
14 Mapping Interpersonal Space

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A major item on the agenda of the John D. and Catherine T. MacArthur Foundation's Program on Conscious and Unconscious Mental Processes is to study the role played in neuroses and other problems in living by conscious and unconscious mental schemas, or organized mental structures, pertaining to self and others. To this end, a number of techniques—such as Role-Relationship Model Configuration (RRMC) (Horowitz et al., this vol., chap. 5), Core Conflictual Relationship Theme analysis (CCRT) (Luborsky et al., this vol., chap. 7; Crits-Christoph and Demorest, this vol., chap. 8), and Structural Analysis of Social Behavior (SASB) (Hartley, this vol., chap. 10)—are being developed for rating protocols derived from recorded psychotherapy sessions. As we have seen in part 2 of this volume, such methods can generate interesting hypotheses concerning what might be going on in the mind of the patient and how his or her interpersonal relationships are organized.

At the same time, however, it seems important to inject a cautionary note into this enterprise. It is, simply, that rating schemes are *interpretive* schemes in which some piece of experience, thought, or action is given meaning by assigning it to one category or another. In the act of interpretation, the rater's own cognitive structures are brought into play in order to make inferences about the target's real intentions, or the actual origins of his or her action. This situation, in turn, raises the very real risk that the rater's schemas will be

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confused with those of the target and that whatever interpretive scheme is applied becomes less a tool for understanding and more a Procrustean bed.

As is well known, this sort of criticism has long been directed at insight-oriented psychotherapy and the psychodynamic theories of personality on which it is based—one never quite knows whether it is the patient's fantasies or the therapist's that are being discussed. But it is also a criticism that has been directed against traditional psychometric theories of personality, where instances of experience, thought, or action are classified into trait categories or construed as reasons for assigning a person to one or another personality type (Mischel 1968). Over the last thirty years, personologists and psychotherapists of a cognitive-behavioral persuasion have argued that subjects should be allowed to speak for themselves and that traditional psychometric or psychodynamic approaches to personality assessment have no privileged status as routes to either conscious or unconscious mental processes.

In the hands of traditional behaviorists, this critique of interpretation meant that subjects should keep quiet too—that only their overt behavior was of interest, and that it should only be tabulated and cross-tabulated with objectively recorded environmental variables (Skinner 1953). But we are a long way from that time now. Beginning with Rotter (1954) and Kelly (1955), and continuing with Bandura (1986) and especially Mischel (1968), cognitively oriented personologists and psychotherapists have argued that understanding the meanings that subjects assign to environmental events and their own actions is critical for understanding personality. In terms of the social intelligence view of personality (Cantor and Kihlstrom 1982, 1987), this means that social-cognitive structures and processes lie at the heart of individual differences in experience, thought, and action, whether these are adaptive or maladaptive. Personality theories of this sort require new assessment instruments that permit people to speak for themselves, going beyond mere tabulation but stopping short of schemes that impose the investigator's interpretations on the subject or patient (e.g., Kihlstrom and Nasby 1981; Nasby and Kihlstrom 1986).

Assessing Personal Constructs

Since the time of George Kelly, one of the most important ideas in cognitive approaches to personality and psychopathology has been the personal construct—the person's idiosyncratic repertoire of concepts. Kelly developed an assessment instrument, the Role Construct Repertory Test, for assessing an individual's personal constructs. Briefly, the subject was asked to name persons who exemplified each of a broad range of social roles such as *boss* and *rejecting person*. Then three of these targets were sampled at a time, and the subject was asked to indicate some way in which two of these individuals were alike but different from the third. After eliciting a number of constructs

in this manner, every target was rated on every construct. A similar procedure could be followed for social situations. By applying a number of intuitive and mathematical techniques, the investigator could determine the content of the constructs, the relations among them, and the complexity of the individual's personal construct system. Thus he or she was able to enter into the subjective social world of the subject and began to understand how the subject categorized, compared, and contrasted those whom he or she encountered in the ordinary course of everyday living.

Kelly's proposal stimulated much interest, but application of his ideas was hampered by the fact that the appropriate mathematical techniques were cumbersome and expensive to apply (Bannister and Fransella 1971; Cole and Landfield 1977). The advent of computer technology has changed this situation somewhat, and a number of investigators have begun to find ways of doing precisely on a computer the sorts of things that Kelly had to do roughly on paper. Among the most inventive of these investigators are Seymour Rosenberg (1977, 1986, 1988) and Lawrence Pervin (1976, 1977), both at Rutgers.

A Literary Analysis of Personal Constructs

Consider, first, an interesting study by Rosenberg and Jones (1972) of Theodore Dreiser's view of people—that is, his schemas for others—as represented in his book *A Gallery of Women*. These authors identified 241 characters presented in the book who had been described in any detail and prepared a list of all the terms used to describe them. These 6,761 descriptive terms, a median of 6 items per character, were then reduced for purposes of analysis to a standard set of 99 representative trait terms. They then calculated an index of trait co-occurrence—the degree to which each trait was associated with each of the others in Dreiser's character sketches. The resulting matrix was submitted to hierarchical cluster analysis, which yielded several sets of traits with high rates of co-occurrence.

The clusters proved to be distinct from each other on just three dimensions: hard-soft, male-female, and conforming-rebellious. Thus, people who were described as cold also tended to be described as vigorous, forceful, indifferent, and critical; people, mostly women, who were described as attractive, were also described as defiant, pale, and sensual; people who were described as shrewd were also described as critical, ambitious, nice, and sophisticated. Two things should be noted about these findings. First, these are not the clusters or dimensions that emerge when the view of the "average person," as represented by aggregate rating data, is subjected to the same sorts of analysis (Fiske and Taylor 1984; Rosenberg and Sedlak 1972a, 1972b; Schneider, Hastorf, and Ellsworth 1979; Wegner and Vallacher 1977). That is to say, this view is to a large degree idiosyncratic to Dreiser, and if we did this with another author—say, Fitzgerald or Faulkner or Hemingway—we would very

likely get something quite different. Second, there is a clear link between Dreiser's view of people, as revealed by this analysis, and Dreiser's own life. More than anything else, Dreiser was deeply involved with women on both the sexual and intellectual levels, and he was constantly in rebellion against bourgeois conformity. Given these salient features of Dreiser's life, it is perhaps not surprising that Dreiser has clear concepts—we might now say schemas—organized around gender and rebellion. But the existence of these schemas is revealed clearly by the objective techniques of multivariate analysis, without which we should be simply guessing and arguing about what must have been on his mind.

Laboratory Analysis of Constructs Pertaining to Persons

Rosenberg (1977) adapted this technique for use with descriptive material generated by normal subjects. His technique involved three phases. First, all subjects listed at least a hundred people from their lives. As a guide, Rosenberg offered the following scheme:

- Persons in household during childhood and adolescence
- Persons who were close or intimate in the past but not the present
- Persons known well in the past but not present, but not close or intimate
- Persons who are close or intimate in the present
- Persons known well in the present, but not close or intimate
- Current acquaintances known at least one year
- Persons known by reputation only

The task may at first seem quite daunting, but in fact almost all subjects exceeded this criterion.

The subjects then prepared for each target a list of the physical and psychological traits thought to be characteristic of that person and the feelings elicited in them by him or her. In addition, the subjects also freely described three views of themselves: "me-now," "me-past," and "me-ideal." Each subject listed at least a hundred different people, as instructed, and some went far beyond the minimum requirements of the task; in addition, each subject listed at least fifty-six different traits and at least thirty-four different feelings in the free-description portion of the study. A computer collated all of the person and attribute entries, and the subjects then rated each of the target persons, including the three "selves," on each of the trait and feeling attributes.

The resulting two-way matrices, one for persons by traits and the other for persons by feelings, were analyzed by means of hierarchical clustering and multidimensional scaling—multivariate techniques similar to factor analysis. Simplifying for purposes of exposition, the dimensions emerging from the scaling solution can be taken as analogous to factors, which are in turn defined by the clusters of related traits and feelings that load highly on them. Rosenberg's analysis focused on the relations among the traits and feelings, ex-

pressed either in terms of co-occurrence or correlation. In this sophisticated way, he retraced the path originally cut by Kelly himself.

As might be expected from research on implicit personality theory (Schneider, Hastorf, and Ellsworth 1979), certain traits and feelings were fairly consistently found to co-occur across the subjects. For example, all subjects yielded a strong evaluative dimension, distinguishing between "good" and "bad" in social and intellectual terms. But other dimensions were quite idiosyncratic, appearing in one subject but not in the others. Table 14.1 shows the eight dimensions extracted from one male subject, MA; table 14.2 shows the ten dimensions extracted from another male, MB (the labels are Rosenberg's). The differences between them are, from a cognitive point of view, the differences between the individuals' personalities. The entire set of trait co-occurrences shows, for each subject, how he or she perceives a major portion of the social world as organized both in terms of the traits of other people and his or her own reactions to them.

Laboratory Analysis of Constructs Pertaining to Situations

Pervin (1976, 1977, 1983) employed a similar technique geared toward the assessment of situations rather than people. Subjects were first asked to list the situations in their current lives. A situation was defined as involving a specific place and time, and one or more individuals engaged in some specific activity; "current" situations were defined as those encountered in the past year. In order to restrict the list, the subjects were asked to limit their list to situations that were of some importance. The average subject in Pervin's study listed approximately twenty-six such situations. They were then asked to describe each situation, as well as how they felt and their characteristic behavior in each. The lists for each situation were collated and edited for redundancy, and then the subjects rated each situation on each attribute. The resulting matrix was factor-analyzed for each subject separately, yielding the basic dimensions in the perception of interpersonal situations.

Tables 14.3 and 14.4 show the dimensions extracted from two female subjects, Jennifer and Jan (the labels are Pervin's), along with some exemplary situations. Again, what we are seeing here are the various dimensions that these individuals use to organize their perceptions of the situations in which they live their lives. Not surprisingly, family, work, and play show up in some form in both analyses (and in similar analyses of two men)—what else is there? What is interesting is that the content of the various dimensions and the ways in which their various attributes are organized differ so greatly from one individual to another.

For the reasons outlined above, it appears that the Rosenberg-Pervin adaptation of Kelly's Rep Test is a powerful technique of choice for tapping the content and organization of people's mental schemas for the social world. However, its primary advantage, that it allows subjects to speak for them-

Table 14.1 Dimension Underlying MA's Person Ratings

CONTRAST A	
wonderful, fantastic, great, love to be with, close, easy to understand, worthwhile, important	mediocre, indifferent, bored
sincere, likable, friendly, like to be with, good, happy, respect, like, interest	strange, weird, childish, dumb, prejudiced
faithful, understanding, sympathetic, warm, kind, intelligent, bright, responsible, admiration	irresponsible, ridiculous, cold, boring, never excite me, hate
CONTRAST B (FEMALE)	
sweet, pretty, sexy, nice smelling	
large eyes, shapely, cute, big breasts, beautiful, good kisser, passionate	stuck up, small breasts
CONTRAST B (MALE)	
individualistic, clever, optimistic, talkative, easy going, humorous, made me laugh	
nice guy, handsome, powerful, tough	
CONTRAST C (FEMALE)	
exciting, great smile, sad, jealousy	
love, exhilarated, exciting, excited	
CONTRAST D	
	argumentative, abstinence, grouchy, unpredictable, wonder
	arrogant, belligerent, always in trouble, wise guy, disgust, dislike, can drive up wall, can't take sometimes, anger
	straight, rich, lookalike, angry, depressed, pessimistic
	complains, gets upset, temperamental
CONTRAST E	
	dejected, depressed, embarrassed, strange
	distant, hard to understand, unimportant, insignificant, bewildered, distant, uncomfortable
	shame

Table 14.1 (continued)

CONTRAST F	
stumpy, old balding	
CONTRAST G	
wise, New York accent, women's libber, radical	
brilliant, teacher, looks like me, marvelled at	
CONTRAST H	
great laugh, ham, knucklehead, nuts	drug user, pot head, boozier

Source: After Rosenberg 1977.

selves, without interpretation or inference on the part of the investigator, may also be its primary disadvantage. That is, it could be argued that the Kelly/Rosenberg/Pervin technique only elicits mental schemas that are accessible to consciousness. After all, the technique relies on the subject's awareness of what is important in his or her social world as represented in the entities named in the target-listing phase, the descriptors provided in the feature-listing phase, and the values assigned in the feature-rating phase.

This is a nontrivial issue because the Program on Conscious and Unconscious Mental Processes is interested in *unconscious* mental processes, and therefore *unconscious* schemas for self and others, as well as conscious ones (Kihlstrom 1984, 1987, 1988). By way of reply, several points can be raised in defense of the technique. First, of course, is the point that some assessment of *conscious* schemas should be made to provide a comparison with the *unconscious* schemas that are generated by interpretation. Second, and more important, is the simple fact that subjects appear to achieve considerable insight about themselves in the course of completing the procedure. In the process of listing the people, situations, and events that are important to us, we are led to reflect on our lives in ways that escape us in the ordinary course of everyday living. And although the descriptors provided in the subsequent feature-listing phase might (but not necessarily) come "off the top of one's head," the final target-by-feature rating phase really forces us to think about the entities in our interpersonal and intrapsychic worlds. A simple list of the frequencies with which certain features are spontaneously listed can give a person new knowledge about the ways in which he or she thinks about things. And a cluster analysis of the sort described below, in which entities that are described in similar terms are grouped together in a spatial arrangement of social schemas, can help the person to discover new connections between the persons, places, and events in his or her life. If the mental representations

Table 14.2 Dimensions Underlying MB's Person Ratings

CONTRAST A	
honest, sensitive to others, good, happiness, sympathetic, compassion, friendship	authoritarian, high need power, manipulative, egocentric
interested, kind, helpful, easy to get along with, friendly, amiable	overconfident, fooling self, oral character, loud mouth, immature, boring, talks behind you
	obnoxious, dishonest, disgust
CONTRAST B	
innocent, submissive, interested in other's feelings	
impulsive, cynical, altruism	
CONTRAST C	
	sorrow, pity, ashamed, threatened, immature, insecure, rejection
	antipathy, sick
	anger, little
CONTRAST D	
realistic, aware, mature, self-confident, skillful, intelligence, smart, high need achievement, diligent worker, respect, philosophical	
sophisticated, meticulous, reserved, scholarly, esteem, admiration	
leadership, awe, eager to learn	
CONTRAST E	
	obsessive, compulsive, stern, obsessive/compulsive
CONTRAST F	
novel, love, pride in association	
CONTRAST G	
fun loving, self-confidence, intelligent, scholarly, maturity, powerful, secure	

Table 14.2 (continued)

CONTRAST H
manic depressive, quickly changeable, materialistic, insensitive
CONTRAST I
scatterbrained
CONTRAST J
mammoth size

Source: After Rosenberg 1977.

elicited by this technique are not unconscious (in the strict sense of being in principle inaccessible to introspection), then at least they may be preconscious. The simple fact that subjects are intrigued and surprised by what they see in the cluster analyses clearly indicates that the procedure is telling them, and us, something they did not know about themselves.

PERSPACE: A Computer-Controlled Method for Mapping Interpersonal Space

We have developed an adaptation of the Rosenberg/Pervin technique for assessing schemas of self and others in clinical settings. The adaptation differs from its original inspirations in two major ways. First, the general assessment strategy is applied to a wider variety of entities in interpersonal space. For example, pilot research in our laboratory is focused on the subject's self-concept and is intended to indicate how context-specific self-concepts are organized in the mind of the person (see also Gara 1985; Gara and Rosenberg 1979; Rosenberg and Gara 1985). Following the lead of Kelly and Mayman, the procedure can also be adapted to study the perceived relations among personal experiences, as represented (for example) in early memories of childhood. Second, and perhaps more important, it seems that clinical assessment should be as interested in the relations among the entities as in the relations among their features. Therefore, we propose to employ cluster analysis rather than factor analysis or multidimensional scaling to represent the perceived relations among self, others, social interactions, and the situations in which they take place. The assessment procedure is implemented in PERSPACE, a general-purpose computer program for mapping interpersonal space.¹

1. A preliminary version (SITUATE, Release 1.10) of PERSPACE was written in BASIC by Paul H. DuBois of the University of Wisconsin to run on the Radio Shack TRS80/IV microcomputer. A later version (Release 2.20, 1987) was written in Turbo Pascal 3.01A by R.L.C. for the

Table 14.3 Dimensions Underlying Jennifer's Situation Ratings

HOME VOLATILE			
Mother blows up at me	emotional	angry	sensitive
Honest with parents about leaving	angry	pressured	concerned
	volatile	involved	caring
	excitable	insecure	suppressed
Mother refuses gift		unhappy	confused
Someone else comes home upset			not compulsive
SCHOOL—WORK—PRESSURE TO PERFORM			
Have to participate in class	demanding	self-conscious	self-conscious
Have to perform at work	threatening	challenged	controlled
	pressuring	vulnerable	ambitious
	awkward	awkward	determined
	challenging	pressured	compulsive
	embarrassing	anxious	cool
Do the job wrong at work	unconcerned		responsible
In a strange place			diligent
			nonrebellious
FRIENDS, ALONE			
With friend—no problem	emotional	caring	concerned
With friend—problem	gentle	concerned	caring
	friendly	comfortable	emotional
	generous	melancholy	Involved
Alone		sad	insightful
			responsive
UNCERTAIN			
Come home from Philadelphia	ambiguous	bottled up	preoccupied
In a crowd	nondefined	melancholy	detached
	uncertain	sad	quiet
	unconcerned	lonely	self-conscious
Taking the bus to class	ignoring	frustrated	controlled
Want to leave to go to Philadelphia		confused	cool
In a strange place			inverted

Source: After Pervin 1976.

Table 14.4 Dimensions Underlying Jan's Situation Ratings

PEER (male)			
Sharing with a male friend on a date	easygoing sociable light friendly	fun okay mature appreciation	mature enjoying laughing interested
Talk with a student	intellectual		respectful honest healthy extraverted
At an old friend's party With older friend like a brother			
WORK			
At work in Washington	difficult tiring demanding	shy inadequate overwhelmed	listening not demanding fearful
Doing research in Boston	interesting intimidating	introverted quiet	shy polite cool
At a male's party			aloof introverted
In a large, new group			
THERAPY SUPPORT			
In personal counseling session	unique special personal important	love sadness affectionate gratitude tenderness closeness	loving hopeful questioning feeling grateful
In encounter group			
With a male therapist In a therapy group Talking with mother			
FAMILY			
At home—general	defensive unaware	want attention defensive	demanding exploding
With my relatives	closed lonely	frustrated	feeling sharing
Fighting with mother	familiar		questioning expecting too much
With my brother Drinking alone			

Source: After Pervin 1976.

The current version (3.0) contains a large menu of options which permit the program to be used for a wide variety of assessment purposes; these options will be expanded in future releases or can be introduced by any user with access to the source code.

Using PERSPACE

The procedure begins by asking the subject to produce a list of targets for rating. McGuire (1984; McGuire and McGuire 1988) has cogently argued that freely generated lists of targets and descriptors reduce the potential for interference and distortion by concepts and expectancies imposed by the clinician or investigator and thus come closest to revealing what is on the mind of the patient or subject (for a related argument, see Cantor and Kihlstrom 1987; Kihlstrom and Cantor 1984; Kihlstrom and Nasby 1981; Nasby and Kihlstrom 1986). However, there are circumstances in which specific probes might be necessary or desirable. For that reason, Version 3.0 provides both free-generation and probe-response options. The cues for free generation available in Version 3.0 are

- Please list all the important people in your life.
- Please list all the important situations in your life.
- Please list all the important events in your life.

The free-response probe can also be customized. The cues for probed responses available in Version 3.0 are

- Categories of persons suggested by Kelly (1955)
- Categories of persons suggested by Rosenberg (1977)
- Categories of episodes suggested by Kelly (1955)
- Categories of early recollections modified from Mayman (1968)
- Categories of situations suggested by Pervin (1976)

Future releases will include a wider list of probed-response targets as well as a custom facility.

After the targets have been listed, they are output one by one, in a random order, for feature listing. Again, both free responses and rating scales are provided. The probes for free descriptions available in Version 3.0 are

- Please describe.
- Please recount.
- Describe yourself when you are with this person.

IBM PC and compatibles. The most recent release of PERSPACE (Version 3.0, 1990) was written in Turbo Pascal 5.5 by Dave Olsen. The compiled version of the program runs under MS-DOS 2 or 3 in 256K of RAM in systems with two diskette drives or one diskette drive and hard disk. Copies are available in 3½" or 5¼" format from Mardi J. Horowitz or John F. Kihlstrom. PERSPACE is unsupported, but the source code is available on request. Detailed documentation and a user's manual are available.

Describe yourself when you are in this situation.
Describe yourself when this event occurred.
How does this person make you feel?
How does this situation make you feel?
How did this event make you feel?

These individual attribute lists are then edited for redundancy, collated, and presented to the subject for a final rating. Alternatively, each target can be rated on an investigator-supplied rating scale. The scales available in Version 3.0 include

- Descriptors from the Benjamin (1974) Interpersonal Circle
- Basic emotions from Ekman and Friesen (1971)
- Affect terms from Fehr and Russell (1984)
- Trait adjectives from Goldberg's (1977) "1710" list
- "Big Five" traits from McCrae and Costa (1987)
- "Big Five" traits from Norman (1963)
- "Big Seven" traits from Peabody (1987)
- Affect structure from Plutchik (1980)
- Affect circumplex from Russell (1980)
- Affect categories from Schwartz and Shaver (Shaver et al. 1987)
- Affect circumplex from Watson and Tellegen (1985)
- "Big Five" trait adjectives from Wiggins' IASR-B5 (Trapnell and Wiggins 1990)
- Interpersonal traits from Wiggins' (1979) circumplex

Future releases will include a wider selection of options. There is also a utility for preparing a custom set of investigator-supplied rating scales. The numerical rating scales themselves range from two to ten points, with a variety of options (including a custom utility) available for defining endpoints and mid-points.

Analyzing the data from PERSPACE

In either case, the rating procedure generates a matrix summarizing the ratings made by the subject. The matrix for each subject may be submitted to a variety of multivariate statistical analyses, including factor analysis, multidimensional scaling, and cluster analysis.

When the primary concern is with the relationships among individual entities (persons, situations, events) rather than their constituent features, the preferred technique is hierarchical cluster analysis, which groups the targets together based on similarity of descriptors (Anderberg 1973; Baker and Hubert 1975; Blashfield 1976; Everitt 1974, 1979; Hubert 1974; Johnson 1967; Kuiper and Fisher 1975). Cluster analysis begins by considering each target as a separate cluster and then groups clusters together according to similarity on the attribute ratings. A cluster is added to an existing cluster only when it is more similar to all members of the cluster than it is to all members of any

other available cluster. The resulting solution is hierarchical in that it produces clusters at various levels. At the lowest level, each target forms its own cluster; at the highest level, there is only one cluster—the entire batch of targets generated by the subject. Most interest focuses on clusters at the middle level, which group relatively many targets together with relatively little loss of homogeneity.

The dimensions, factors, and clusters uncovered by these multivariate analyses reflect the way the subjects perceive themselves and the social world around them. When the cluster analysis is accompanied by a list of the features common to and characteristic of the entities (persons, situations, or selves) in that cluster, it can provide an especially rich body of information concerning the person's conscious mental representations of self and others. At the simplest level, a content-analysis program can count the number of times a particular attribute appears in the subject's lists. Items with high frequencies of use are good candidates for personal constructs, while the range of such frequencies and the patterns of co-occurrence among attributes are good indications of the person's level of cognitive complexity. When the final target-by-attribute matrix is submitted to cluster analysis, grouping targets together on the basis of similarity of features, one obtains a graphic display of how the individual organizes his or her social world. A sample is given in figure 14.1.

Areas of Application

Some idea of how the technique can be used to reveal the relations among persons (and other social entities), rather than their attributes, is given by yet another of Rosenberg's literary exercises—his analysis of Thomas Wolfe's view of himself and his family as reflected in his autobiographical novel *Look Homeward, Angel* (Rosenberg 1982, 1986, 1988; Rosenberg and Gara 1985). All of the features attributed to the various characters in the novel were extracted and coded as before. One of these characters, Eugene, is a stand-in for the author, and separate lists were prepared containing the features attributed to him at five different temporal epochs. The feature co-occurrence matrix was then subjected to cluster analysis. The resulting hierarchy, displayed in figure 14.2, shows which characters go together in the sense that they are described in similar terms.

The analysis was revealing in a number of different ways. First, the pre- and postpubertal Eugenes (two of each; the fifth Eugene is neonatal) are quite different. Eugene as a child looks a lot like his mother (Eliza) and his favorite teacher (Mrs. Leonard). As an adolescent, he takes on the strikingly different features of his father (W. O.) and older brother (Ben), something that might remind us of identification. Second, family members are described in terms that are quite different from those used for nonmembers. Family members tend to be described in terms of their psychological features, whereas mem-

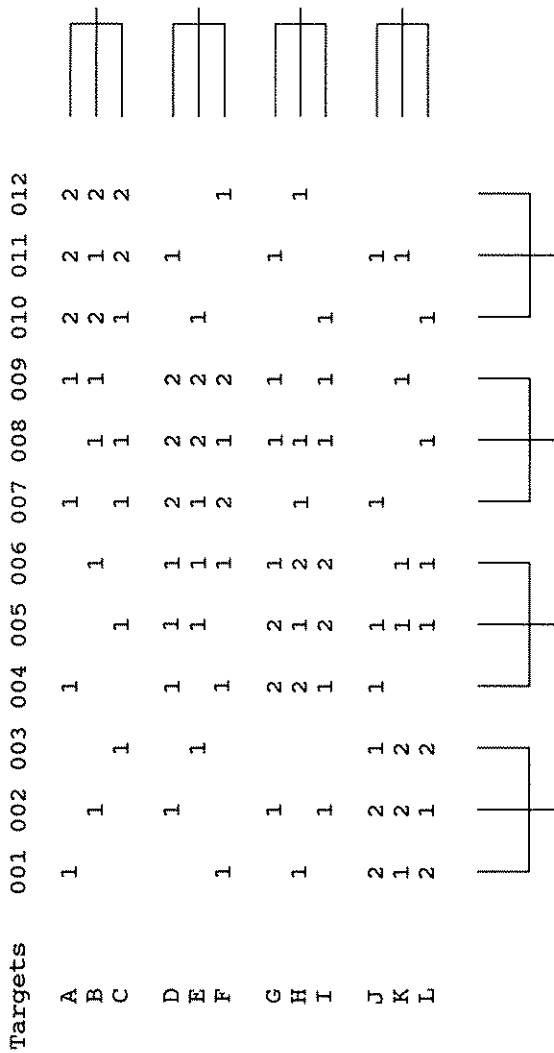


Figure 14.1. Sample target x feature matrix. In this hypothetical example, a single descriptive feature (001-012) has been generated for each of twelve targets (A-L); then every target has been rated on every feature according to a three-point scale (for clarity, 0 entries are not shown). The results of an intuitive cluster analysis applied to the targets are shown in the right margin: targets A-C are rather similar to each other (in that each has positive ratings on features 010-012), as are targets D-F (which share positive ratings on features 007-009) and targets J-L (which share positive ratings on features 001-003). The results of a corresponding intuitive cluster analysis applied to features are shown in the bottom margin: features 001-003 are similar to each other in that they tend to be found in the same targets (J-L); similarly, features 004-007 tend to be found in targets G-I, but not elsewhere; and features 010-012 tend to be found in targets A-C but not elsewhere.

bers of the outside community tend to be described in physical terms. The revealing exception to this is Eliza, the mother, who in these terms appears to be considered something of an outsider. Finally, W. O. (the father) functions as a sort of superset in that the family members share more overlapping features with him than with anyone else, including Eliza. The father dominates the hierarchy and presumably the family as well.

Psychometric Properties of PERSPACE as an Assessment Instrument

PERSPACE is intended to be used for assessment purposes. In principle, any psychometric instrument should have four properties: a standardized format and method of administration and scoring; norms from a sample representative of the population in which the instrument is to be applied; reliability, in terms of internal consistency, interjudge agreement, or test-retest stability; and validity, in terms of empirical relations with an external criterion of the attribute ostensibly measured by the instrument. These are not easy standards to meet in an instrument designed for idiographic use, but it is possible to indicate how each of these issues might be treated during further program development.

Standardization

In some sense, standardization is inherent in the technique, as the whole assessment enterprise is completely under computer control. However, for purposes of nomothetic assessment—comparing the spaces found in different (types of) patients, for example—more standardization might be in order. For this reason, PERSPACE includes an option through which the assessor can provide either the targets, or the features, or both to the subjects, rather than letting them generate both freely. Under these circumstances, subjects can be compared with each other (or aggregated groups of subjects could be compared with other aggregated groups) with respect to the manner in which they organize a standard set of targets. This option would permit complete standardization, although of course it would effectively destroy the technique as an idiographic clinical assessment device.

Norms

Norms really are irrelevant to idiographic assessment. In any event the PERSPACE procedure is arduous (and expensive) enough to effectively prevent us from collecting normative data on a large, representative sample of the (presumably nonpatient) population. However, it would be a relatively simple matter to determine the most frequently listed targets and features within each broad category (e.g., persons, situations, or events).

Reliability

Interjudge agreement is clearly irrelevant, as no judges are involved in this procedure. However, a related issue is presented by the nature of the solutions generated by cluster analysis programs. These solutions are hierarchical: At one level, maximizing homogeneity, there are as many clusters as there are entities. At another level, minimizing the number of clusters, there is only a single cluster, including the entire set of entities. By analogy, a factor analysis yields at one level as many factors as there are items and at another a single general factor running through the entire item set. A successful cluster analysis yields an intermediate number of clusters, partitioning the solution at some middle level that groups a relatively large number of targets together with relatively little loss of homogeneity. Unfortunately, there are no algorithms (such as excluding factors with eigenvalues less than 1.0) available for determining precisely where the best partition level lies. This problem of trade-off remains a judgmental issue, introducing the problem of the reliability with which different observers would assign the same partition level to a given solution. This is, of course, an empirical matter that could be studied using simulated cluster-analysis solutions.

The internal consistency of the subject's responses is also a matter of some concern, because the most common use for the technique involves a single assessment. If the subject's responses are unreliable, then any clustering solution derived from them must be meaningless. The standard way of assessing internal consistency is some variant on Cronbach's coefficient alpha. In the present context, probably the best approach is through a variant on split-half reliability. After the entire target-by-feature matrix has been constructed, the entire set of targets or features is randomly divided into halves that each represent an unbiased sample of the subject's ratings, and cluster analysis is applied to each half separately. If the structures are reliable, essentially the same hierarchical solutions should be obtained in the halves as were obtained in the whole set.

The standard strategy for assessing test-retest stability is to have the subject complete a procedure on two separate occasions. There are several different ways of applying this strategy. (1) Reliability of listing a particular target: If a subject includes "Father" on his first list of "People I Know," will he also do so on his second? (2) Reliability of listing a particular feature: If a subject lists "loving" somewhere on her first list, will that attribute also appear on the second? (3) Reliability of listing a particular feature for a target: If a subject freely describes her "father" as "handsome" on an initial test, will she do so again on the retest? (4) Reliability of assigning a particular rating: If a subject gives "Father" a rating of 1 ("Somewhat Applicable") on "loving" during the test, will he do so again on the retest? (5) Reliability of solution: Will the hierarchy extracted in the cluster analysis of the initial test resemble that ex-

tracted in the retest? These forms of reliability can be assessed with standard contingency and correlation statistics. The problem, again, is that the full procedure is necessarily arduous and expensive. Therefore, for purposes of reliability studies (especially the last two), we might want to work with an abbreviated form of the procedure, for example, one in which subjects list only five features for each of twenty central targets.

Validity

This is, perhaps, the toughest nut to crack. In some sense the procedure attempts to determine how the subject perceives the social world, and there is really no way to check (or contradict) the data that flow from it. Perhaps alternative cognitive tasks can provide convergent validity of the structures obtained from cluster analysis. In addition, the possibility of a validity check is suggested by Bruner's old dictum that "the purpose of perception is action," that is, the person ought to behave similarly toward targets that are clustered together in subjective space. For example, consider the form of the mapping technique intended to identify context-specific selves. The subjects would list the current situations in their lives, describe themselves in each of these situations, and then rate themselves in each situation in terms of each descriptor. Suppose the cluster analysis for a particular subject indicated that self in situation A was very similar to self in situation B, but very different from self in situation C. If we could observe the subject in each of the situations, or obtain personality ratings of the subject by judges who have had the opportunity to observe him or her in one situation but not the others, we would expect similar behaviors or ratings in A and B, different ones in C. Magnusson (1990) and Mischel (1990), among others, have done studies of this broad type. They are expensive, but positive results would have considerable theoretical as well as practical importance.

Application

Despite concern with its psychometric properties—standards that have been developed in the context of nomothetic assessment—PERSPACE is intended for idiographic assessments, especially in clinical contexts. It is intended to enable a therapist to enter the subjective world of the client, and to enable the client to articulate what might otherwise be a rather inchoate mass of impressions and reactions, and to reflect on himself or herself and his or her personal relationships.

As we envision it, PERSPACE would be employed early in the therapeutic cycle, as part of routine intake assessment. Thus, at the same time as the client is completing the standard battery of psychological tests, he or she is also completing a version of PERSPACE. (Many clients must be placed on a waiting list before they can be seen; PERSPACE, which is designed to be com-

pleted by a subject with minimal involvement from the therapist or technician, would seem to be a perfect way to occupy this time). Thus, near the outset of treatment, the therapist will have available a graphic representation of the important people, places, or events in the client's life (as seen by the client) and how they are perceived (again, by the client) to be related. But unlike the results of other psychological tests, we do not intend that the PERSPACE map be held in petto by the therapist. Rather, we believe that the results of the assessment should be shared with the client and that clients should be actively encouraged to reflect on their significance.

Since the focus of psychodynamic therapy is on social relationships and personal experiences rather than symptomatic behaviors, and the goal of therapy is to change these relationships or at least the client's perspective on them, we also suggest that the PERSPACE procedure be repeated at the point of discharge, as a way of gauging what has been accomplished. Some economies may be injected into the followup assessment by eliminating the first two segments of the procedure, retaining the original (edited) sets of targets and descriptors, and simply asking the client to provide a new set of ratings resulting in a second target-by-descriptor matrix for comparison with the first. If anything has changed over the course of treatment, we should expect the second PERSPACE map to differ from the first, and in particular ways dictated by the goal of treatment.

Certain research uses are also suggested by the technique. For example, our laboratory has long been interested in the notion of context-specific selves, that is, in the idea that one's mental representation of oneself is not monolithic, but rather includes a number of different self-concepts, each specific to a particular class of social situations (Kihlstrom and Cantor 1984; Kihlstrom et al. 1988). In ongoing research, we ask people to generate a list of the important situations in their lives and then ask them to describe themselves in each of these situations. In principle, the resulting clusters represent context-specific selves. Observations of the subject in these different situations, or ratings of the subject made by the people that he or she encounters in them, should reveal significant differences corresponding to the different self-concepts.

Similarly, subjects might be asked to list the important people in their lives and then describe themselves in relation to them. Again, the resulting clusters represent context-specific selves, with persons rather than situations serving to define the different contexts. If two people grouped closely together have radically different impressions of the person or if the person displays quite different patterns of behavior in their presence, this might indicate a clinically significant discrepancy between self-perception and reality. This kind of self-rating procedures is not so arduous as it sounds. In fact, in our experience of pilot studies, college student subjects find it quite interesting; there is no rea-

son to think that other psychologically minded persons shouldn't as well. With the advent of powerful, high-speed microcomputers, and sophisticated statistical analysis packages to run on them, the assessment technology proposed herein is within reach of even modest laboratories and clinics.

A Variety of Approaches to Social Schemas

As represented in this volume, the Program on Conscious and Unconscious Mental Processes is largely concerned with mental representations of persons and interpersonal relationships, especially those that are somehow personally relevant or clinically significant. Given this agenda, it seems that there are three general directions available for research.

First is the study of schemas in general (see Singer and Salovey, this vol., chap. 2; Stinson and Palmer, this vol., chap. 15; Tunis, this vol., chap. 11; and Merluzzi, this vol., chap. 6). Since the schema concept was introduced to psychology by Bartlett (1932) and Piaget (1952), and revived by Neisser (1967), there has been a great deal of controversy over whether schemas exist and, if so, what they look like and what they do (Brewer and Nakamura 1984; Hastie 1981; Minsky 1975; Rumelhart 1980; Taylor and Crocker 1981). Despite some degree of controversy, the schema concept remains a topic of considerable interest within cognitive and social/personality psychology. Following Allport, research on the nature of schemas and their influence on experience, thought, and action might be characterized as *nomothetic* in that it is concerned with general structural and functional principles.

Second is the study of particular schemas. One can, through survey methods, get a sense of what people have schemas for and develop a kind of catalog and taxonomy of them: Cattell's (1990) personality sphere or Norman's Big Five (1963), perhaps; concepts pertaining to independence-dependence or masculinity-femininity; scripts for bargaining or sexual behavior; and so forth. With the catalog would come an assessment technology—a series of procedures for ranking individuals on a dimension of "schematicity" with respect to some mental representation—and construct-validation studies to document the effects of these individual differences on social interaction. This line might be called *psychometric* because it is concerned with measuring particular schematic constructs. It is the kind of research that might be pursued by more traditional personality and differential psychologists.

Third is the intensive study of a particular person's schemas—the enumeration and organization of the repertoire of mental representations that make up an individual's mind. Here there would be little or no concern with comparing the person with normative standards, but there would be a central interest in exploring the relation of these schemas to the individual's psychosocial adjustment. This track, again following Allport (1937), might be char-

acterized as *idiographic* because it is expressly concerned with the unique person in all his or her individuality. It is the form of research pursued every day, whether formally or informally, by the practicing clinician.

The clear focus of the Program's efforts is on the third, idiographic track and the development of a set of procedures for converging on the schemas of individual clinic patients. Given this focus, it would seem appropriate to develop two somewhat parallel tracks of research—one focusing on methods of rating recordings of therapy sessions, the other on offshoots of the information-processing approach to social cognition. Both foci are needed because protocol analysis inevitably raises the question of whether the content of the person's mental representations of self and others is actually being revealed by the procedure or whether the investigator's schemas are somehow being imposed, in a Procrustean fashion, on the subject. The techniques developed within the study of human information processing, on the other hand, seem more likely to contact these clinically important social schemas more directly, with less risk of contamination, than traditional interview and rating methods.

However, an exclusively idiographic focus does not seem sufficient for understanding the nature of clinically relevant mental schemas. Historically, it is fair to say that the intensive study of individuals has told us little about people in general. Obviously, there are some exceptions. But in order to learn what we have set out to learn, it seems necessary, not just desirable, that the nomothetic and psychometric questions be pursued in parallel with the idiographic ones. After all, studies of general processes and individual differences provide the framework for the idiographic track—outlining criteria for knowing schemas when we see them, suggesting what kinds of schemas to look for, and proposing techniques for uncovering the schemas that people actually possess. There is no argument here for abandoning the idiographic track or even for subjugating it to the nomothetic and psychometric tracks. Rather, the three tracks should be followed in parallel, as parts of an integrated effort to understand personal and social schemas.

Of course, integrated efforts can involve division of labor. Although it seems necessary for investigators pursuing each track to maintain close contact with their colleagues in the others, it is not necessary that everybody follow the same agenda. Some laboratories are particularly well equipped to deal idiographically with the individual therapy client; others are equally well equipped to attack the questions of general process and individual differences. We should celebrate these differences in focus and approach, and capitalize on them.

We see in the Program a good example of what happens when the clinical community tries to take advantage of concepts, methods, and principles derived from laboratory research. Despite good will on both sides, clinicians almost inevitably find laboratory work somewhat sterile, dry, and cold. A continued collaboration between clinicians and experimentalists, working on

related problems in parallel, however, promises to change that unfortunate situation. As clinicians continue to make use of experimental work, they will move experimentalists to make their work more clinically relevant, wet, and warm (if not hot). This, in turn, will allow clinicians to make even better use of laboratory work and move everyone closer to a unified view of the mind in order and disorder.

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