly stated, the social-intelligence viewpoint argues that social behavior is cognitively determined—or, in other words, that people behave in accordance with the meaning that they ascribe to the total situation in which social interaction takes place. This meaning is constructed by means of a set of social-cognitive processes involving perception, memory, judgment, inference, and problem solving. Thus, the interindividual differences in social behavior (i.e., differences across subjects with the objective situation held constant) are caused by individual differences in the meaning ascribed to the situation. Furthermore, intraindividual differences (i.e., differences observed across situations with the individual held constant, or across time with individuals and objective situations held constant) are caused by changes in the meaning assigned to the situation.

The Representation of Social Knowledge

Both normal and abnormal personality, from this point of view, is most appropriately construed in terms of the knowledge brought to bear by the individual on social interactions. In specifying the nature of this knowledge, the social-intelligence framework has adopted a number of constructs from current information processing models, especially ACT* (J. R. Anderson, 1983). These include the distinction between declarative and procedural knowledge (J. R. Anderson, 1976, 1983) and between episodic and semantic memory (Tulving, 1972, 1984). Each of these constructs, when applied to knowledge in the social domain, provides an important source of cognitive variation between individuals and of the cognitive basis of maladaptive behavior. As such, these forms of knowledge constitute a central target for personality and clinical assessment.

Declarative knowledge: episodic and semantic

In cognitive psychology and artificial intelligence, declarative knowledge refers to facts and beliefs about the real and imagined world of objects and events. This fund of world knowledge subsumes abstract, *semantic* knowledge about the world, as well as concrete, *episodic* knowledge about specific encounters with particular objects. Episodic memories, then, are to be distinguished from semantic ones in that the former contain, in addition to descriptions of objects, some reference to the spatial, temporal, and emotional context in which an event took place, and to the self as the agent or experiencer of that event. Episodic memories for each unique experience are encoded against a background of preexisting semantic knowledge; and context-free semantic knowledge is used in making inferences during the construction and reconstruction of some particular experience. Similarly, semantic memories develop through the accumulation and abstraction of knowledge from related episodes.

The relations among declarative memories are represented in ACT* as a graphic network of nodes representing concepts and links representing the relations among these concepts. The associative strength between nodes is represented by the length or width of the links. Thus, each fragment of the network constitutes a proposition which represents some fact in the individual's fund of semantic or episodic knowledge.

Procedural knowledge

While declarative knowledge refers to *knowing that*, procedural knowledge represents *knowing how*. It consists of the rules, skills, and strategies by which the cognitive system operates to encode, manipulate, retrieve, and utilize declarative knowledge. It includes rules of linguistic syntax, logical and mathematical operations, judgment and inference, skilled motor activities, and the

like. While declarative knowledge is—at least in principle—available to conscious introspection, procedural knowledge is generally regarded as unconscious. According to ACT*, procedural knowledge begins as conscious, declarative knowledge about how to perform some overt or covert action. After extensive practice and opportunity for generalization, the procedure is rendered unconscious—though, of course, its nature can be inferred indirectly from cognitive and behavioral performance.

In ACT*, procedural knowledge is commonly represented as a production specifying some goal, an action or action sequence that can achieve that goal, and the conditions under which the action or action sequence can take place. Its format corresponds to an *if-then* statement, such that if the goal and conditions are instantiated, the action or action sequence follows automatically. Organized sets of productions define production systems which can accomplish complex cognitive and behavioral tasks.

Spreading activation

In the social-intelligence framework, the construct of spreading activation also plays a central role. According to ACT*, nodes in the declarative memory network are activated by the processing of perceptual inputs. Encoding a memory for an event, then, involves activating preexisting nodes corresponding to the features of the event, and establishing associative links corresponding to the relations among these features. Nodes that cross some threshold of activation become conscious. Once a source node has become deactivated (e.g., by processing another perceptual input), activation fades over time. Therefore, a node that has been recently activated can be reactivated more easily than one that has not; and nodes that are frequently activated retain more activation, and thus enter consciousness more readily, than those that seldom occupy the focus of attention. ACT* assumes that only a small set of nodes can be represented in consciousness simultaneously. Therefore, nodes that chronically serve as source nodes by virtue of frequent activation may prevent alternative or competing nodes from entering consciousness.

The elements of the memory store interact according to the principle of spreading activation (Collins & Loftus, 1975). Once a node in declarative memory is activated, activation spreads through the associative network along links connecting the source node to others. Source nodes that receive more attention contribute more activation. Activation spreads faster where the associative links are stronger; but, unless the source node is continually activated, activation can spread to only a limited degree before it fades. Any nodes linked to the source node that cross a threshold of activation also enter consciousness. This process is facilitated, of course, if the nodes are closely associated with the source, or if they are already near threshold by virtue of priming or chronic activation.

Implications for Personality

From the viewpoint of social-intelligence theory, declarative and procedural social memory provides the cognitive basis for the construction of social interaction. Insofar as personality is manifest in interindividual and intraindividual differences in social interaction, therefore, social memory is a major component in personality.

Declarative social knowledge: concepts and episodes

In the social domain, declarative semantic knowledge consists of the individual's repertoire of social concepts—mental representations of him- or herself (Kihlstrom & Cantor, 1985), other people (Cantor & Mischel, 1979), interpersonal behaviors (Hampson, 1982), and the situations in which social interactions take place (Cantor, Mischel, & Schwartz, 1982). This knowledge is hierarchically organized, with highly generalized, abstract social concepts subsuming more specific, concrete social entities. Much of this knowledge is summarized by the phrase "implicit personality theory," or the individual's intuitive knowledge of how individual differences are organized (Rosenberg, 1977). Another large component consists of social stereotypes, which can be considered mental representations of various outgroups (D. Hamilton, 1979). Presumably, this knowledge is abstracted from direct and vicarious experience, according to the sorts of principles described by cognitive social learning theory (Bandura, 1977b; Mischel, 1973; Rotter, 1972).

Similarly, declarative episodic knowledge consists of the individual's memory for social interactions in which he or she has participated, directly or indirectly, as agent or experimenter. A central component of episodic memory is, of course, the individual's record of autobiographical memories (Kihlstrom, 1981). While memory for personal experiences has not yet been studied in any great detail (Gruneberg, Morris, & Sykes, 1978; Neisser, 1982), some principles of episodic social memory can be adduced from the study of *person memory* (Hastie *et al.*, 1980), a variant of verbal learning in which subjects are asked to remember the behaviors and characteristics displayed by specific other people. While episodic knowledge is represented propositionally in much the same manner as semantic knowledge, it does seem to have some unique organizing principles associated with self-reference, and with the spatial, temporal, and emotional context in which the remembered events take place.

Procedural social knowledge: rules and skills

In the social domain, procedural knowledge refers to the rules that people follow when engaged in social intercourse. Some of these rules guide the processing of social information such as selective attention (Cantor, 1981) and the

selective encoding and retrieval of information about social entities (Hastie & Carlston, 1980); others are geared to tasks of social judgment and inference such as categorization (Cantor & Mischel, 1977), testing hypotheses about the objects of social judgment (M. Snyder, 1981c; Swann & Read, 1981a), and causal attribution (E. E. Jones, 1976; Kelley, 1972; Weiner *et al.*, 1971).

Procedural social knowledge also includes the social skills by which we negotiate social exchange (Athay & Darley, 1981). For example, there is a variety of impression-management strategies such as ingratiation (E. E. Jones, 1964) by which we can control the impressions that other people form of us (E. E. Jones & Pittman, 1982). In addition, there are scripts for various social interactions (Abelson, 1981). Scripts are similar to situation categories, in that they consist of a set of features describing the events that occur in some social interaction such as going to a restaurant; however, they differ in that these events are organized in terms of the chronological sequence in which they occur. As declarative knowledge structures, scripts enable us to categorize the situations in which we find ourselves; as procedural knowledge structures, they guide our behavior with others who are enacting the same script. As with declarative semantic knowledge, it seems likely that procedural knowledge in the social domain is acquired through precept and example, according to the principles of social learning theory.

Individual differences

The social-intelligence perspective of personality, employing the formal language of cognitive psychology, also provides a means of conceptualizing individual differences that are centrally relevant to personality and psychopathology. For example, each person necessarily possesses a different fund of episodic memories from the next. Moreover, each individual will have a somewhat different conceptual representation of the social world, and a somewhat different repertoire of rules and skills for guiding social interactions. That there will be important individual differences in the content of the social-knowledge repertoire goes almost without saying. In this chapter, however, we wish to say something about individual differences in the way in which these contents are structured, and in the cognitive *processes* that operate on them (see also Cantor & Kihlstrom, 1983).

One important dimension of individual differences is the person's expertise in a particular social domain. Expertise cuts across both declarative and procedural knowledge. By definition, of course, experts in a particular domain have acquired more "factual" knowledge, semantic and episodic, than novices. Moreover, experts may organize declarative knowledge differently than novices, establishing more associative links between the cognitive elements that define the domain, and perhaps also structuring the elements according to more complex

and efficient hierarchies (e.g., Chase & Simon, 1973; Chi & Koeske, 1983). As a consequence of greater organization, areas of expertise should become more accessible, facilitating retrieval of relevant concepts and episodes to comprehend and interpret new information. Greater organization and accessibility should also free processing capacity to notice discrepancies and to assimilate exceptions. The latter characteristic may unintentionally promote conservative strategies of processing information, which may often render the expert more resistant to change than the novices (Crocker, Fiske, & Taylor, 1984). Depending on the circumstances and consequences, greater resistance to change could prove either adaptive or maladaptive.

The double-edged nature of expertise, especially in the social domain, is further revealed by its procedural aspects. Experts have developed an extensive repertoire of procedural rules to process and interpret relevant information and to plan appropriate behavior. With repeated application, procedural rules tend to become dissociated from awareness, which again frees processing capacity to pursue and accomplish other ends and goals (e.g., Shiffrin & Schneider, 1977), and which automatizes thought and action in the relevant domain. The automatic and unconscious quality of procedural knowledge, ironically enough, means that experts often run the risk of applying rules uncritically, even "mindlessly" (Chanowitz & Langer, 1980), and cannot easily articulate what they are doing or why (Nisbett & Wilson, 1977). If the procedural rules become inappropriate or maladaptive (e.g., because the "rules of the game" have changed), expertise can pose special problems. First, the inability to articulate the rules, preventing reflection and evaluation, may hinder change. In addition, even when identified, the process of replacing inappropriate, maladaptive procedures with more appropriate, adaptive ones is probably arduous and time-consuming, if only because "old" rules, once automatized, may not be truly lost from the repertoire, and hence may continue to dominate and intrude upon "new" ones.

Individual differences between chronically primed social concepts and autobiographical memories define a second, central feature of personality. Because nodes from associative networks can store activation, life contexts and experiences that often recur will produce social concepts and autobiographical memories that become and remain chronically primed (i.e., close to threshold) and easily accessed to interpret new and reinterpret old events and situations. To the extent that life contexts and experiences between individuals differ, the particular set of chronically primed social concepts and autobiographical memories will also differ (E. T. Higgins & King, 1981; E. T. Higgins, King, & Mavin, 1982). Chronically primed and easily accessible concepts and memories will generate further cognitive variation between individuals. Activation will spread repeatedly and readily to and from chronically primed concepts and memories and related nodes, and joint activation will serve both to establish and strengthen associative pathways that link easily accessible ideas and similar information.

Ideas that become chronically primed, therefore, should organize and integrate the particular networks of declarative social knowledge that an individual articulates and elaborates most (e.g., Bargh, 1982).

The selective effects of mood states identify a third dimension of individual differences. Considerable research now indicates that mood states can selectively direct attention to congruent features of the social environment, and selectively prime through spreading activation social concepts and autobiographical memories (e.g., Bower, 1981; D. M. Clark & Isen, 1982; Nasby, 1986a,b; Nasby & Yando, 1980, 1982). Moreover, the selective processing of social information constrains the particular interpretations (notably, judgments and inferences) that emerge from social events and situations. Different moods, then, may produce different interpretations of the same or a comparable situation from different individuals or from the same individual over different occasions. And, presumably, different interpretations will produce different responses to the same or a comparable event or situation.

Frequent and intense experiences of a particular mood can establish social concepts and autobiographical memories that remain chronically primed. Wittingly or unwittingly, therefore, individuals can develop cognitive expertise about some emotions but remain ignorant about others. Individuals also develop procedural rules to handle mood states. Procedural rules may control the processing of social information, which may either induce a particular mood directly (cf. Beck, 1976; Schachter & Singer, 1962) or provide "feedback" to influence the course and fate of a particular mood that already exists (cf. Mischel, Ebbesen, & Zeiss, 1973, 1976; Nasby & Yando, 1980, 1982). For example, most individuals have acquired a repertoire of strategies, cognitive and behavioral, to create and prolong the experience of pleasant moods and to curb the experience of unpleasant moods. The extent to which procedural rules successfully regulate mood states no doubt varies a great deal from one individual to the next, and earmarks an important feature of personality development (Nasby & Yando, 1980, 1982) and adaptive versus maladaptive functioning (Beck, 1976).

Toward a Technology for Cognitive Assessment

In a previous paper (Kihlstrom & Nasby, 1981), we explored a variety of techniques for assessing declarative knowledge relevant to personality and social interaction—including the kinds of maladaptive percepts, memories, judgments, and inferences that lie at the heart of psychopathology from a cognitive view. In the present chapter we undertake a similar investigation of techniques for assessing clinically relevant procedural knowledge in the social domain. Before considering specific techniques, though, we examine some of the special problems for both assessment and intervention that procedural social knowledge raises.

Procedural Social Knowledge

First, as noted earlier, procedures are by their very nature largely unconscious, inaccessible to introspective awareness. Therefore, self-report methodologies of the sort proposed for assessing the individual's fund of ostensible facts will have limited utility when it comes to his or her rules and skills. Moreover, again as noted earlier, proceduralization is largely a matter of extensive practice. While it may be possible to alter some aspect of a person's network of declarative knowledge by means of a carefully selected and cogently presented series of counterexamples, achieving the same end with a rule or skill will require much, much more time and effort.

Furthermore, as Tulving (1983) has noted, an important distinction between declarative and procedural knowledge is that the former has truth value whereas the latter does not. An individual may think that friendly people are also intelligent, that businesspeople are shrewd, that women are dependent, and so forth. Each of these "facts" is right or wrong; and if it is wrong, the erroneous knowledge can be corrected. Procedural knowledge, by contrast, does not have this property: It simply is the way which the person has of achieving certain goals under certain conditions. The procedure itself has evolved precisely because it has proved effective in achieving some specific goal, or because—in the absence of any direct, personal experience in goal-attainment—the person has been given good reason, by virtue of the precept or example of others, to think that it is so. Altering procedures would seem to require one of two principle tactics. First, the therapist may lead the client to question whether the goals are appropriate, or the conditions right, leading the person to retain the procedure in his or her repertoire but employ it under different circumstances. In the framework of ACT*, this seems more a matter of altering declarative knowledge than anything else. Second, the therapist may persuade the client that the procedure is ineffective in achieving the desired goal, or that there is a more efficient or appropriate way of doing so. In the framework of ACT*, therapy then would involve extensive retraining such that the substitute procedure replaces (or at least dominates) the original one.

Finally, it should be noted that social procedures are rules for social interactions. According to social exchange theory (Athay & Darley, 1981; Homans, 1961), each participant in a social interaction has entered the situation in order to achieve some goal. The interaction proceeds as the partners exchange love, status, money, goods, and services so that their individual goals may be met. In many cases, of course, the partners have the same goal in mind. In any event, such strategic interactions are rule governed.

Rules for Processing Social Information **Selective attention**

The processing rules that selectively direct attention to some rather than other sources of personal and social information definitely warrant greater considera-

tion from personologists and psychopathologists. After all, the mechanisms and processes that control attention define the contents of focal awareness (*what* the person consciously experiences and thinks) and provide the raw data (the activated configuration of declarative nodes) to which other processing rules apply and from which the individual interprets a particular situation or event to plan behavior. Moreover, selective attention to personal and social information may contribute significantly to strategies of regulating mood states. An experiment which Mischel *et al.* (1973) conducted illustrates the last point.

Mischel *et al.* devised a simple but effective means of assessing selective attention or exposure to personality feedback about the self among normal subjects. Before the experiment, subjects completed a series of "personality tests" and later expected to receive feedback. During the actual experiment, subjects first completed an "achievement test" of intellectual ability. To induce positive or negative moods, respectively, subjects then received bogus feedback of having either succeeded or failed; other subjects received no feedback about intellectual ability. All subjects finally received 10 minutes to examine booklets, one of which ostensibly contained personality feedback about "positive assets," the other of which ostensibly contained feedback about "negative liabilities." Mischel *et al.* surreptitiously monitored how long each subject read or studied each booklet to index selective attention. The results indicated that subjects who experienced success attended significantly longer to personality assets than subjects who either failed or received no information about intellectual ability; the latter groups did not differ. Manipulation of success-failure did not differentially affect how long subjects attended to personal liabilities. According to Mischel *et al.*, subjects who experienced success adopted a processing strategy that would maintain or even bolster the positive mood, namely, attending preferentially to personal assets. Ordinarily, however, one would not expect normal subjects who experience failure to adopt the symmetric but opposite strategy of attending more to personal liabilities, which might prolong or exacerbate the negative mood; disturbed individuals (e.g., clinical depressives and others who lack self-esteem), though, very well might.

Although no studies have yet examined selective attention to feedback about personal assets and liabilities among clinical populations, one which Swann and Read (1981a) conducted illustrates the potential of the method. Swann and Read identified two groups of participants: "self-likables" and "self-dislikables," who examined personality feedback that either confirmed or disconfirmed the self-concept. "Self-likables" attended more to positive (confirmatory) than negative (disconfirmatory) feedback. "Self-dislikables" did the opposite.

A similar procedure might contribute to the assessment of clinical disorders. For example, clients might receive an opportunity to examine booklets that ostensibly contain personality feedback about the self. Instead of just two booklets (one containing desirable, the other undesirable, feedback), the clinician might construct and present several, each containing specific and homogeneous

information about a particular characteristic. Suitable characteristics would certainly include interpersonal traits (J. W. Wiggins, 1979) and emotional states (Russell, 1980). Preferential attention to feedback about some rather than other characteristics might identify areas of self-expertise and self-ignorance as well as personal concerns about interpersonal behaviors and emotional experiences. One could also extend the technique easily, allowing the client the opportunity to examine personality feedback that ostensibly refers to significant others or interaction partners.

Selective encoding

The "depth-of-processing" model and corresponding paradigm (Cermak & Craik, 1978; Craik & Lockhart, 1972; Craik & Tulving, 1975) have motivated and shaped much of the research that has examined the acquisition, construction, or encoding of episodic and autobiographical memories during an experimental session. Typically, the depth-of-processing paradigm tests incidental memory, via recall or recognition, of stimuli that the subject has rated or evaluated according to one or more orienting sets (e.g., semantic, structural, phonemic, orthographic). Rating semantic attributes of a stimulus presumably requires more elaborative ("deeper") processing and produces a more distinctive and hence memorable trace than rating nonsemantic attributes.

Several experiments have extended the depth-of-processing paradigm to include self-reference orienting sets (e.g., deciding whether or not particular attributes characterize the self). Results have often indicated that self-reference enhances recall and recognition more than a variety of comparison tasks, semantic and nonsemantic alike (T. B. Rogers, 1981). Theoretically, self-reference enhances episodic memory because concepts and associations between concepts about oneself represent the most extensive and intricate network most individuals have developed, thereby permitting and producing through the application and execution of procedural rules the construction of more elaborate and distinctive traces.

Importantly, several factors qualify the general conclusion that self-reference enhances memory. Some of the factors, which should interest personologists, clinicians, and psychopathologists, include subject and stimulus characteristics as well as experimental or situational manipulations. For example, H. Davis (1979a) compared groups of depressed and nondepressed subjects who completed structural, phonemic, semantic, and self-referent ratings of nondepressed-content personal adjectives (e.g., curious, loyal, organized). Only among the nondepressives did self-reference enhance recall of nondepressed-content personal adjectives above the remaining tasks. Kuiper (e.g., Derry & Kuiper, 1981; Kuiper & Derry, 1982; Kuiper & MacDonald, 1982) has conducted a series of similar experiments, but has also sampled depressed-content personal adjectives

(e.g., bleak, guilty, helpless), and extended the range of non-self-referent rating tasks. For example, Derry and Kuiper (1981) compared the recall performance of three groups (clinical depressives, nondepressed psychiatric controls, and normal nondepressives) who completed structural, semantic, and self-referent ratings of depressed- and nondepressed-content personal adjectives. Again, only the self-referent encoding task produced differences between the recall performance of the groups. Among the nondepressives (both psychiatric and normal controls) self-referent, yes ratings of nondepressed-content enhanced recall. Conversely, self-referent, yes ratings of depressed-content enhanced recall among the clinical depressives. Kuiper and Derry (1982, Experiment 1) obtained a pattern of recall from mild depressives that differed slightly: Compared to a semantic task, self-reference increased recall of *both* depressed and nondepressed content. Among nondepressives, self-reference again only facilitated recall of nondepressed content, which also occurred during a subsequent experiment (Kuiper & Derry, 1982, Experiment 2) that substituted a comparison task of other-reference (rating whether or not personal adjectives described a public figure). Mild depressives, however, recalled more self- than other-referenced depressed content.

To explain the relationships between depression and selective recall of self-referenced depressed and nondepressed material, Kuiper (e.g., Kuiper & Derry, 1981; Kuiper, MacDonald, & Derry, 1983; Kuiper, Olinger, & MacDonald, in press) has proposed a "content-specific self-schema model," which extends the previous theorizing of A. T. Beck (1967, 1976). Basically, the model assumes that depressives have developed a negative, whereas normals have developed a positive, self-schema which somehow facilitates the processing of congruent information. Ingram (1984b; Ingram *et al.*, 1983) and Nasby, 1986a,b) have offered an alternative, though perhaps complimentary, interpretation that emphasizes cognitive *processes* rather than *content*. Unlike Kuiper, who assumes that the self represents a unified, single, or monolithic structure, Ingram and Nasby have argued that individuals—normal as well as depressed—articulate and elaborate a variety of context-specific self-concepts (e.g., "self-when-elated" or "self-when-depressed"). Depressed and nondepressed individuals alike have developed and established both negative and positive concepts about the self (see Mischel *et al.*, 1973) rather than one versus the other. Presumably, then, factors and processes that selectively activate (or inhibit) negative rather than positive networks of concepts about the self and according to which individuals process (e.g., encode, store, and retrieve) self-relevant information differ between the depressed and nondepressed.

To activate positive and negative concepts about the self, Ingram *et al.* (1983) manipulated success–failure, whereas Nasby (1986a) directly induced elation–depression. Ingram *et al.* found that nondepressed subjects who had succeeded later recalled more positive self-referents than nondepressed subjects who had failed or mild depressives who had either succeeded or failed. Among the de-

pressed subjects, however, recall of positive self-referents did not differ between the success and failure conditions. Ingram *et al.* concluded that mild depressives either do not or cannot activate positive self-concepts as readily as nondepressives to process (specifically, encode) self-relevant information following experiences of success. Nasby (1986a) found evidence that nondepressives have developed negative as well as positive self-schemata, which congruent moods can activate: Compared to "neutral" mood, depressed mood facilitated the encoding and retention of self-referenced, yes-rated (congruent), depressed content—the same effect Kuiper obtained from clinical depressives; elated mood, conversely, facilitated encoding and retention of self-referenced, yes-rated, nondepressed content. Interestingly enough, the moods did not "spill over" to affect recall of information about familiar and significant others (e.g., best friend, mother) selectively.

The results suggest, therefore, that the moods *specifically* activated or "primed" congruent networks about the self. Considered jointly, the studies which Ingram and Nasby have conducted underscore the promise of examining the processing as well as the content differences between self-concepts or self-schemata among depressed and normal individuals. Since Nasby (1986a) did not test clinically depressed subjects and since Ingram *et al.* (1983) did not sample depressed-content personal adjectives, however, we do not know yet whether depressed individuals activate negative concepts more readily than normal counterparts.

Other studies and experiments have simplified but managed to preserve the spirit of the paradigm (e.g., testing incidental memory, varying stimulus content, examining self-reference) by dropping baseline or comparison tasks, ignoring the distinction between yes and no ratings, and so forth. The revised methods should prove more tractable clinically to assess episodic memories that an individual encounters and encodes during an experimental session.

For example, Markus, Crane, Bernstein, and Siladi (1982) examined relationships between self-schemata about gender and the processing of "masculine," "feminine," and "neutral" information. Markus *et al.* first identified and then tested four groups of subjects: masculine schematics, feminine schematics, high androgynous, and low androgynous. One task, among several, required subjects to rate the self-descriptiveness of masculine, feminine, and neutral attributes. A surprise test of incidental memory followed. Feminine subjects recalled more feminine than masculine attributes and more feminine attributes than masculine subjects, who produced the converse pattern of incidental memory. Although high androgynous subjects recalled more feminine than masculine attributes, the difference did not approach that obtained from the groups of masculine and feminine subjects. Low androgynous subjects did not differentially recall feminine and masculine attributes, and recalled fewer of both than high androgynous subjects. Convergent results from other tasks suggested that

masculine and feminine subjects have articulated and elaborated richly interconnected networks of attributes and concepts that organize, respectively, masculine and feminine information about the self. High androgynous subjects have developed both masculine and feminine self-schemata, whereas low androgynous subjects have established neither. Mills (1983) has reported similar results and endorsed similar conclusions.

Other experiments have addressed whether and how induced moods selectively affect the encoding and retention of autobiographical and episodic information about personality feedback. For example, Ingram (1984a) found that subjects who experienced negative mood and received negative feedback recalled more information than subjects who received the same feedback but experienced either positive or neutral mood. In addition, among subjects who experienced positive mood, those who received negative feedback about the self recalled less information than those who received positive feedback. Mischel *et al.* (1976) conducted a similar experiment, but assessed recognition memory rather than free recall. From the recognition data, Mischel *et al.* calculated d' , which indexed memory strength or the ability of a subject to discriminate between targets and distractors that the personality feedback did and did not contain, respectively. Results indicated that subjects who experienced positive mood retained less of the unfavorable feedback about the self than subjects who experienced either negative or neutral mood. Mood did not selectively affect retention of feedback about personal assets. Finally, Natale and Hantas (1982), who also tested recognition memory and calculated d' to index memory strength, obtained a pattern of results that differed somewhat: Sad mood reduced the retention of feedback about personal assets; retention of feedback about personal liabilities, however, differed insignificantly across groups that experienced a happy, neutral, or sad mood.

Clinical psychologists will find the results which Ingram (1984a), Mischel *et al.* (1976), and Natale and Hantas (1982) obtained interesting, since the experimental contexts and designs resemble the communication and processing of personality feedback that occur during treatment. More specifically, the results assume clinical significance to the extent that selective encoding of therapeutic information and personality feedback influences subsequent actions, cognitions, and emotions. And, given that mood selectively alters the impact of personality feedback—disrupting and/or facilitating “deep” or elaborate processing, respectively, of incongruent and congruent information about the self—clinicians might either assess or, perhaps better yet, manipulate the mood a client experiences when the feedback occurs to optimize the impact of the information (see Nasby & Yando, 1980, 1982). And, instead of providing global or undifferentiated feedback about personality strengths and weaknesses, clinicians might also draw finer distinctions, presenting feedback about specific attributes from either the interpersonal or emotional domain (Russell, 1980; J. W. Wiggins, 1979).

The pattern of selective encoding across specific attributes could reveal areas of interpersonal expertise and ignorance about the self or the emotional states that currently dominate the concerns and experiences of a client.

Selective retrieval

The studies of episodic and autobiographical memory we have reviewed above concern events and information which individuals encountered and processed during an experimental session, and, therefore, address most directly factors that affect encoding and acquisition. Several experiments and studies have also examined retrieval of episodic and autobiographical memories about events and personal experiences that antedate the experimental session.

For example, Markus (1977) reasoned that if a particular characteristic defines a central attribute or feature of the self (an area of self-expertise), then one should access behavioral evidence (specific examples) from autobiographical memories more readily than if the particular characteristic does not. Across a variety of behavioral domains (e.g., independence-dependence, masculinity-femininity), results have confirmed the hypothesis. Clinical applications of the same technique to assess selective accessibility and retrieval would simply require the sampling of appropriate content.

Most of the retrieval studies and experiments, though, have examined relationships between mood states, whether naturally occurring or deliberately induced, and accessibility of pleasant and unpleasant experiences. Although exceptions and deviations complicate matters, results more often than not favor a congruity hypothesis: Pleasant mood facilitates and/or disrupts accessibility and hence retrieval of positive and negative experiences, respectively; unpleasant mood often, though less consistently, does the reverse.

Two indexes, which do not always converge, have operationalized accessibility: response latency and probability of recall. Consider first studies and experiments that have measured response latency. For example, Lloyd and Lishman (1975) as well as D. M. Clark and Teasdale (1982) asked depressed patients to retrieve autobiographical memories of pleasant and unpleasant experiences and measured response latencies. Lloyd and Lishman (1975) found a negative relationship between severity of clinical depression and response latencies to retrieve unpleasant experiences. Response latencies to retrieve pleasant experiences and severity of clinical depression correlated positively but insignificantly. D. M. Clark and Teasdale (1982) examined depressed patients whose mood fluctuated diurnally. Unlike Lloyd and Lishman, however, Clark and Teasdale found no relationship between mood level and response latencies to retrieve either pleasant or unpleasant experiences, perhaps because mood level did not fluctuate enough.

Other experiments have actually manipulated happy or sad moods among normal subjects through a variety of means to examine the congruity hypothesis

(e.g., Riskind, 1982; Riskind, Rholes, & Eggers, 1982; Teasdale & Fogarty, 1979; Teasdale & Taylor, 1981; Teasdale *et al.*, 1980). Consistently, results have revealed either one or both of the following effects: Individuals who experience a happy mood access pleasant events more quickly than unpleasant events and/or retrieve pleasant events more rapidly than individuals who experience a sad mood. The converse has seldom occurred. Response latencies to retrieve unpleasant experiences often do not differ between happy and sad moods. Nor does sad mood differentially affect response latencies to access and report pleasant versus unpleasant experiences.

Consider next the studies and experiments that have operationalized accessibility according to probability of recall. For example, D. M. Clark and Teasdale (1982) examined not only response latency but also probability of recall among clinical depressives whose mood fluctuated diurnally: When more depressed, subjects recalled more unpleasant than pleasant experiences; when less depressed, the opposite occurred. (Clearly, then, response latency and probability of recall do not always converge.)

A few experiments (e.g., M. Snyder & White, 1982, Experiments 1 & 2; Teasdale & Taylor, 1981) have obtained similar results from normal subjects following induction of happy or sad moods. Other experiments also have obtained significant interactions between mood states and selective retrieval of pleasant and unpleasant or happy and unhappy experiences from normal subjects, but not the "crossover" pattern that the congruity hypothesis predicts.

Autobiographical memories, then, may not only reveal domains of personal significance and insignificance, and expertise and ignorance (e.g., Markus, 1977), but also factors (specifically, moods) that bias retrieval. Because of the latter possibility, clinicians must sift and weigh the information that clients provide about previous events and experiences during interviews and therapy.

Interpretive Rules for Social Judgment and Inference

Categorization and response latency

Speeded classification or verification—the favorite method among cognitive psychologists to examine structural and processing assumptions about network models of semantic memory (e.g., R. Lachman *et al.*, 1979)—may also reveal much about categorizing social information. Although the details of specific tasks and applications differ, speeded classification or verification, quite simply, requires the subject to answer questions about category membership (e.g., "Is a canary a bird?") or attributes (e.g., "Does a canary have wings?"). Response latency or the time to answer the question provides the dependent variable of interest. Other factors equal, and given the properties of spreading activation and "priming," network models predict that directly and/or strongly linked concepts and attributes require less time than indirectly and/or weakly linked concepts and

attributes to classify or verify because the application and execution of categorization rules can occur rapidly and efficiently.

Markus has used speeded classification/verification to distinguish central from peripheral attributes of the self-concept. For example, Markus (1977) first classified subjects as self-schematic or aschematic for the attribute of independence (or dependence). Later, subjects rated adjectives conceptually related to independence or dependence on a dichotomous scale of self-descriptiveness. Not surprisingly, subjects who were self-schematic for independence rated more independent adjectives as self-descriptive; and those who were self-schematic for dependence rated more dependent adjectives in this way. Independent adjectives, however, were also endorsed often by subjects classified as self-schematic for dependence, and subjects classified as self-schematic for independence often endorsed dependent items as self-descriptive, perhaps because of response sets (e.g., social desirability). The data from the response latencies proved more revealing. Self-schematics for independence responded more quickly when rating themselves on independent rather than dependent adjectives. Conversely, self-schematics for dependence responded more quickly when rating themselves on dependent rather than independent adjectives. Aschematic subjects for the dimension of independence–dependence showed no difference in response latencies for independent and dependent items. Similar findings have been obtained in the domain of gender-role orientation (Markus *et al.*, 1982; Mills, 1983). Apparently, then, subjects may say many things about themselves, for a variety of reasons. Shorter response latencies seem to indicate that the subject needs less time to find a reason—perhaps because that particular feature is already closely associated with the self-concepts and hence easily accessed or “primed.”

Kuiper and MacDonald (1982) have used speeded classification/verification to assess and compare the processing of personal information about the self among depressed and normal subjects. Specifically, in response to the question “Describes you?,” subjects decided whether or not personality attributes, evenly divided between depressed and nondepressed content, characterized the self. The response latencies indicated that normal subjects responded more quickly to “positive” information about the self (yes-rated nondepressed *and* no-rated depressed content) than “negative” information (no-rated nondepressed *and* yes-rated depressed content). Among depressed subjects, however, “positive” and “negative” latencies did not differ. Comparisons between the groups revealed that normal subjects classified positive information about the self more rapidly than depressed subjects; response latencies to negative information, however, did not distinguish the two groups. The results, therefore, suggest that normal subjects have established direct and strong links between a generalized concept of self and positive attributes, which depressed subjects lack. Considering negative attributes, the converse apparently does not hold. We should note,

however, that Kuiper and MacDonald tested depressed subjects who experienced mild levels of the disorder. Severe depressions may very well facilitate the classification of negative attributes and features about the self.

More recently, Gotlib and McCann (1984) did obtain evidence that depressives have acquired accessible or "primed" concepts to perceive and evaluate negative information. To assess differential priming or accessibility of negative concepts among depressed and nondepressed subjects, Gotlib and McCann modified the Stroop (1935) task, which differs somewhat from speeded classification/verification. More specifically, the Stroop task includes a series of words, across which color of ink varies. The primary task requires the subject to report the color of ink rather than pronounce or otherwise classify the word *per se*. Because of interference effects (response competition), when words semantically match either a temporarily or chronically primed, or accessible, concept, response latencies suffer. Gotlib and McCann tachistoscopically presented to depressed and nondepressed subjects colored words of depressed, neutral, and manic content. Results supported the hypothesis: Because of accessibility and interference effects, depressed subjects responded more slowly to depressed than nondepressed content, and more slowly to depressed content than nondepressed subjects.

The results which Markus, Kuiper, and Gotlib have reported suggest that measuring response latencies, via speeded classification/verification and the Stroop task or similar procedures that pit interference against accessibility effects (e.g., Bargh, 1982) may profitably assess the content and structure of self-, person, and situation concepts, as well as the interpretive rules that individuals have acquired to categorize social information *vis-à-vis* declarative social knowledge.

Testing hypotheses about oneself and others

Extensive research from cognitive psychology indicates that, across tasks as diverse as concept formation, concept utilization, deductive reasoning, and problem solving, most individuals consider instances that confirm rather than disconfirm beliefs and hypotheses more compelling, diagnostic, and informative (e.g., Hovland & Weiss, 1953; Wason & Johnson-Laird, 1972). For example, given the opportunity of testing hypotheses, most individuals prefer to gather confirmatory rather than disconfirmatory evidence. The proclivity toward hypothesis confirmation also extends to the social arena. M. Snyder (1981a; M. Snyder & Swann, 1978), for example, devised a simple procedure to examine the rules or strategies that individuals formulate and implement to test hypotheses about others. More specifically, subjects chose questions from a prepared list to ask a "target" during a subsequent interview that would provide the best means of

testing a hypothesis about the other—namely, assessing the extent to which the behaviors and experiences of the target match the attributes of the prototypical extravert or introvert. The list included questions that would solicit information about extraversion or introversion or neither characteristic. Across several replications and variations of the basic procedure, results consistently indicated that subjects chose to ask questions that would solicit hypothesis-confirming evidence from the target about twice as often as questions that would solicit hypothesis-disconfirming evidence.

Recently, Fong and Markus (1982) as well as Swann and Read (1981a) have extended the procedure to the realm of personality. Fong and Markus (1982) examined how self-schemata selectively influence the information people solicit to learn more about others. More specifically, Fong and Markus first identified three groups of subjects: extravert and introvert schematics, who believed, respectively, that extraversion or introversion defined a central feature of the self, and aschematics, who considered neither attribute self-relevant. All subjects then selected questions from the same list which M. Snyder and Swann (1978) had constructed to ask of and learn about a stranger (but not under conditions to test a particular hypothesis about either extraversion or introversion). Participants sought information about others that define a central feature of the self: Extraverted schematics selected more extraverted questions than did either introverted schematics or aschematics; conversely, introverted schematics selected more introverted questions than did either extraverted schematics or aschematics. Clearly, then, self-schemata may constrain the process of gathering information about others.

Swann and Read (1981a) have conducted a study that complements the one of Fong and Markus and may also contribute to clinical and cognitive assessment. Instead of examining how self-schemata influence the process of testing hypotheses about others, Swann and Read offered participants (self-perceived “assertives” or “unassertives” as well as self-perceived “emotionals” or “unemotionals”) the opportunity to study the feedback of an “interaction partner” who had answered questions about participants from responses to a personality questionnaire. All four groups of participants requested more feedback (answers to questions) that would confirm rather than disconfirm the self-concept.

Efforts to obtain or solicit self-confirmatory feedback from others may stabilize the social environment, self-concepts, and interpersonal behavior. The stabilizing functions, however, may illuminate clinical problems if the confirmatory rules seek information and feedback about the self that refer to negative or undesirable attributes. Moreover, failure to demonstrate a confirmatory bias may also indicate confusion about the self or a disorganized and unstable self-concept. More positively, the same failure may signal an appropriate target or avenue of change, which the client will not resist.

Causal attributions

A final category of interpretive rules we will consider—the procedures whereby individuals attribute causes to personal and social events—has recently generated considerable interest among clinicians and psychopathologists (Metalsky & Abramson, 1981). The scope of disorders and problems to which clinicians and psychopathologists have proposed attributional perspectives now includes learned helplessness among both adults (e.g., Abramson *et al.*, 1978) and children (e.g., Diener & Dweck, 1978), clinical depression (e.g., Beck *et al.* 1979), paranoid states, (e.g., Davison, 1966), unwarranted aggression and hostility among disturbed children (e.g., Nasby, Hayden, & DePaulo, 1980), low self-esteem (e.g., Ickes & Layden, 1978), coping reactions to accidents and victimization (e.g., Wortman & Silver, 1980), fear (e.g., Valins & Nisbett, 1971), and insomnia (e.g., G. C. Davison, Tsujimoto, & Glaros, 1973).

The techniques which clinicians, personologists, and psychopathologists have constructed to assess attributions follow either structured or unstructured formats, requiring subjects, respectively, to endorse possible causes from specified alternatives or describe “freely” the “perceived” causes of real or hypothetical events (Elig & Frieze, 1979). Whatever the format, existing techniques all measure the content of attributions, the finished products.

A cognitive approach would also examine parameters of performance other than attributional contents or products. For example, one could present each item of the questionnaire via a desktop microprocessor, tachistoscope, or slide projector and record voice onset time (VOT) to initiate a verbal description of the major cause, and response latencies to rate the event along each dimension. Over time, one could also examine recall and recognition of the questionnaire items. The latter indexes would justify stronger inferences about the interpretive rules that produce specific attributions. Suppose, for example, that a depressed client or one who risks clinical depression has developed a generalized, potent, and undifferentiated rule: “If I fail (regardless of the particular circumstances), then attribute the cause to internal, global, and stable factors” (e.g., Abramson *et al.*, 1978). To the ambiguous item, “You fail an exam,” the individual should quickly initiate a verbal description of an internal, global, and stable cause—for example, “I failed the exam because of stupidity.” Extreme and confident ratings of internality, globality, and stability also should occur quickly. And, over time, the individual might falsely recognize (commit “false alarms” to) lures that fit the rule but which the original questionnaire did not actually contain—for example, “You fail an exam your classmates pass” or “You fail an exam your classmates pass although they studied less than you did.” From the convergent evidence that the content and pattern of ratings as well as the response latencies and memory data provide, we believe that clinicians and psy-

chopathologists can fashion research strategies to assess attributional rules and processes more finely than the products alone.

Some comments about action rules

In large part, the study of social cognition has emphasized the structure of social information, and the processes by which it is encoded, organized, transformed, and retrieved. Correspondingly, our efforts to develop methods for the assessment of individual differences in social intelligence have emphasized these same topics. Nevertheless, the principal reason for proposing an assessment of social knowledge is the assumption that social behavior is cognitively mediated. Thus, it seems important to take some steps toward assessment strategies that directly assess the cognition-action link. Cognitively oriented social/personality psychologists have certainly not ignored the relations between social cognition and social behavior. Such concerns are manifested in the increasingly large literature on interpersonal expectancy effects (e.g., J. M. Darley & Fazio, 1980; M. Snyder & Swann, 1978), impression-management strategies (e.g., E. E. Jones & Pittman, 1982), self-verification (e.g., Swann, 1983), and scripts (e.g., Abelson, 1981).

This literature, however, is not as assiduously "cognitive" as some of the other material reviewed here and elsewhere (Kihlstrom & Nasby, 1981). For example, investigators of social action rules rarely commit themselves to any formal theories concerning representation or processing. Nor do their research paradigms have the kind of high-tech characteristics of some of the other work we have reviewed. Specifically, the research often relies on pencil-and-paper, self-report measures, and thus, on the person's direct introspective access to her or his procedural social knowledge. Again, the problem here is that procedural knowledge is, by its very nature, inaccessible to conscious awareness (J. R. Anderson, 1983; Nisbett & Wilson, 1977). It seems likely, moreover, that the kinds of maladaptive procedures that cause interpersonal difficulties are precisely the ones that are fully automatized, and hence inaccessible to direct awareness. We are, therefore, currently in the process of devising assessment techniques to gauge rules of social action through measures of cognitive and behavioral performance.

Conclusion

In our previous paper, we noted the essential tension in personality assessment between idiographic and nomothetic proposals. In the intervening time, we have gravitated even more toward an idiographic position. The purpose of assessment should not be to compare the individual to faceless statistical norms.

Rather, the criteria against which people should be measured ought to be set, to the greatest extent possible, by their own goals, the demands of their own peculiar life situations, and the partners with whom they must conduct social intercourse. This is congruent with the overriding perspective of the social-intelligence approach to personality, which asserts that personality does not exist in the abstract, but is constructed in the context of ongoing social interactions. It is also, of course, congruent with the cognitive-behavioral approach to clinical work, which has as its goal the remediation of specific problems, rather than the restructuring of entire personalities.

To some extent, this limited, goal-oriented perspective should mitigate the qualms which might be experienced as the clinician anticipates employing the advanced technology of the cognitive laboratory in order to map out a patient's entire fund of social knowledge. To put it bluntly, nothing of the sort is intended. Assessment should always be for some purpose, and from the cognitive-behavioral perspective those purposes should always be limited by the presenting problems of the patient or client, and other related problems that may turn up in the course of taking an anamnesis. We know from experience (Kihlstrom & Cantor, 1985) that it can take many hours and two computers only to map out a single individual's context-specific self-concepts according to procedures adopted from Rosenberg (1977) and Pervin (1976). But such a large-scale assessment will rarely be necessary. For the purpose to which personality assessment is put in traditional clinical psychology, the high-tech approach described here may seem daunting indeed. But for the limited purposes to which assessment is put by cognitive therapists, these procedures—which are specifically designed to tap the kinds of variables deemed central by practitioners—may be very much what the doctor ordered.

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