MENTAL REPRESENTATIONS OF THE SELF*

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> This puzzling problem arises when we ask, "Who is the I who knows the bodily me, who has an image of myself and sense of identity over time, who knows that I have propriate strivings?" I know all these things and, what is more, I know that I know them. But who is it who has this perspectival grasp? . . . It is much easier to *feel* the self than to *define* the self (Allport, 1961, p. 128).

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The self, like consciousness and intelligence, is a problematic topic within personality and social psychology. We all share the intuition that each of us has a self and that each of us is conscious or intelligent; but it has not been easy to articulate just what the self (or consciousness or intelligence) is or what it does. In this essay we seek to sketch out a preliminary theory of the self viewed from the perspective of cognitive social psychology. We begin with Allport's assertion (1961, p. 137) that "the human mind is able to regard itself as an object in much the same way that it regards objects in the outer world." Accordingly, we define the self as one's mental representation of oneself, no different in principle from mental representations that a person has concerning other ideas, objects, and events and their attributes and implications. In other words, the self is a concept, not unlike other concepts, that is stored in memory as a knowledge structure, not unlike other knowledge structures. This idea is not so new: Others also have had the same intuition (Bower, 1981; Greenwald, 1981; Keenan & Baillet, 1980; Kuiper & Derry, 1981; Mancuso & Cecly, 1980; Markus & Sentis, 1982; Markus & Smith, 1981). However, we attempt to go further than prior investigators in integrating the literature on the self-concept with research on memory and categorization, as represented by Anderson's (1976) ACT model of memory and Smith and Medin's (1981) view of concepts as prototypes or examplars. In this way we are able to paint a picture of what the self looks like and examine the ramifications of a particular set of theoretical commitments. Our coverage is highly selective: To perform our task adequately would require the space of a monograph—and, we suspect, about a decade's worth of research. For overviews of other topics, as well as different perspectives on material covered here, we refer the reader to other volumes (Buss, 1980; Gergen, 1971; Lynch, Norem-Hebeisen, & Gergen, 1981; Suls, 1982; Wegner & Vallacher, 1980).

I. Cognitive and Social Processes in Personality

The framework for this discussion is provided by an emerging theory of personality (Cantor & Kihlstrom, 1982; Kihlstrom & Cantor, 1983) that has its roots in the work of Lewin (1935), Kelly (1955), Mischel (1968, 1973), and Bandura (1977). In this approach, the psychology of personality is conceived as a general psychology, in which our knowledge of biological, cognitive, social, and developmental processes is synthesized into a comprehensive view of the way that people attempt to understand, respond to, and change the physical and social world in which they live. Like all theories of personality, it begins with the everyday observation of wide individual differences in behavior and experience, thought and action. Unlike many established theories, however, it also takes account of the apparent fact that human thought and action is quite flexible and

responsive to change in both the intrapsychic and interpersonal context in which it takes place. Rather than offering a taxonomy of people in terms of some set of stable categories or dimensions, or for that matter a taxonomy of situations, the theory places primary emphasis on the general processes out of which human individuality is constructed. These general processes are both cognitive and social in nature.

The fundamental fact of human existence is human intelligence: our enormous capacity to understand ourselves and the world around us, and our ability to communicate that understanding to others through language. Our responses to events are largely determined by the meanings that we give to them, to the options we perceive to be available, and to the anticipated outcomes of both events and actions. We are also social animals: All of our thought and action takes place in the context, explicit or implicit, of other people. Therefore it follows that the most important mental processes implicated in personality are those involved in social cognition: mental representations of the self, other people, and the situations in which interpersonal interactions take place; the procedures by which we construct and reconstruct our impressions and experiences and make evaluations, attributions, and other judgments of people and events in the social world; and the effects of social cognition on social behavior.

This is not to deny a role for biological processes in personality. After all, human intelligence is a product of our phylogenetic heritage—though it should be said, contrary to the suggestion of the sociobiologists, that our biological capacity to generate new knowledge and transmit it to the next generation has enabled cultural evolution to outstrip biological evolution (e.g., Gould, 1981). Some individual differences in temperament—activity level and response intensity, for example—are observable immediately after birth and may reflect the individual's genetic and biochemical endowment. However, it is important to remember that genotypes represent only potential, and that the phenotype is shaped by environmental factors: immediately after birth the program for shaping personality passes from the genes and hormones to the environment (e.g., Money & Ehrhardt, 1972).

Although this cognitive–social approach to personality acknowledges the effects of the social context on human thought and action, it is not a form of disguised situationism. People are in part creatures of their social environment, to be sure, but they are equally creators of that environment. Although situational demands shape and constrain cognition, emotion, and action in various ways, people are capable of acting behaviorally and cognitively to transform the situations impinging on them. This fact is of utmost importance because, after all, people respond not to situations but to *mental representations* of situations. Their responses cannot be understood without reference to the way they construct perceptions, reconstruct memories, arrive at judgments, make predictions, and choose among available options. The interaction between a person and the situa-

tion is cognitively mediated and is best characterized as reciprocal determinism. Although this implies mutual influence and a powerful role for the environment, in the final analysis, the balance of power favors cognitive control over environmental control. The social context can coerce behavior, but it has less impact when it comes to the way people think. As long as people have access to information they are free.

II. The Self-Concept in a System of Social Concepts

The self is a concept about oneself, and as such, it is part of the individual's organized system of concepts concerning his or her social and physical world. Again, this conceptual system is the foundation of cognition. As Bruner has noted, every act of perception is an act of categorization. Some categories can be defined by enumeration—that is, by preparing an exhaustive list of all the instances of a category (e.g., the letters of the alphabet) or by finding a rule that generates all the instances (e.g., the integers in the mathematical system). More commonly, however, categories are defined by attributes—the perceptual, functional, and relational features shared by members of the category (e.g., animal species, tools, and kinship). A great deal of attention has been devoted to the question of just how clusters of attributes combine to define a category (see reviews by Rosch & Lloyd, 1978; Smith & Medin, 1981). According to the *classical view* attributed to Aristotle and employed in much early research on concept formation (e.g., Bruner, Goodnow, & Austin, 1956; Hull, 1920), a concept is a summary description of an entire class of objects or events. Its attributes are singly necessary (i.e., every instance possesses every defining feature) and jointly sufficient (i.e., every object or event that possesses all the defining features is an instance of the concept) to define the category; and it is located in a hierarchical system characterized by perfect nesting (i.e., within any particular branch of the hierarchy, all the defining features of superordinate categories are also defining features of subordinate categories). This all-or-none arrangement of features means that category members are quite homogeneous and that there are sharp boundaries between the various categories.

Although such a definition may be satisfactory when it comes to defining proper sets and certain artificial categories, a number of problems arise when it is employed with respect to natural categories (Wittgenstein, 1953). Smith and Medin (1981) summarize a variety of conceptual and empirical objections, not one of which is sufficient alone to destroy the classical view, but when taken together make for quite a devastating package. For example, it is often unclear how to categorize some objects, and it has proved quite difficult to specify the necessary and sufficient features that ostensibly define many natural categories.

Moreover, people find some instances to be better representatives of a concept than others. These variations in perceived typicality are related to the distribution, across category members, of *nondefining* features. Finally, there is good evidence that people base their category judgments on these nondefining features, rather than on attributes that are necessary and sufficient to define a category. These findings seem to lead to the conclusion that *natural* categories at least are organized along lines that are different from the classical view of concept structure.

A more recent development is the *prototype view* (Rosch, 1975), which in its early forms argued that the features of the summary descriptions are only probabilistically associated with category membership. Accordingly, no feature is singly necessary and no set of features jointly sufficient to define a concept. Also, the hierarchical system is characterized by imperfect nesting: Within any particular branch the subsets do not possess all the features of supersets. With correlated rather than defining attributes, category members can be quite heterogeneous, and there are no sharp boundaries between contrasting categories. Perhaps the most important implication of the prototype view is that instances can vary in typicality, meaning that some are better representatives of the category than others. Such categories are represented by a prototype instance, concrete or abstract, that contains many features that are correlated with category membership and few features that are correlated with membership in contrasting categories. In determining feature overlap, particular attention is paid to central features, which show high correlations, rather than to peripheral ones, whose correlations are low.

Smith and Medin (1981) have proposed a third formulation, the *exemplar view*, which holds that categories are represented by several typical examples rather than by a single abstract summary. Thus, categorization involves matching a test item to each of many focal instances, rather than to any single best example; if there is a good match between the item and any of these focal instances, the item is labeled as a member of the category. In actual practice, an exemplar can be either a specific instance or a subordinate category. The point is merely that there may be no single summary representation of a category at any level. Perhaps the best evidence favoring this view is that people often do seem to make use of multiple exemplars when they assign objects to categories. This viewpoint, however, is relatively new and has not yet been systematically explored. (For yet a fourth alternative, see Kell, 1979.)

Although the exemplar approach has not yet been applied to the problem of social categorization, the prototype approach has. In a series of studies, Cantor (Cantor, 1980; Cantor & Mischel, 1979; Cantor, Mischel, & Schwartz, 1982; Cantor; Smith, French, & Mezzich, 1980) has shown that both intuitive and professional psychologists follow the prototype view of social categorization, recognizing (for example) that there are no sharp boundaries between extraverts

and introverts and that some individuals are more typical extraverts than others. Perhaps the most telling documentation of this point involves the categories of psychopathology (Cantor *et al.*, 1980). In the past, the diagnostic rules appeared to assume that the various mental illnesses were proper sets defined by necessary and sufficient features (certainly many criticisms of these rules assumed that this was so), but data collected by Cantor *et al.* indicate that psychiatrists actually construe these categories as fuzzy sets represented by prototypes and actually perform a feature-matching process when assigning real cases to categories. These findings strongly support the proposition that other person categories are also represented by prototypes and that category judgments operate along probabilistic, feature-matching lines.

Oneself is a person in the individual's social world, and so it seems natural to conclude that the self-concept is embedded in his or her overall hierarchical organization of person concepts. Just where in such a hierarchy the self-concept lies, however, is a difficult question. From one point of view, oneself is a highly specific instance and so would seem to belong at the most subordinate level of a categorical system, along with other specific individuals of the person's acquaintance. Imagine, if you will, a hierarchical structure, such as that depicted in Fig. 1, containing such superordinate concepts and contrasts as person–nonperson and good–bad person (Rosenberg, 1976) at the very top, various broad categories of good and bad people (Norman, 1963) and subtypes of these (Cantor & Mischel, 1979) arrayed in the middle, and oneself and others arranged along the bottom as specific instances of these. From another point of view, the self-concept is located at an extremely superordinate level. Among the earliest distinctions acquired by the developing infant is that of self–not self (Flavell, 1977); and we sort other people into social categories more readily than we classify ourselves (Nisbett, Caputo, Legant, & Maracek, 1973). These considerations suggest that the self-concept might stand alone in the hierarchical system, with all the usual social categories branching out under the superordinate concept "other", as in Fig. 2.

In any event, the self-concept, as a concept, is represented by a prototype consisting of some set of central and peripheral features. The question is, prototype *of what?* Prototypes, whether represented as feature sets (Rosch, 1975) or as points in multidimensional space (Krumhansl, 1978; Posner & Keele, 1968; Reed, 1972), are summaries of a multitude of specific instances; whereas there are lots of extraverted people in the world, there is only *one* of each of *us*. If there is a self-prototype, then it must be abstracted from observations of ourselves in specific situational contexts. This suggests that there might be a whole hierarchy of *selves* (rather than a single, unitary self), gathered together at various levels of abstraction: for example, the self alone versus with people: with acquaintances versus strangers; with family versus friends versus coworkers; with mother versus father versus spouse; and so on, yielding a structure along the lines of Fig. 3.

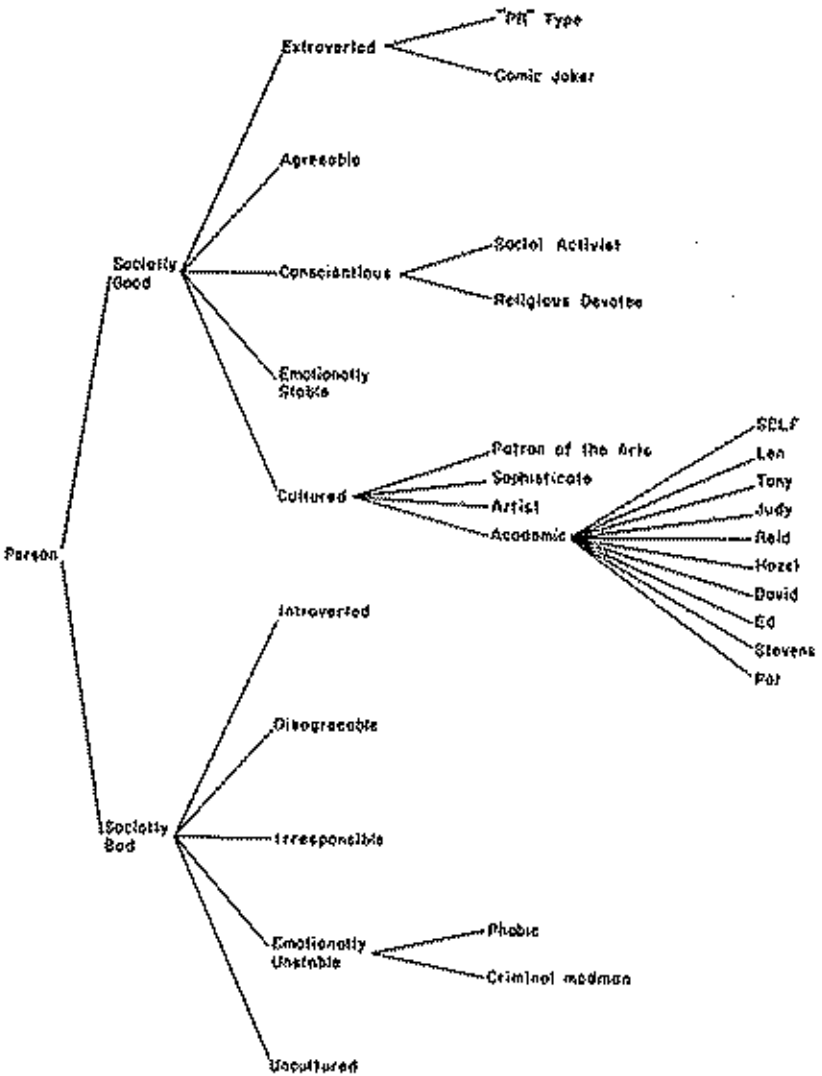

Fig. 1. A hierarchical structure of context-specific self-concepts.

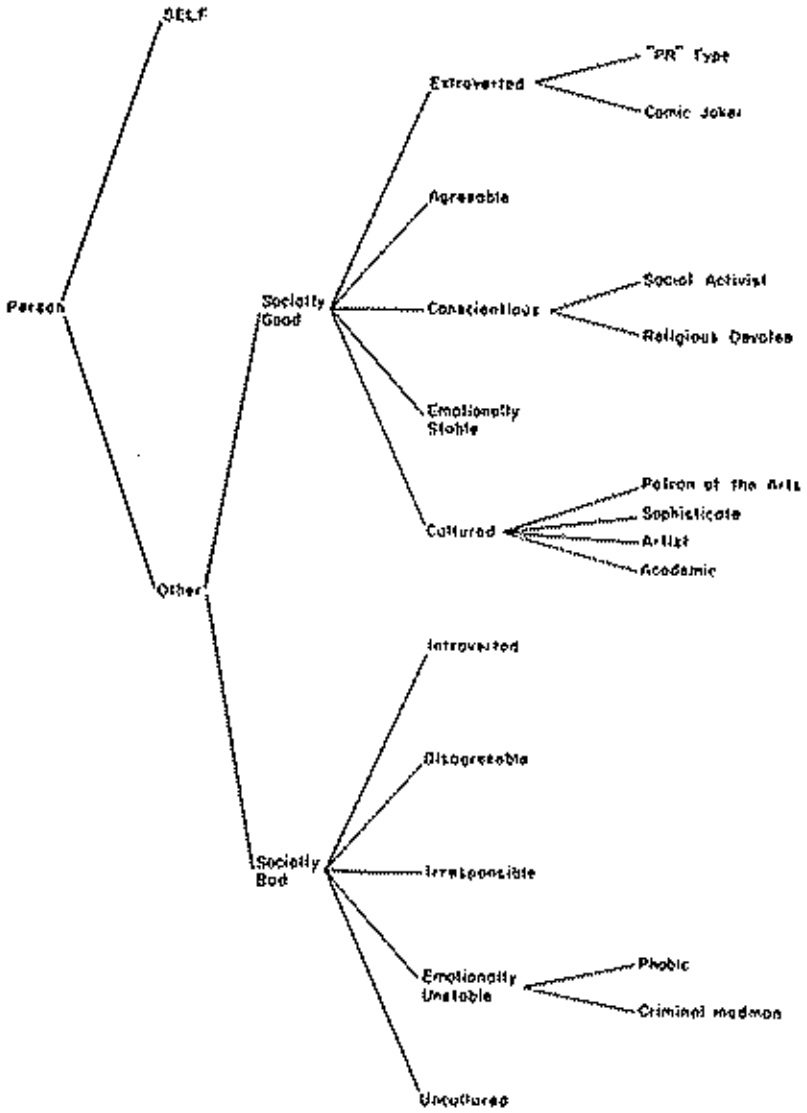

Fig. 2. The self as a unitary concept on a separate branch within a hierarchical structure of persons.

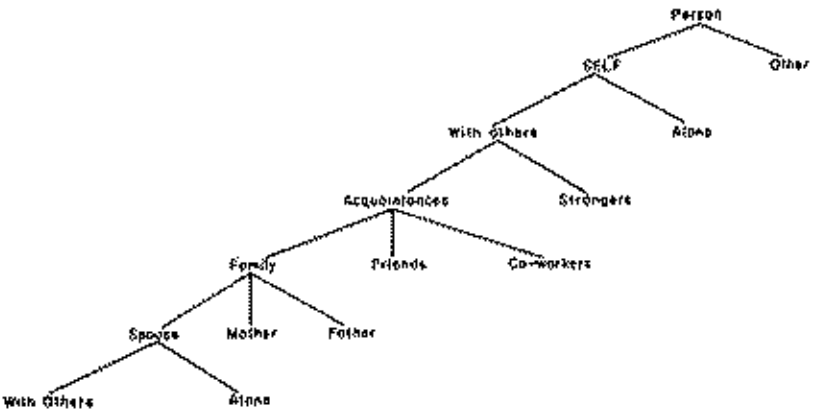

Fig. 3. The self as an instance within a hierarchical structure of persons (after Cantor & Mischel, 1979).

Each of these selves would be represented by a prototypical self-in-context, abstracted from multiple observations within similar situations. Given the exemplar view, of course, there may be no single, unitary, superordinate, summary self-concept at all—only a set of coequal typical selves.

If there is a conceptual hierarchy of selves, analogous to the conceptual hierarchies found in mental representations of other people (Cantor & Mischel, 1979), is there some level within the system that is preferred for self-definition and self-description? Within the domain of natural objects, for example, Rosch and her colleagues (Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976) found that stimuli were categorized most readily at some intermediate level (e.g., chair) compared to the very abstract superordinate (e.g., furniture) or very concrete subordinate (e.g., kitchen chair) levels. When consensual prototypes at each level were constructed, Rosch *et al.* found that the prototypes at these levels differed in terms of both richness (the number of features associated with category membership) and differentiation (the number of features shared with alternative categories within the same branch of the hierarchy). This intermediate level, which Rosch *et al.* called *basic*, appears to optimize both richness and differentiation. Interestingly, children learn the names of basic levels first during the course of vocabulary acquisition, and these names are preferred when people are asked to name category instances. Cantor (e.g., Cantor & Mischel, 1979; Cantor *et al.*, 1982) has provided evidence for a basic level of social categorization that, like natural-object categorization (Murphy, 1982; Murphy & Smith, 1982), maximizes distinctiveness. It remains to be seen whether such a basic level can be found in a hierarchy of selves.

III. How Many Selves Have We?

The view of the self-concept as a concept may help resolve a long-standing dispute among personality psychologists, as to whether the self is to be construed as unitary or fragmentary (Epstein, 1973). Many theorists have conceived of the self as a unitary structure representing the core of personality. James (1890) was an early proponent of this view. He distinguished between the *self as knower*, closely identified with the self-referential nature of consciousness, and the *self as object of what is known*. Whereas James distinguished among three aspects of the self-as-object—the *material self*, consisting of the individual's body, family relationships, and possessions; the *social self*, representing the individual as she or he is viewed by others; and the *spiritual self*, comprising his or her emotions and drives—these were not so much different selves as they were aspects of a single conception of oneself, forming a coherent unity. A similar unitary concept is apparent in the work of Snygg and Combs (1949), who considered the self to consist of those characteristics of a person that were stable rather than changeable, and Rogers (1951), who included in the self those characteristics of a person over which she or he is aware and has control. Perhaps the most thorough description of the unitary self comes from Allport (1955), who defined the *proprium* (an alternative name for the self-concept) as those aspects of personality that the person him- or herself regards as central to his or her own personality. For Allport, all of these facets are woven into a single, unified sense of oneself—a sense that transcends particular contexts and is good for all places and all times.

Other psychologists, working within a more sociological tradition, have argued that we seem to have many selves rather than a single, unitary, monolithic self-concept. James (1890) himself, of course, argued for a multiplicity of social selves. An early example of this point of view is Cooley (1902), who initially defined the self as consisting of whatever attributes were associated with first-person pronouns. Cooley held that the individual perceives him- or herself largely the way others do—the "looking-glass self." From this point of view, each person possesses as many selves as there are significant others in his or her social environment. A similar notion was suggested by Mead (1934), who argued that a person has as many selves as there are social roles for him or her to play. Of course, Mead understood that some social roles are not central to the person; these selves are, correspondingly, not so important. Perhaps the most thorough analysis of the self-concept from the fragmentary point of view has been provided by Sarbin (1952). Anticipating later developments in cognitive social psychology, he argued that social behavior was organized around various cognitive structures, including the self-structure. The self-structure consists of two substructures, somatic and social. For Sarbin, each of us possesses a number

of "empirical selves" corresponding to the different social roles that we are called on to play. Sarbin goes on to connect this fragmentary view of the self with the unitary view by postulating "pure ego" as a cross section of these different empirical selves. Gergen (1971) drew upon these notions in his argument that we possess multiple selves corresponding to our multiple social identifications.

Greenwald (1982) has argued for a division of personality into four systems: body, verbal, self, and social. These systems do not necessarily form a coherent unit: For example, they may have different sources of knowledge available to them, or they may serve quite different adaptive functions. Accordingly, they may on occasion appear to conflict, resulting in a discrepancy between verbal and nonverbal communication, attitudes and behavior, cognition and emotion, and so forth. Whereas Greenwald raises the possibility of the nonunity of the *person*, however, it is not clear whether he is willing to entertain the possibility of the nonunity within the self or any other subsystem.

This issue is of more than academic interest because a number of syndromes of psychopathology appear to involve the fragmentation of the self into coexisting, but not consistent, selves. Consider, for example, Bleuler's (1911/1950) classic description of schizophrenia as entailing a split between cognition, conation, and emotion. Bleuler observed that despite superficial differences in symptomatology, all schizophrenics seemed to share a lack of internal consistency between thoughts, motives, and affects. A patient might giggle when told of the death of his mother or describe a severe pain in an objective, detached manner. More to the point, perhaps, it is a fascinating set of disorders of memory that are labeled functional because they do not seem to be associated with any pathological change in the functioning of the central nervous system: fugue and multiple personality (for reviews see Kihlstrom, 1984; Nemiah, 1979, 1984).

The Case of Ansel Bourne

As reported by James (1890), Ansel Bourne began life as a devout Baptist, but later in life became an atheist. In middle age he was suddenly struck deaf, mute, and blind—apparently a religious conversion experience, because he became an itinerant preacher soon after he recovered. Eventually he settled down and became a carpenter. Shortly after opening his business, he withdrew money from his bank account to pay some bills and promptly disappeared from Greene, Rhode Island. He awoke one morning 2 months later in Norristown, Pennsylvania, to find that he had been living there for the previous 6 weeks as a storekeeper. He had no memory for the events of the past 2 months, however; nor had he spoken of his previous life while in Norristown. Under hypnosis, Bourne was able to recount the events of the 2 lost months with considerable accuracy; however, none of this material was accessible to him in the normal waking state.

A number of similar cases have been described by many authors (for a review see Kihlstrom, 1984). The characteristic features of *fugue* are an amnesia that covers the victim's entire personal history, resulting in a loss of identity and of access to relevant clues by which the individual could retrieve or reconstruct his or her identity, and relocation or wandering, which gives the syndrome its name. Nevertheless, the person's general fund of information and repertoire of cognitive and behavioral skills is not affected. The victim suddenly awakens to his or her original identity or to an awareness that she or he does not know who she or he is. The fugue, which essentially consists of an amnesia for all that went before the episode, ends with an amnesia for the events of the fugue.

The Misses Beauchamp

As described by Prince (1906), Miss Beauchamp (pronounced Beecham) was a conscientious, hard-working, and proud college student from a good family (B-I). She presented herself for treatment of neurasthenia, and Prince, as was his usual practice, attempted a cure by means of hypnosis. In the course of treatment, he discovered that when hypnotized, Miss Beauchamp became a more intense version of her normal waking self (B-II). However, at one point during the treatment she manifested a dramatic change in personality: She became very childlike and fun-loving, with no sense of adult responsibility; and she expressed a passionate dislike for her usual intellectual and religious activities (B-III). Later on in treatment, yet another aspect of Miss Beauchamp appeared: In addition to disliking cultural, intellectual, and religious affairs, she now manifested a quick temper and irritability (B-IV). Investigations showed that these different patterns of personality were manifested outside of the clinical context as well. Ordinarily this state of affairs would not be particularly remarkable, except that these patterns of personality were separated by an amnesic barrier. The Miss Beauchamp who presented herself for treatment appeared to know nothing about her activities when she was in her childlike or irritable state. B-III, when interviewed, appeared to have no memory for the activities of B-I or B-IV; and B-IV had no acquaintance with B-I or B-III. B-II had access to the memories of B-I, but B-I showed a complete amnesia for the events and experiences that transpired during hypnosis. The asymmetrical pattern of amnesia produced complex patterns of control over action in which, for example, the childlike Miss Beauchamp would play pranks on the other two. On vacations, Prince corresponded with each of the three major personalities on virtually a daily basis.

Many other cases of multiple personality have been reported in the literature (for a review see Kihlstrom, 1984). Taylor and Martin (1944) have described a number of features that may serve to distinguish the alternate personalities, including: general quality, propriety of behavior, gender identity or sexual orientation, age, local anesthesias or paralyses, and language or quality of speech.

Interestingly, they found no clear pattern of "normality" or "pathology" in the personalities—often the less frequently appearing personalities, for example, were better adjusted than the more frequently appearing ones. By far the most cases in the literature involve only two or three personalities, separated by a pattern of symmetrical or asymmetrical amnesia and marked by alterations in control over behavior.

These cases have clear implications for theories concerned with conscious, subconscious, and unconscious thought and action (Hilgard, 1977; Kihlstrom, 1984; Nemiah, 1979). In the present context, however, they are interesting chiefly because they seem to represent extreme cases of the fragmentation of selfhood. Probably most of us present different sides of ourselves in different contexts, depending on the demands of the situation, our personal goals and intentions, and so forth. For the present it remains to be seen whether various configurations of personality characteristics are sufficiently different from each other to constitute different selves in any meaningful sense. If they do, this will not mean that there is no stable core to personality. From the prototype view, the separate contextual selves are subordinate categories or instances, united by a superordinate prototype. Even if the prototype view should prove to be wrong, it would not follow that these selves represent unrelated exemplars. For most of us, our contextual selves are united by a continuously running autobiographical record: Just as we awaken in the morning knowing that we are the same person who went to sleep the night before, we are aware of the activities of our different selves. When our spouse self is activated, we can still remember what we did in our college-professor self or our jogger self and—equally important—we are aware of having shifted from one to the other and of why. In the final analysis, our personal histories provide for the continuity that is the essence of selfhood (Hilgard, 1949; James, 1890).

IV. The Self-Concept in a System of Social Memory

The self-concept is a mental representation of a particular person—oneself—and as such is part of the individual's wider knowledge concerning objects and events in his or her social world. This social knowledge, in turn, constitutes a portion of the individual's entire memory system. This system stores structured and organized representations of knowledge and forms the cognitive basis of perception, memory, thought, and action. In order to understand the structure of the self-concept and its influence on cognition and action, it is necessary to understand how conceptual information is represented within the memory system.

Hastie and Carlston (1980) have offered an important overview of the

system for social memory within the framework of a generic multistore model of the mind (e.g., Bower, 1975). Following their arguments, we find it useful to maintain two somewhat independent distinctions within the memory system: between declarative and procedural knowledge (Winograd, 1975) and between episodic and semantic memory (Tulving, 1972). *Declarative knowledge* is factual knowledge concerning the nature of the physical and social world: what words, numbers, and other symbols mean, what attributes objects possess, where and when certain events happened, and the like. *Procedural knowledge* is knowledge of how to manipulate and transform declarative knowledge: mathematical operations; rules of syntax, inference, and judgment; and strategies for acquiring, storing, and retrieving memories, motor skills, and the like. *Episodic memory* is memory for personal experiences: Such memories include features describing the spatial and temporal context in which events occurred and are embedded in one's personal autobiographical record. *Semantic memory*, by contrast, may be thought of as the person's mental lexicon, consisting of categorical information stored without reference to the context in which it has been acquired and used. Semantic memory contains world knowledge in addition to lexical knowledge, which is why some theorists (e.g., Rustic & Carlston, 1980) prefer the term *generic memory*. Hermann (1982) has provided a concise historical summary of the development of the episodic–semantic distinction in memory that argues for a third form of long-term memory—*skill memory*—that is roughly analogous to procedural knowledge. This taxonomic structure is complicated somewhat by the additional concept of metamemory (Flavell & Wellman, 1976) or knowledge about memory: one's awareness of what facts are available in storage (even if they are not immediately accessible) and what procedures are available for encoding new facts, retrieving old ones, and performing other cognitive tasks.

From a cognitive point of view, the structural features of personality may be identified with that subset of the individual's declarative knowledge that is relevant to social interaction; it includes both semantic and episodic memory. The semantic aspect includes the individual's implicit theories of personality, categorical knowledge concerning generalized types of people and social situations, descriptions of historical events, and detailed representations of both the self and particular other persons. Episodic memory includes the individual's record of personal experiences, embedded in a context of personal space and time; it also includes the individual's memory for the actions and experiences of other people, insofar as they involve the person him- or herself. In other words, the structure of personality is tantamount to the individual's store of knowledge concerning the individual's understanding of him- or herself, significant other people, and the world in which they live. This is the knowledge by which individuals understand what transpires in their social world and plan their responses accordingly. Assuming that people are presented with a standard stimulus situation, individual

differences in social behavior are caused by individual differences in declarative social knowledge.

Theoretically, a declarative memory may be characterized as a bundle of features describing an object or event and the context in which it was perceived (Tulving & Watkins, 1975); precisely which features are encoded depends on a number of factors, including the amount of attention devoted to each aspect of the stimulus, what unseen aspects are inferred on the basis of prior knowledge, the way in which each feature is recoded during perceptual and postperceptual processing, and the like (Bower, 1967, 1972). Such a memory is commonly represented graphically as a set of nodes representing concepts that are interconnected by directed pathways that represent predicate relationships between them,

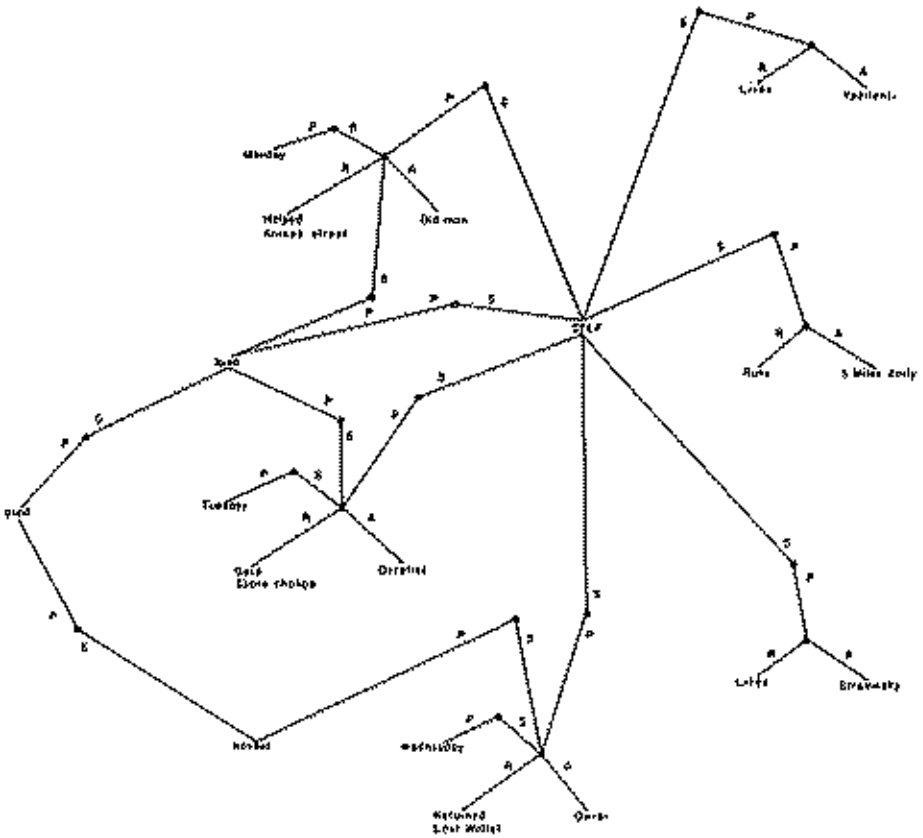

Fig. 4. A portion of the self as a node in a simplified network of declarative memories (after Bower & Gilligan, 1979). S=Subject; P=Predicate; R=Relation; A=Argument.

as in the ACT system of Anderson (Anderson, 1976, 1981a, 1981b; Anderson & Bower, 1973). Both episodic and semantic memories can be represented in this format.

Figure 4, which has been adapted from Bower and Gilligan (1979), shows a small portion of a (fictional) subject's mental representation of her own personality. In this propositional network, she describes herself as living in Ypsilanti, as a runner, as liking Stravinsky, and as a kind person (semantic memories). She also is recorded as having helped an old man across the street on Monday, having given a derelict some spare change on Tuesday, and having returned a lost wallet to its owner on Wednesday (episodic memories). Helping old men and derelicts are acts described as kind, and returning a wallet is honest. Note that there is a direct link between the self and the adjective *kind*, but not between self and *honest*. In other words, *kind* is part of the self-concept because the person can readily access that information about herself; but *honest* is a descriptor that can only be generated by inference, after retrieving information about specific life episodes. Further distinctions among directly linked attributes may be represented by the strength of the associative pathway. The more central the feature is to the self-concept, the stronger will be the link between self and attribute. Both *kind* and *honest* are socially desirable adjectives, and so—if asked—this subject would be able to describe herself as *good*; but this is apparently not the way she usually thinks about herself. Other people, and the individual's relationships with them, may also be directly associated with the self-concept. Given this analysis, it seems likely that the self-concept has more propositional information associated with it, episodic and semantic, than any other concept in memory.

In the same way, the dynamic features of personality may be identified with the subset of the individual's procedural knowledge that guides the organization and transformation of social information and the transformation of social cognition into interpersonal behavior. These procedures include the interactional skills that the individual employs in the course of social exchange, self-presentational strategies, scripts for social interaction, preferred strategies of focusing on different sources of social information, the rules (algorithms and heuristics) by which people form impressions of themselves and others and make other social judgments, and the processes involved in encoding and retrieving social and personal information. In other words, this procedural knowledge represents the rules by which the individual makes inferences about missing information, formulates predictions about the future, and generates and tests plans for responding to current and anticipated events. Again, given a standard stimulus, individual differences in response will be a product of individual differences in the procedural knowledge brought to bear on the situation. Procedural knowledge can be represented in much the same way as declarative knowledge—as a set of nodes representing goals, conditions, and actions that can be taken to achieve the goals if the conditions have been met. The nodes are interconnected by directed pathways to form a *production system* (Anderson, 1976).

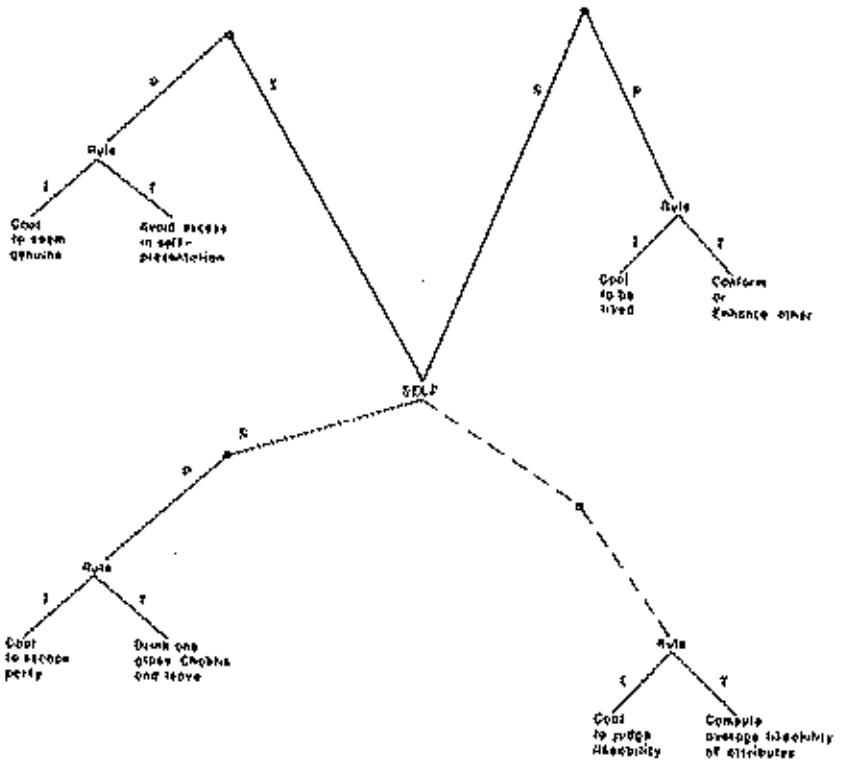

Fig. 5. A portion of the self as a node in a simplified network of procedural memories. I=If; T=Then. Solid lines indicate direct introspective access to the production system (metaknowledge); broken lines indicate no such access.

Figure 5 shows a small portion of our fictional subject's procedural knowledge. One propositional network indicates that her evaluation of another person's likability is given by the weighted average of his or her desirable and undesirable characteristics; another indicates that when the individual finds herself at a party, she should stay just as long as it takes to consume one glass of Chablis and then go home; a third indicates that in order to get another person to like her, she should conform to his or her expectations. Note that the party and likeability production systems are directly linked with her self-concept node, whereas the weighted-averaging rule is not (it is, of course, linked indirectly, but we do not have room to show these connections). This demonstrates one way to think about metacognition: Our subject is quite aware of how she behaves at parties and has encoded this feature as part of her self-concept; she is not aware that she uses a weighted-averaging rule to form global impressions of other people. She might be able to figure this out and incorporate this new knowledge (about her knowl-

edge) into her self-concept. Nisbett and Wilson (1977) have argued that much of the individual's procedural social knowledge is of this nonconscious type, which is outside of reportable awareness.

A good example of consciously accessible procedural knowledge may be found in the self-presentation strategies discussed by Goffman (1959) and Jones (Jones 1964; Jones & Pittman, 1982). Strategic self-presentation, or impression management, involves deliberately attempting to shape another person's view of us. The purpose may be to gain power over that person in some specific social interaction or simply to inculcate an impression that is congruent with the actor's own self-concept. Jones and Pittman have discussed a number of such strategies, including ingratiation, intimidation, self-promotion, exemplification, and supplication. For example, people seem to know intuitively that they can create an image of likeability through conformity, other-enhancement, favor doing, and even self-enhancement (Jones & Wortman, 1973). They also seem to know intuitively that one can be too good to be true and that the strategy will be most successful if it is employed subtly and without excess. Jones and Pittmann note a number of factors that will determine whether the individual will engage in such strategic behavior and if so, precisely which form the impression management will take. Among these are opportunities, resources, incentives, the subjective probability of success, and the appropriateness of the behavior within a particular interaction setting. In the present context, perhaps the most interesting of these constraints is legitimacy: whether the particular impression being constructed is consistent with the actor's self-concept. When there is congruence, they suggest that the performance will be more convincing. Thus, declarative knowledge (one's impression of oneself) seems to have an impact on the use of procedural knowledge (impression-management strategies) to create an impression of oneself in others. When these impressions are consistent with the actor's own self-concept, we may speak of *authentic* self-presentation. On other occasions, we may deliberately attempt to shape another's impressions of us in ways that are quite divergent from the way we view ourselves, in order to gain the advantage in some specific social interaction: In this case, *strategic* self-presentation would seem to be a more appropriate label. Jones and Pittman (1982) have described some of the factors that determine whether self-presentation will be strategic or authentic. For example, under conditions of high task-involvement or emotionality, people may be more likely to reveal their "true selves"—to behave in accordance with their self-concept.

Even when self-presentation is initially incongruent with the self-concept, the possibility remains that people may actually come to see themselves in terms of the impressions that they are trying to create. Despite the actor–observer difference in causal attributions (Jones & Nisbett, 1971), the fundamental attribution error (Jones & Davis, 1965; Ross, 1977) appears to affect self-perception as well as the perception of other people (Jones, 1979; Watson, 1982). Thus,

through dissonance reduction (Festinger, 1957) or self-perception (Bem, 1967, 1972), people may come to infer an attribute of themselves that was not present before. In this case, what started out as strategic self-presentation may turn into authentic self-presentation. Darley and Fazio (1980) have reviewed evidence for a similar change in self-description, if not self-concept, arising as part of the sequence of the self-fulfilling prophecy (Rosenthal & Rubin, 1978; Snyder, 1981). The conditions under which these transformations occur, if indeed they do, and those under which the changes are maintained are unknown at present. Perhaps its deliberate, intentional quality fades into the background as strategic behavior becomes routinized, so that the behavior comes to be seen as natural. If a behavior is accompanied by awareness of strategic goals, or of situational constraints, it may be discounted and declared irrelevant to the self-concept. If these goals or constraints can be internalized, however, the new attribute may very well become part of the self-concept and be consistently displayed. Finally, Bowers (1973, 1975) has shown that when people are unaware of the situational control of their behavior, as when it takes the form of a posthypnotic suggestion covered by amnesia (Kihlstrom, 1984; Kihlstrom & Evans, 1979), the behavior may persist even after the contingencies have been removed.

Although the feature-list discussions of concept structure are useful in showing what kinds of information are stored in memory as part of the self-concept, models such as ACT are useful in showing how this information is retrieved from memory when it is required. Basically, ACT holds that each feature of a memory probe, when perceived, activates its corresponding concept node in memory. Activation then spreads out from each of these nodes along associative pathways. When a number of activated pathways intersect, the corresponding proposition (or portion thereof) is compared with the specifications of the query, and if there is a good match, the item corresponding to the proposition is retrieved. The spread of activation is determined by two principal factors: the strength of the associative link between concepts and the number of propositional links emanating from a particular concept node. If the associative link is strong, activation spreads more rapidly. If there are many associative links leading from a concept, activation will spread more slowly because it has to be distributed among many pathways. The interference among such associative links is the theoretical explanation for the fan effect, in which it takes longer to recognize sentences as having been studied when a particular concept implicated in this sentence has been associated with many different propositions. This interference effect has been documented a number of times (Anderson, 1981; Smith, 1981) and is a primary reason for taking propositional network theories such as ACT seriously as models of memory.

Whereas a number of investigators have conceptualized the self as a node in a propositional network (e.g., Bower & Gilligan, 1979; Markus & Sentis, 1982), Rogers (1981) has entered an objection. He points to the common finding that

decisions concerning the self—such as whether an adjective like *honest* is self-descriptive—are made more rapidly than corresponding decisions regarding other people. If, as seems likely to be the case, more information is associated with the self-concept than with any other node in the system of social memory, the fan effect would seem to predict precisely the opposite—decisions about the self should take longer than decisions about other people, about whom much less is likely to be known. Smith and his colleagues (Smith, Adams, & Schorr, 1978; see also Reder & Anderson, 1980) have pointed to a similar paradox within the domain of recognition memory, and their resolution may be applicable to Rogers' objection as well. For Smith *et al.*, the notion that more we learn about a concept, the more interference we suffer seems to contradict our intuitions that we are better able to answer questions about topics of which we are more knowledgeable. Smith (1981) has described a number of ways that this knowledge can be organized in order to reduce the number of propositional links emanating from a given concept. For example, the information can be divided into various superordinate categories; they can be integrated by some common theme; or propositions that are perfectly correlated can be represented together. In any event, the net effect is to reduce the number of propositional links fanning off any given conceptual node—reducing associative interference and speeding the spread of activation throughout the network. Smith (1981) has shown that a hierarchically organized propositional network with five levels and five nodes per level could hold 3225 different propositions while having a minimal negative effect on the speed with which activation spreads throughout the network. If the self-concept is the richest node in the memory network, it is also likely to be the best organized one. Thus the absence of a fan effect does not appear to be critical for the idea that the self is a memory structure organized along the lines described in the ACT model.

V. Assessment of the Self-Concept

The self-concept, as a concept, may be construed as a set of features that are characteristic of the person and also distinguish him or herself from other individuals. What sort of features are represented in the self-concept? If the research reviewed by Wylie (1974, 1979) is taken as representative, most investigators appear to think that the self-concept has mostly to do with self-esteem—with the person's global assessment of him- or herself as good or bad, happy or sad, competent or inadequate, liked or unliked, and so forth. However, the analysis of the self-concept as a node in social memory indicates that it may be linked with a wide variety of other nodes and propositions representing narrower features of personality, specific events, social skills and strategies, and even other people. This has certainly proved to be the case for concepts concerning other people.

For example, Cantor and Mischel (1979) found that the features associated with concepts concerning representative broad classes of people included information concerning physical appearance, material possessions, socioeconomic status, and specific behaviors, as well as dispositions of various levels of generality. Thus, it seems appropriate to cast a broader net in assessing the self-concept in order to produce a more complete listing of its contents (Kihlstrom & Nasby, 1980).

Unfortunately, most techniques that have been developed to assess the self-concept are reactive in that they ask the individual to rate him- or herself on a set of dimensions chosen by the investigator. For example, Carl Rogers (1951) employed a Q-sort technique in which the subject sorted 100 broad self-referent statements into categories representing different levels of self-descriptiveness. Typically, these distributions were forced to conform to a normal distribution. T. B. Rogers (1977) employed a similar technique in which subjects rated a set of adjectives on a 1–9 scale of self-descriptiveness, although these self-ratings did not need to conform to any particular distribution set a priori. Although such techniques are convenient, it is unclear whether such ratings capture all that is important in the self-concept—if the term is to refer to the way the individual construes him- or herself. There is sometimes a tremendous difference between an individual's willingness to describe him- or herself in a particular way and an individual's actual thinking of him- or herself in that way. The propositional theory of memory (Anderson, 1980) indicates why this is so. The self-concept node is connected directly to a number of other nodes, but indirectly—through still other nodes—to every other node in the memory system. For this reason, an individual is able to retrieve a great deal of information about him- or herself—indeed, everything that is accessible in memory; but to consider all of a person's knowledge to be part of his- or her self-concept surely distorts the meaning of the construct beyond all recognition. It might be better to restrict the features of the self-concept to those nodes that are more or less directly linked to the node that represents the self. But how to find them?

Markus (1977) recognized this problem. Like Rogers (1977), she employed self-ratings on a set of experimenter-determined dimensions to assess the self-concept; but she also required that the subjects rate each term both for its *self-descriptiveness* and for its *importance* to his or her own self-concept. Markus defined people as *schematic* in a particular domain if they considered an attribute to be extremely self-descriptive (or extremely nondescriptive) and if they considered the attribute to be extremely important to their self-concept. In the same way, individuals were defined as *aschematic* in a domain if the attribute was rated as only moderately descriptive and *unimportant* to their self-concept. The use of the importance rating is an important advance because it gets us closer to people's actual self-concepts. In the final analysis, it may be useful to disentangle *descriptiveness* from *importance*; since some moderately descriptive at-

tributes may, none the less, be quite important in specifying the self-concept. Markus's (1977) instrument can be easily modified to provide independent assessments of descriptiveness and importance.

Even so, the technique still asks the subject to use the experimenter's categories to describe him- or herself. This will not be a problem if the dimensions employed in the assessment can be defined with a high degree of consensus between investigator and subject, as is the case with Markus's (1977) work. However, this problem may also be solved by employing free-response approaches to the assessment of the self-concept, in which individuals describe themselves in their own words. For example, Jones (Jones, Sensenig, & Haley, 1974) gave subjects 20 minutes to list self-descriptive words and phrases, which were then coded into 97 categories and submitted to multidimensional scaling. This scaling solution yielded four broad dimensions, which were held to be the central features of the self-concept: evaluation; impulsiveness–inhibition; stereotyped masculinity–femininity; and communality with others. Although this approach allowed individuals to speak for themselves in their own words, it is still limited by its ultimate reliance on investigator-defined coding categories. The effect of these, of course, is to translate the subject's self-definition into the investigator's constructs—again introducing the possibility that the individual's self-concept will be distorted. Thus the principal advantage of the free-response technique—that it represents the person's own view of him- or herself—has been sacrificed to the convenience of aggregated data analysis. If any aspect of personality deserves idiographic assessment, however, it is the self-concept. Accordingly, some method of assessment is needed that will preserve individuals' characterizations of themselves, while at the same time permitting investigators to derive general principles concerning the structure and function of the self-concept.

In an extensive line of research, McGuire and his colleagues (e.g., McGuire & McGuire, 1981, 1982) have taken just such an approach to the analysis of free-response self-descriptions. They have employed two free-response tests to assess both the general self concept (i.e., "Tell me about yourself") and physical (i.e., "Describe what you look like") aspects of the self-concept. In their first study, these tests were administered to a group fo 252 sixth-graders, and the responses were subjected to a content analysis. This content analysis is less a translation than it is a categorization of responses, thus staying fairly close to the subjects' own words. The following distribution of categories was obtained: habitual activities (hobbies, sports, skills), 24%; significant others, 20%; attitudes, interests, hopes, and preferences, 17%; school status, 15%; demographic information, 12%; self-evaluation, 7%; physical characteristics, 5%; and miscellaneous, 1%. By this evidence, the self-concept contains much more than self-esteem information. Indeed, it is extremely rich and varied, consisting of behaviors as well as traits and representing the individual's relationships with other people.

McGuire's approach asks subjects to describe themselves in the abstract, without any reference to the context in which they observe themselves. However, consideration of the structure of natural categories has led us to propose that most individuals have several self-concepts associated with different social contexts and organized either as subordinate categories under a superordinate prototype or as exemplars. One approach to the assessment of these contextual selves would be to ask subjects to indicate how they perceive themselves in various social situations. The danger with this approach is that the situations selected by the investigator may not be particularly relevant to the individual subject, again introducing the possibility that the subject's self-concept will be distorted by the assessment process. What is needed is an idiographic approach that will allow the subject to select *both* the situations *and* the attributes for self-description.

An important step towards such an approach has been taken by Pervin (1976), who has adapted Rosenberg's (1976) technique for assessing the personal constructs employed by individuals in impression formation. Rosenberg asked his subjects to list all the different people whom they encounter in their lives, and then elicited free descriptions of each. Pervin (1976) asked his subjects to list all the different situations that they encounter, defining a situation in terms of a specific location, time, activities, and interaction partners. Then they were asked to describe each situation, as well as their own feelings and behaviors in each. These responses were then collated by computer, and the subjects made a final rating of the applicability of each descriptor to each situation. This resulted in a Situation × Descriptor matrix for each individual subject that then can be subjected to various multidimentional analyses to reveal factors or clusters of situations.

Pervin (1976) originally offered his procedure as a technique for the assessment of person-by-situation interactions. In research in progress, Kihlstrom has adapted the procedure for the assessment of context-specific self-concepts. Briefly, subjects list all the situations that they encounter in the ordinary course of everyday living and then freely describe themselves in each of these situations. These responses are then collated, and a computer presents every combination of situation and self-description to the subject for a final rating. These ratings are then used to generate a similarity matrix for the situations, and cluster analysis is employed to reveal a hierarchy of context-specific selves.

Anderson's (1976) ACT model of memory suggests other ways in which the assessment of the self-concept may be improved. Recall that in the ACT system (or any other network model of memory, for example) the network is entered by activating one or more nodes related to information supplied by some query. Activation then spreads to other nodes, with the latency of activation inversely proportional to the number of propositional links that must be traversed. The responses of subjects to free-description procedures of the sort employed by

McGuire (McGuire & McGuire, 1982) and Pervin (1976) may be construed as the products of just such a process. Obviously, given enough time a subject could list the entire contents of accessible memory in response to the simple query, "Describe yourself"; but few of these responses would be appropriately considered to be features of his or her self-concept. Even with time constraints more closely conforming to the conditions of the typical experiment, however, subjects may list attributes that are not closely related to their self-concepts simply because they have the opportunity to do so. This situation may be easily corrected by placing very severe time constraints on subjects, as McGuire does. Alternatively, the investigator may allow subjects to generate items freely, but to take serial order into consideration. Presumably, those items appearing earliest in the subject's list of self-descriptions are more closely linked to the self-concept than those appearing later.

In a similar manner, reaction time may offer a way to improve the validity of reactive measures of the self-concept. The problem with reactive measures is that subjects may affirm characteristics contained in standard personality questionnaires or adjective checklists, even though these attributes do not represent the way in which the subject thinks about him- or herself. However, reaction-time measures may help distinguish between those attributes that are central to the self-concept and those that are not. Consider a typical reactive self-assessment in which the subject must rate him- or herself on a dimension such as "cultured". ACT suggests that such a self-appraisal would begin by activating two nodes in the memory system—one for "self" and one for "cultured". Alternatively, the person must activate nodes representing prototypically cultured acts and episodes from his or her own autobiographical memory. In either case, activation would spread out from both nodes; and if the two pathways intersected, the subject would give an affirmative response. Obviously, features that are more closely associated with the self-concept will yeild faster response latencies.

Some data already exists on this point. For example, a number of investigators have found an inverted U relating self-descriptiveness to reaction time for both personality adjectives (Kuiper & Derry, 1981; Rogers, 1981) and attitudinal statements (Judd & Kulik, 1980). The usefulness of reaction time in assessing the self-concept is most clearly demonstrated in some experiments by Markus and her colleagues. For example, Markus (1977) classified subjects as self-schematic or aschematic for the attribute of independence (or dependence), yielding three groups: self-schematic for independence, self-schematic for dependence, and aschematic for this dimension. Later, these same subjects rated a larger set of adjectives, including a number of items conceptually related to independence and 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. However, independent adjectives were also endorsed at substantial rates by subjects previously classified as self-schematic for dependence, and many subjects classified as self-schematic for independence endorsed dependent items as self-descriptive. The response latency data was more revealing. Self-schematics for independence showed shorter latencies when rating themselves on independent rather than dependent adjectives; similarly, self-schematics for dependence showed shorter latencies when rating themselves on dependent rather than independent adjectives. Subjects who were aschematic for this dimension showed no difference in response latencies for independent and dependent items. Similar findings have been obtained in the domain of gender-role orientation (Markus, Crane, Bernstein, & Siladi, 1982). 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-concept.

VI. Acquisition of the Self-Concept

From a cognitive point of view, the declarative and procedural knowledge involved in social cognition develops in the same manner as the other declarative and procedural aspects of the cognitive system: In other words, they are largely learned. To be sure, work in perceptual and linguistic development indicates that certain rudimentary knowledge structures are innate; and some research with infants suggests that certain social–cognitive processes, such as those involved in face perception and recognition, are included in this category. Moreover, the clear developmental trends that have been found on such social–cognitive tasks as impression formation and causal attribution may reflect the general course of cognitive development, as children acquire both a larger data base and the cognitive capacity to integrate large amounts of information (for reviews see Ruble & Rholes, 1981; Surber, 1984, in press). However, just as children employ innate linguistic structures to acquire whatever language they are immersed in, so too the vast bulk of the child's specific declarative and procedural social knowledge must be acquired through social learning that takes place within a particular familial and sociocultural framework.

Flavell (1977) has summarized a number of aspects of the development of the self-concept. He notes that one of the earliest tasks of psychological development is for the child to distinguish him- or herself from others—a goal that is probably not accomplished until early childhood. During infancy, however, children do seem to develop an awareness of their bodies, as indicated by recognition of their own mirror images (Amsterdam, 1972; see also Gallup,

1977). Among the first signs of conservation is the child's sense that he or she remains the same person despite the physical changes associated with growth and maturation. Just as others (e.g., Kuiper & Derry, 1981; Markus & Smith, 1981) have noted an association between self-perception and the perception of other people, so Flavell (1977) notes an association between the development of self- and other-perception. For example, descriptions of both self and others show age-related increases in richness, differentiation, and the use of trait terms. McGuire and McGuire (1982) have traced the development of the "social" (as opposed to the "physical") self in a study involving children in grades 1, 3, 7, and 11. The subjects each described themselves orally for 5 minutes, and the resulting tape recordings were transcribed and coded. They found that as a child matures, other people occupy a diminishing proportion of the features given in a self-description and that references to specific other people are replaced by references to general categories of people. Moreover, an increasing proportion of significant others come from outside the family: for example, teachers rather than parents, friends and schoolmates rather than siblings. These age trends, in turn, are theoretically related to the child's developing autonomy, so that his or her self-concept is less and less tied to his or her relationships with other people.

How are features encoded as part of the self-concept? McGuire and his colleagues (e.g., McGuire & McGuire, 1981) have strongly argued that one tends to encode those features of oneself (and others, for that matter) that are unusual in some way. Although this *distinctiveness postulate* was derived principally from perceptual theory (McGuire *et al.*, 1979), it is consistent with the literature on categorization and memory processing. For example, Cantor (Cantor, 1980; Cantor & Mischel, 1979), following Rosch (1978), has argued that person concepts are represented in a hierarchy of prototypes. Each of the prototypes consists of a number of features correlated with category membership, but not correlated with membership in contrasting or alternative categories. In other words, the features possessed by the category prototype have cue validity because they serve both to identify instances of the category and keep the category relatively distinct from other categories. As another example, Hastie (1981) has shown that memory encoding processes selectively favor those aspects of a stimulus that are surprising or otherwise inconsistent with one's general impression. If we can extend this schematic principle to the problem of perception and memory of the self, then it follows that individuals will tend to encode those attributes of themselves that make them stand out in their social contexts.

Evidence from studies of the spontaneous self-concept appears to favor McGuire's (McGuire & McGuire, 1982) distinctiveness postulate. In a series of studies, attributes spontaneously generated by subjects (usually children) have been compared to the distribution of these same attributes within the individual's reference group. The general finding is that attributes are more likely to appear in the self-concept when the individual occupies minority status with respect to

them. For example, schoolchildren are more likely to mention their age if they are atypically young or old compared to their classmates; to mention their birthplace if they are not native to the city or country in which they are currently residing; to mention hair and eye color, weight, and height if they are statistically abnormal in these respects (McGuire & Padawer-Singer, 1976); and to include gender as part of the self-concept if the respondent's sex is the minority in his or her classroom (McGuire & Padawer-Singer, 1976) or in his or her household (McGuire, McGuire & Winton, 1979). Sinistrals are more likely to mention handedness than dextrals (McGuire & McGuire, 1980); and individuals who wear eyeglasses are more likely to mention this fact if very few (as opposed to relatively many) of their classmates also have corrected vision (McGuire & McGuire, 1981). Black and Hispanic children are more likely to mention their ethnic identification than white children, and such descriptions are more likely when the child's ethnic group is a weak (as opposed to strong) minority in his or her classroom and when the school is ethnically heterogeneous (McGuire, McGuire, Child & Fujioka, 1978). Not all of these effects have been consistently obtained—compare McGuire and Padawer-Singer (1976) and McGuire and McGuire (1981) on age and height, for example—but overall the hypothesis has fared rather well, sustaining some subtle predictions (McGuire *et al.*, 1978).

Again, the results are in line with what we would expect, given the structure of the self as a concept and as a node in a memory system. The self does not contain an unorganized, exhaustive list of features and attributes. Rather, it is selective, emphasizing features that are characteristic of the self but not of other people. This line of research needs to be investigated with respect to mental as well as demographic and physical attributes. It follows from the distinctiveness hypothesis that those attitudes, traits, behaviors, and significant others that are encoded as part of the self-concept will also be relatively distinctive. Testing this aspect of the hypothesis, however, one immediately encounters some problems. First, McGuire (McGuire & McGuire, 1982) was able to employ objective measures of such attributes as birthplace, age, gender, and race. But how are honesty, profeminism, acting in a shy manner at parties, and being friendly with Joe to be measured objectively? Perhaps, for these types of texts, the distinctiveness hypothesis has to be stated in terms of *perceived* distinctiveness, rather than *actual* distinctiveness. Of course, in the final analysis it is perceived distinctiveness that matters, even in the case of attributes that are easy to measure objectively.

This proposed extension of the distinctiveness hypothesis raises the whole question of the relationship between self-perception and the perception of other people. In fact, the self-concept appears to affect the perception of others in a variety of ways (for reviews see Kuiper & Derry, 1981; Markus & Smith, 1981). For example, Shrauger and Patterson (1974) found that those categories that featured prominently in their subjects' descriptions of other people were also

rated as highly self-descriptive. Similarly, Ross (Ross, 1977; Ross, Green, & House, 1977) has observed a "false consensus" effect, whereby individuals appear to believe that other people share their attitudes and experiences. These findings are reminiscent of the psychoanalytic concept of projection, except that projective attribution is not restricted to undesirable qualities. Moreover, as Holmes (1968, 1978) has pointed out, the projective attribution of undesirable qualities is as commonly directed to desirable as well as to undesirable targets and does not lead to more favorable evaluation of these qualities or any other kind of stress reduction. Such findings, however, appear to conflict with McGuire's research that indicates that the self-concept favors attributes that *distinguish* self from others. By this reasoning, individuals should perceive other people as different from themselves. In fact, there is some evidence that favors this point of view as well (e.g., Nisbett, Borgida, Crandall, & Reed, 1976). Given this state of the evidence, Markus and Smith (1981) were only able to conclude that "overall, the person–perception research has unambiguously demonstrated only that self-relevant qualities . . . can figure in the description of others. It has not succeeded in specifying the nature, the direction, or the outcome of the influence of the self-structure on perceiving others" (p. 237).

A distinction between self-concept and self-description may help to resolve this ambiguity. Perhaps, we perceive ourselves as different from others with respect to those attributes that form our self-concept; when it comes to attributes that are merely self-descriptive, however, we may perceive ourselves as similar to other people. This hypothesis bears some similarity to the assimilation–contrast model of social judgment proposed by Sherif and Hovland (1961) and to the notion that one's self-appraisal provides a benchmark for the perception of others in domains that are highly self-relevant (Berkowitz, 1960). Along these lines, Markus and her colleagues have collected evidence that subjects with self-schemata in domains such as independence and masculinity are more sensitive to these characteristics when displayed by other people, compared to those who are aschematic in these domains (for a review see Markus & Smith, 1981). Similarly, Kuiper and his colleagues (e.g., Kuiper & Derry, 1981) have suggested that subjects make faster judgments of others with respect to attributes that form part of their self-concept, as compared to irrelevant attributes. Most recently, Fong and Markus (1982) have found that individuals with self-schemata for extraversion or introversion seek more self-relevant information (i.e., about a target's own extraversion or introversion) than aschematics and are more confident in rating the target on extraversion–introversion than on other dimensions.

According to the cognitive view of personality (Cantor & Kihlstrom, 1982), personality change occurs whenever the individual acquires new declarative and procedural social knowledge or begins to make different choices among options that are already available. Whereas our emphasis on the potential for cognitive and behavioral change opens us up to the charge that we think that people are

infinitely malleable, we ourselves prefer to be thought of as meliorists. Again, except in totalitarian environments, the possibility of coercive change is limited by the availability of a wide range of alternatives from which the individual can freely choose. More to the point, perhaps, is the possibility that all this emphasis on flexibility and change has left the individual without any stable core of personality—in other words, without a self. This is not the case. Instead, the individual's self-concept provides for continuity amidst change, through the record of autobiographical memory; and change may be limited to those directions that are congruent with the individual's overall self-concept.

VII. Is the Self Unique?

So far we have discussed the self as a concept and as a knowledge structure, as if oneself were just another person represented in social memory. The question naturally arises as to whether the mental representations of oneself differ in some way from one's representations of other people. From a structural point of view, we think the answer is clearly no: The self-concept is organized along the same lines as concepts representing others. From a functional point of view, however, the answer is not so clear. A number of special properties have been attributed to the self, with respect to the way in which it is involved in social information processing.

In a review of the literature on the role of the self in memory, Greenwald (1981, pp. 223–224) found evidence for three related effects:

1. Material that is actively generated by the learner is more easily recalled than material passively received (the *self-generation effect*).
2. Material that is encoded with reference to the self is more easily recalled than is material otherwise encoded (the *self-reference effect*).
3. Material associated with a persisting task is more easily recalled than is material associated with a completed task (the *ego-involvement effect*).

Of these, the self-reference (or *egocentric perspective*) effect has been the object of considerable study (for reviews see Keenan & Baillet, 1980; Kuiper & Derry, 1981; Rogers, 1981). The earliest experiments in this series involved conventional procedures employed in the study of verbal learning, except for the stimulus materials. For example, Rogers (1977, Experiment 3) presented subjects with 60 personality questionnaire items written either in the first or third person. Half the subjects in each group were simply asked to study the items; the remaining subjects were asked to decide if the item was self-descriptive. On a subsequent recognition test consisting of the 60 targets and 60 lures, memory was better for the items written in the first person (i.e., fewer misses and fewer

false alarms); this was especially the case for subjects who had made a self-referent decision at the time of encoding. A subsequent study of incidental memory presented trait adjectives under various orienting conditions, following the "depth of processing" paradigm; items for which self-referent decisions were made were better recognized than items associated with orthographic, phonemic, or semantic decisions (Rogers, Kuiper, & Kirker, 1977). An experiment by Klein and Kihlstrom (1984) coupled the depth-of-processing procedure with the hypermnesia procedure of Erdelyi (e.g., Erdelyi & Becker, 1974; Erdelyi & Kleinbard, 1978). Their subjects studied a list of 64 trait adjectives (half socially desirable and half undesirable) under orthographic, phonemic, semantic, and self-referent orienting conditions, and then they were surprised with a test of free recall. Initial recall was highest for items studied under the self-referent condition. Then the subjects were given two further recall trials, separated by 7-minute "think" intervals with no further opportunity to study the items. Recall improved significantly over the trials, but only for items studied in the self-referent condition. A subsequent replication by Mross and Kihlstrom (1984) has confirmed these findings.

The effect of self-reference on memory can also be seen in another type of experiment that employs idiographically constructed sets of stimulus materials. For example, Perry (Perry, 1979; cited in Rogers, 1981) gathered self-ratings on a large set of adjectives and then constructed for each subject an individualized wordlist consisting of adjectives varying in degree of self-descriptiveness. Following a study trial under conditions of intentional learning, free recall was found to be best for those items that were judged to be highly self-descriptive. A similar experiment by Rogers, Rogers, and Kuiper (1979) explored recognition memory. The subjects rated themselves on a set of 84 adjectives and later studied half of these (drawn from all levels of self-descriptiveness). Memory testing showed no effect of self-descriptiveness on correct recognition; however, there was significantly more false recognition of unstudied items judged earlier to be highly self-descriptive, compared to false recognition of nondescriptive terms. Bower and Gilligan (1979) found a equivalent self-reference effect, whether or not the item was judged in an episodic memory task (in which the subject was asked to recall a specific personal experience in which she or he manifested the characteristic) or in a semantic memory task (the subject had to determine whether the item was self-descriptive).

However, it is not at all clear that this effect is unique to the self. For example, memory is also enhanced if the orienting task involves deciding whether the trait adjective is descriptive of some other person who is familiar to the subject. For example, Bower and Gilligan (1979) found that memory for trait adjectives was also enhanced if they were judged with respect to the subject's mother, but not if they were judged with respect to Walter Cronkite. Similarly, Kuiper and Rogers (1979) found that self-referent adjectives were better recalled

than adjectives rated early in the term with respect to a course instructor, who was then an unknown quantity (Experiment I), but not later in the term when the subjects were presumably better acquainted with their target. Keenan and Baillet (1980) compared the effects of rating adjectives with respect to seven different targets (i.e., Jimmy Carter, a teacher or a boss, a favorite fiction character, a friend, a parent, a best friend, and the self) and found that the memorability of an item was a direct function of the familiarity of the target. However, Keenan and Baillet (1980) found the familiarity effect only for judgments of personality attributes, but not for judgments of physical attributes. Thus, effects similar to those produced by referring stimulus information to the self-schema are also produced by referring it to schemata representing familiar others. It seems likely, as others have suggested (Bower & Gilligan, 1979; Keenan & Baillet, 1980), that both effects can be explained in terms of the degree of cognitive elaboration received by stimulus items at the time of encoding (Anderson & Reder, 1979; Jacoby & Craik, 1979). Assuming that the self is a very rich structure with many links to other nodes in the memory system, such items are associated with more (and more effective) potential retrieval cues as compared to items that have been encoded with respect to more impoverished memory structures. But there is nothing unique about self-reference in this respect.

Although these sorts of principles can be used to explain self-related increases in *accurate* memory, it is not clear that they can account for the biases that occur in perception and memory concerning oneself. Greenwald (1980), beginning with the metaphor of the self as a personal historian that preserves a record of autobiographical memory, has outlined three such cognitive biases; some of these are at least partially related to the effects of self-reference on memory.

1. Memory is best for information that is highly relevant to the self, and people overestimate their own importance as an influence or target of social interactions *(egocentricity)*.
2. People readily perceive themselves as responsible for positive outcomes and tend to deny responsibility for negative outcomes *(beneffectance)*.
3. People tend to seek information that confirms their theories about themselves and to revise their autobiographical memory so that it accords with their current self-concept *(cognitive conservativism)*.

Of these effects, egocentricity and beneffectance appear to be the best documented (Greenwald, 1980; Ross, 1981; Snyder, Stephan, & Rosenfeld, 1976). Interestingly, they seem to interact with each other. For example, self-relevant information appears to dominate perception and memory, and self-generated material is easier to remember than corresponding material produced by others; but under a threat to self-esteem, the "reverse Zeigarnik effect" (Kihlstrom, 1981) favors the recall of successes as opposed to failures. Even

when outcomes are determined entirely by chance or experimental manipulations, there is a tendency for people to assert that they had control over them; but while one's success is typically ascribed to one's own ability or efforts, blame for one's failures is typically assigned to task difficulty or the poor performance of partners. It remains to be seen, however, whether a similar sort of bias intrudes on attributions concerning other people—especially people who are positively regarded or who are perceived as similar to oneself. Intuition suggests that we do not readily countenance blame assigned to our friends and that we are more likely to share responsibility for good outcomes with friends than with enemies or strangers.

The conservation of the self-concept was demonstrated clearly in a study by Markus (1977). Her subjects were classified as self-schematic for independence (Independents), for dependence (Dependents), or as aschematic on this dimension (Aschematics), and then they engaged in a variety of tasks. In one case, they were presented with a number of adjectives related to independence–dependence and asked to recall instances in which they had behaved in the manner described by the word. Dependents supplied more behavioral evidence for dependent than for independent adjectives, whereas Independents showed the opposite trend; the Aschematics gave equal amounts of evidence for both dependent and independent characteristics. In addition, the subjects' self-ratings on these dimensions were compared during the initial self-schema assessment. Independents and Dependents showed considerable test–retest reliability in these self-ratings, whereas Aschematics did not. Finally, when asked to predict their future behavior, Independents and Dependents were more confident in their prediction of future schema-congruent and schema-incongruent behavior, as compared to Aschematics. Thus, both memory of the past and predictions of the future are in line with the self-concept.

In a second study, Markus (1977) studied the responses of these subjects to information that was incongruent with their self-concepts. After participating in an ostensible test of suggestibility, Independents were informed that they were highly suggestible and Dependents were informed that they were highly resistant to suggestion; half the Aschematics were given each type of bogus feedback. When asked to evaluate the test, the Independents and Dependents were quite critical, rating it as considerably less valid than Aschematics. In addition, self-ratings of suggestibility were more influenced by the feedback in the Aschematics than in the Independents or Dependents. Finally, when asked to rate themselves again on the adjectives that contributed to the initial self-schema assessment, the Independents and Dependents showed longer response latencies as compared to their initial ratings; however, the response latencies of Aschematics did not change. Nevertheless, the self-ratings themselves were more reliable for the Independents and Dependents than they were for the Aschematics. Apparently, subjects who were self-schematic for independence or

dependence were more likely to consider, but ultimately reject, information that is incongruent with their self-concepts. Aschematics, by contrast, readily incorporated this new information into their self-descriptions.

Of course, this conservation of the self-concept may simply be a special case of the well-known proclivity of the intuitive scientist generally toward theory-conservation (Nisbett & Ross, 1980; Snyder, 1980; Wason & Johnson-Laird, 1972). When testing hypotheses about other people, for example, people selectively appear to seek out or retrieve theory-consistent data as opposed to information that might potentially disconfirm the theory (Snyder & Cantor, 1979; Snyder & Swann, 1978). These tendencies can be seen even when the individual is directly confronted with information that is incongruent with his or her hypothesis. For example, Hastie (1980, 1981) found that people are more likely to attempt to explain behavior that is incongruent with an initial impression—presumably in a manner that preserves that impression. Experimentally induced impressions of other people, and even oneself, have also been shown to persist even when the basis for the original impression is completely discredited by later information (Ross, Lepper, & Hubbard, 1975; Ross, Lepper, Strack, & Steinmetz, 1977). Perhaps the self-concept is most resistant to change of all the representations of people stored in social memory; but this probably reflects a quantitative, rather than a qualitative, difference between self and other.

Perhaps the most radical argument for the similarity of concepts of self and others is implicit in Bem's self-perception theory (Bem, 1967, 1972; see also Locksley & Lenauer, 1981). Self-perception theory argues against the notion of direct, introspective self-knowledge and asserts instead that we typically make judgments about our own traits, states, attitudes, and other personality characteristics in the same way that we make them about other people—that is, by inferring them from observations of behavior and the social context in which it occurs. However, there is at least one important way in which self-perception is different from the perception of other people. Although people show a marked tendency to attribute the behavior of other persons to their internal dispositions (Heider, 1958; Jones & Davis, 1965)—the "fundamental attribution error" described by Ross (Ross, 1977; Nisbett & Ross, 1980)—people tend to make situational attributions concerning themselves (Jones & Nisbett, 1971). For example, Nisbett *et al.* (1973) asked subjects to complete an adjective checklist describing either themselves or some familiar acquaintance. In addition to the usual continuous scale, the subjects were also given the option of responding "it depends on the situation". Although descriptions of other persons tended to be polarized, with the attributes described as highly characteristic or not at all characteristic of the person, the descriptions of the subjects themselves were strongly biased toward situational specificity. In a recent review of self–other differences in causal attribution, Watson (1982) found that the evidence, though complicated, strongly supported the Jones–Nisbett hypothesis.

A number of explanations have been offered for this actor–observer difference in attribution. One possibility lies in the differences in the attentional focus of actors and observers. Heider (1958) suggested that the observer's attention was focused on the actor and that his or her "behavior engulfs the field," leading to a dispositional attribution. However, the gaze of the actors themselves is quite literally directed outward on the field. Another reason may be the wealth of knowledge concerning our own behavior that we possess by virtue of our record of autobiographical memories. This may provide extra information concerning the consistency and distinctiveness of our own behavior that, if available to observers, would also lead them to make situational attributions. Watson (1982), in his review, concluded that there was no evidence that differences in information level, as such, produced the actor–observer difference. Nevertheless, the question underscores an important difference between mental representations of self and others: the wealth of autobiographical information that we possess about ourselves. Therefore, an important topic of research on the self-concept concerns the manner in which autobiographical memories are represented in the cognitive system and the manner in which they are retrieved.

Recently, a number of investigators have reopened the study of autobiographical memory, including intensive studies of individual memories (e.g., Linton, 1975, 1978) and early recollections (e.g., Kihlstrom & Harackiewicz, 1982; White & Pillemer, 1979). One promising method of inquiry has employed a cued-recall procedure originally devised by Galton and reintroduced by Crovitz (Crovitz & Quina-Holland, 1976; Crovitz & Schiffman, 1974). Robinson (1976), and Chew (1979). Such studies are beginning to address both the declarative and procedural features of autobiographical memory: how the individual episodes are related to each other in an organized scheme and the way in which these experiences are retrieved and reconstructed. For example, Chew (1979), in a study of high-school seniors, found that response latencies in a cued-recall task were longer for remote memories (i.e., from ages 3–7) than for recent ones (ages 13–17), suggesting a serial activation process that works backward from the present. However, the temporal distributions of memories within remote and recent epochs were quite different, and the latency differences were substantially reduced when high-imagery nouns were used as cues. Although temporal organization is an important factor in retrieval (Kihlstrom & Evans, 1979), other factors complicate the picture.

Although the matter of autobiographical memory is most sensibly raised in the context of the self, it is obvious that social memory may contain rather detailed histories of other individuals as well. Thus, despite the obvious importance of the autobiographical record to the self-concept, the availability of autobiographical memory represents only a quantitative difference between self and others. Of course, our knowledge of other people, especially our intimate acquaintances, is closely related to our knowledge of ourselves. As McGuire

(McGuire & McGuire, 1982) has shown, we define ourselves at least partly in terms of others who are significant for us. We know the attributes of other people because we have observed their behavior, compared it to our own, and encoded it in terms of our personal construct systems; we know their histories to the extent that we personally shared their experiences. Perhaps self-reference and familiar-other-reference have similar effects on memory because we cannot think of one without thinking of both.

A quantitative difference that borders on the qualitative, perhaps, is the extent to which the self-schema is chronically activated in memory. Consider, for example, a recent experiment by Bargh (1982), employing procedures popularized by Schneider and Shiffrin (Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977). Subjects were classified as self-schematic for independence, self-schematic for dependence, or aschematic for these attributes, following the procedure developed by Markus (1977). They then performed a dichotic listening task in which they were required to shadow a list of words presented to one ear while ignoring those presented to the other. In one condition the subjects were asked to attend to a channel over which a series of adjectives was presented and to ignore a channel over which a series of nouns was presented; in the other, they were instructed to attend to the nouns and ignore the adjectives. The adjective list was constructed so that the middle third contained items related to independence, but the first and last thirds did not. Allocation of attentional capacity to each channel was measured by latency of response to probe stimuli presented twice while independent adjectives were being read and twice while unrelated adjectives were being read. When subjects attended to the adjectives, their processing capacity was increased during the time that independent adjectives were being read. Thus, even in the absence of any explicit self-reference instructions, the self-schema appears to facilitate the processing of self-relevant information. When subjects attended to the nouns, their processing capacity was decreased during this time. Apparently, self-relevant information coming over the unattended channel was picked up without conscious intent and outside of conscious awareness (subjects showed poor memory for the items, nouns or adjectives, presented over this channel), consuming some attentional resources. The effect is not unlike that observed in an airport waiting room or some similar situation in which individuals are responsive to their names read over the public-address system, though they remain oblivious to other messages that are not self-relevant. This automaticity suggest that the central feature of the self-concept, in contrast to other nodes in the memory system, may be chronically activated.

Are there any truly qualitative differences between self-perception and the perception of other people, differences that would render the self-concept unique? Probably not—not, that is, unless one is willing to grant that individuals have some degree of direct introspective access to their own mental states: what they are perceiving, remembering, thinking, and feeling while they are behav-

ing. These ideas and experiences are by their very nature denied to outside observers except through verbal reports. Therefore, they can never form part of our knowledge of other people. This is not to say that our introspections are always accurate. Nisbett and Wilson (1977) suggest that under some circumstances we can be entirely wrong about the reasons for what we think and do. Subjects can be shown to be responsive to experimental contingencies manipulated by experimenters, even though they do not manifest any awareness of these contingencies in the accounts that they give of themselves (see also Bargh, 1982; Dixon, 1971; Eriksen, 1962). Experimenters are not always in a position to contradict, on the basis of behavioral evidence, the subjective reports given by subjects (e.g., Malcolm, 1959). Nor can it be denied that subjective states themselves are often the product of inference and other constructive activity, based on what individuals observe themselves doing. But self-observations of behavior and the context in which it occurs cannot be the sole, or even the major, data base employed in self-perception. Otherwise we would find ourselves constantly in the predicament of the poor creature in Margaret Haskins Durber's (1980) "A Book Report on Minnesota Birds":

> We say, "To err is human." Perhaps to err is also avian.
> When a bird is lost, however, we don't call
> the National Guard or the Navy in.
> We just look up and say, "Good heavens, what is that
> black-throated gray warbler doing here
> where all this snow and ice is?
> Maybe the bird looks down and sees it's Minnesota
> and has an identity crisis
> He says, "If I'm here in the winter, maybe I'm *not*
> a black-throated gray warbler,"
> And broods and broods about it and feels harbler and harbler,
> Until he's too depressed to warble a single note.
> For how can he know for sure he's a black-throated gray warbler
> if he can't see this thorn?

In work in progess, Kihlstrom and his colleagues have begun to explore the process of self-perception within the domain of hypnosis. Upon termination of hypnosis it is common for subjects to make some general comment concerning what their experience of hypnosis was like. These comments typically range from reports that "nothing happened" or of being "wide awake" to reports of having been "moderately" or "deeply" hypnotized and can be quantified by simple scaling procedures (see the review by Tart, 1979). Other investigators have focused their efforts on exploring the ways in which these depth reports are

affected by contextual factors, such as the definition of the situation as hypnosis and the wording of the scale (Radtke & Spanos, 1981). This approach, in contrast has focused on the behavioral and subjective information employed by subjects in making their judgments and the manner in which this information is integrated in making a global retrospective judgment of their experience. In the experiments, the subjects receive an administration of a standardized procedure consisting of an induction of hypnosis accompanied by 12 representative hypnotic suggestions. After termination of hypnosis, the subjects provide dichotomous ratings of each suggestion according to both their subjective impressions of its success and a behavioral criterion set by the investigator. In some studies the subjects also report on subjective experiences, such as loss of awareness or feelings of automaticity or compulsion; this information is collected either in the form of questionnaire responses or free descriptions. Finally, the subjects provide an overall retrospective judgment of the depth of hypnosis achieved during the session on a 1–10 scale. Our studies consistently show that the subjective experience ratings of either the success of individual suggestions or of overall alterations in consciousness are more important determinants of the subjects' global depth ratings than the publicly observable behavioral responses. It remains to be seen whether the hypnosis results can be generalized to other self-appraisals—though an abundance of data on emotional states indicates that they can (e.g., Leventhal, 1980, 1983). If so, it would seem necessary to revise self-perception theory to allow the process to take account of strictly private, subjective experiences as well as publicly observable aspects of behavior and its social context. The availability of experiential as well as behavioral and contextual information may be the only qualitative difference between concepts of self and of others.

VIII. What is Missing?

In this chapter, we attempt to adopt two complementary theoretical perspectives in cognitive psychology and pursue their implications for research and for theory on the structure and function of the self-concept. It should be clear that these implications should be construed as hypotheses rather than conclusions. We do not yet know, for example, whether self-concepts are better thought of as summary prototypes or as multiple exemplars—or, frankly, whether the distinction makes a difference. We do not know whether there are multiple self-concepts and, if so, whether these are represented as self-in-context, self-as-different-type-of-person, both, or something else entirely. We do not know how the various types of self-knowledge—declarative and procedural, episodic and semantic—influence each other within an organized memory system. We do not

know much about the relative importance of distinctiveness and consensus in determining the features of the self-concept. We do not know to what extent the self-concept has unique properties and to what extent we are simply the people we know best. But we believe that these questions might not have arisen from a pretheoretical framework. That is the virtue of having theories, taking them seriously, and pushing them as far as they will go. The work on concepts and categories and on memory networks has contributed a great deal to our thinking about the self. Now, in conclusion, it is time to consider some of the things that have been left out.

In focusing on the attributes of the self-concept, for example, we have intentionally given short shrift to self-esteem. In part, this grievance is redressed by the huge volume of research and theory on this topic that has been produced elsewhere. But the fact remains that we have not paid too much attention to the emotional and motivational aspects of selfhood. Certainly the self is tied to a great deal of affect: Most of us are more emotionally involved with ourselves than with others. Some of these issues may be discussed in the context of such biases in self-perception as egocentricity and beneffectance. But it is not yet clear whether these biases represent the intrinsic liabilities of the human cognitive system, or alternatively whether the cognitive effects revealed on are products of noncognitive emotional and motivational processes. At the same time, in our defense, this chapter is concerned with cognitive aspects of the self. Even within this domain, however, there are problems that must be confronted.

So far, we have discussed self-assessment as if it were adequately represented by a process involving direct look up of features associated with the self-concept. According to ACT, activation spreads out from the self-node until it arrives at other nodes, which are then reported to be part of the self-concept; or, in response to a query as to whether a particular feature is in one's self concept, activation spreads out from both nodes, one representing the self and one representing the feature, and the attribute is affirmed if their pathways intersect within some critical period. According to the probabilistic view of categorization, a category is accessed and its attributes are looked up directly in a feature list. However, there are reasons for thinking that such processes do not necessarily, or even usually, describe the process of self-appraisal. Subjects are asked to say an almost infinite number of things about themselves on reactive self-assessment procedures: Consider the 17,953 traits listed by Allport and Odbert (1936) and the mass of self-statements generated since Woodworth's research (1919) by those in the business of constructing personality questionnaires; consider as well the fact that subjects are capable of making fairly differentiated judgments about themselves on Likert-type scales, as well as more global ones on dichotomous scales. We simply doubt that there are that many different meters in the head. If not, then most instances of self-assessment must represent the product of judgment and inference.

How then do we come to form impressions of ourselves as intelligent or extraverted, profeminist or antinuclear, tired or forgetful, or anxious or depressed? We want to argue that such self-appraisals represent the product of a prototype-matching process similar to that employed in forming impressions of other people (e.g., Cantor & Mischel, 1979). When asked to decide whether someone else is an extravert, subjects appear to match the attributes of the target person with those of a prototypical representative of that category, paying particular attention to central rather than peripheral features, the presence of attributes central to contrasting or alternative categories, and the situations in which category-consistent attributes are displayed. If there is a close match, then the target is assigned to the category. If oneself is a person, just like anyone else, then self-perception should be based on the same principles as those that guide the perception of other people. Perhaps when asked whether we are friendly or conscientious, we compare the features of our self-concept with those of the relevant category prototype and say yes if we find substantial overlap. Although this proposal may seem similar to self-perception theory in many respects, it differs in arguing that people take into account private, subjective experience as well as publicly observable behavior and environmental context in making inferences about themselves. Although agreeing that the process of self-perception is similar to that of other-perception (even if self-perception takes account of additional information that is not directly available when forming impressions of other people), it goes beyond self-perception by linking social cognition with our knowledge of perception and categorization in other domains.

From the prototype or exemplar view of categorization, the features of the self-concept are lists of words denoting its attributes; from the point of view of ACT, the self is a set of interconnecting nodes forming a propositional network. The question immediately arises as to whether there are nonlinguistic, nonpropositional representations of the self. Is there literally a self-image? The fact that nonhuman primates and preverbal human infants recognize themselves in mirrors suggests that there is; so does the fact that certain thin people of our acquaintance picture themselves as fat or potentially so. Similarly, our emotional and motivational states—what it is like when we are happy or sad, what turns us on and off—may be difficult or impossible to articulate. Arguably, these internal states can be represented as the production systems that construct them; but it is not clear that this solves the problem. In much the same way, it is possible that some aspects of our personality are nonrepresentational. For example, some of our distinctive characteristics may reflect the operation of conditioned habits rather than cognitive processes. In the ACT model, stimulus-response (S-R) associations of this type are represented as production systems in procedural knowledge, but this gambit may imply to some critics that the model, by making all behavior cognitive by definition, is unconstitutionally vague and broad. Alternatively, some of our characteristics may be mediated by dissociated or repressed

mental structures and processes that are not normally accessible to phenomenal awareness (Kihlstrom, 1984). This is a complicated issue. Certainly, habits and subconscious mental contents and processes are potentially important parts of personality, but are they parts of the self? Intuitively, it would seem that an attribute should not be considered as part of the self unless it figures in the individual's self-awareness.

This brings us back to the problem articulated by Allport (1937, 1961), as typified by the epigram to this chapter. We have treated the self as an object of knowledge—as a mental representation of a thing that exists in the physical and social world and in some kind of relation to other such things. This is the phenomenal self, with the person him- or herself as the object of regard. We have had nothing to say abut the self as knower, except, obviously, to identify it with the cognitive system that encodes, retrieves, and transforms information. But the matter of the self-as-knower is not simply a matter of information processing. Rather, it is a matter of the executive, the portion of the cognitive system that monitors and controls the rest and forms the basis for the experiences of phenomenal awareness and intentionality. We identify our ideas, our percepts, our memories, and our actions as ours. This problem of consciousness and metacognition remains the great mystery.

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