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Prototypes and diagnoses: Effects of attribute centrality and attribute distinctiveness

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PROTOTYPES AND DIAGNOSES: EFFECTS OF ATTRIBUTE CENTRALITY AND ATTRIBUTE DISTINCTIVENESS

by

Ronald Aubrey Boykin

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The prototype approach has developed as an alternative to the classical approach to psychiatric diagnosis. This approach has been used to explain low reliability in diagnostic judgment. The research utilizing this approach has demonstrated that diagnostic judgment is affected by the number of attributes of a category exhibited by a patient. Specifically, patients who exhibit few category-congruent attributes are more likely to be misdiagnosed or considered atypical examples of a diagnostic category than are patients who exhibit many category-congruent attributes. However, the research has failed to control for attribute distinctiveness. In addition, attribute centrality offers an alternative explanation of the available research findings.

The present study attempted to examine the effects of attribute centrality and attribute distinctiveness, using personality disorder diagnostic categories, while holding attribute number at a low, constant level. Experience clinical psychologists were presented with personality profiles containing attributes of Antisocial, Borderline, Histrionic, and Narcissistic personality disorders, and were asked to provide diagnoses.

The profiles contained attributes which were either all distinctive to one category, all shared by more than

one category, or were half distinctive and half shared. Within each of these conditions, the centrality of the attributes was either high or low. Main effects for both variables were hypothesized.

The results indicated a strong main effect for attribute centrality. The effect of distinctiveness was also significant, as was the interaction between the two.

The implications of the results for clinical diagnosis are discussed. It is concluded that the data support the concept of similarity matching as the primary process in diagnostic judgment.

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CHAPTER I

INTRODUCTION

When describing themselves or other people, humans frequently use category labels as summary statements about the person in question. For example, I may refer to myself as an "extravert," and my friend as a "liberal." Similarly, a psychiatric diagnostician may, after interviewing a patient, label that person a "neurotic" or "psychotic." "Casual observation as well as voluminous empirical research attest to the pervasive human tendency to categorize not just objects but also people into groups, types, or other slots" (Cantor & Mischel, 1979a, p. 4).

Categorization is one way in which we attempt to make our world more orderly. Essentially, the large number of environmental stimuli we are exposed to are organized into smaller groups to which we can respond effectively. We are thus able to "organize and make sense of the flood of 'stimuli' impinging from the environment" (Cantor & Mischel, 1979a, p. 4).

Person categorization also seems to provide the user with a set of expectations about how the perceived is likely to behave in the future. If I am told that the

person I am about to meet is an "extravert," I may look for that person to greet me with a firm, vigorous handshake and words of greeting. The category label thus may provide us with both a description of that person and a feeling that we can predict what that person will do.

Development of Cognitive Schemata

When categorizing people, then, we observe the person's physical appearance and behavior. The categorization process, however, is not only a function of the attributes of the perceived. It is thought that this process also depends on the perceiver's pre-existing conceptions about people. That is, people develop person categories as a result of experiences which guide the categorization process.

These abstract categories are thought to be comprised of cognitive structures or schemata which exist in the mind and provide the organizational framework for person perception and categorization. In general, a schema may be thought of as a cognitive structure which represents a scheme or a method for organizing information about the world. "Cognitive psychology has recently presented a good deal of evidence . . . that people learn and remember information by actively categorizing or coding the input according to well-learned conceptual schemata . . ." (Cantor & Mischel, 1977, p. 79).

The Prototype Approach

Research has not conclusively determined the nature of the cognitive structures which guide the categorization process. Numerous theorists have proposed their own conceptions of the nature of these structures, however (e.g., Srull, Lichtenstein, and Rothbart, 1985).

One alternative was elaborated by Rosch and Mervis (1975) and was used to explain the process by which we come to categorize objects. Called the prototype approach, this conception assumes that we store in memory the attributes associated with many different categories of objects. We thus, upon experiencing an object in the real world, compare attributes of the object with the prototypes activated by the object. A prototype is a normative conceptual schema. That is, it represents a way of defining a commonly shared belief system about a cognitive concept. Prototypicality is determined by rules relating the object's similarity to and distinctiveness from various prototypes. The object is thus processed more easily if it is determined to be highly prototypical.

Cantor and Mischel (1979a) suggest that there may be similarities in the way people categorize objects and people. That is, the rules by which people are assigned to categories (e.g., trait labels, diagnoses) may be similar to the way in which objects are categorized.

Determining Prototypicality

The prototypicality approach assumes that perceivers store in memory a cognitive representation of various categories used to describe people. These cognitive representations consist of abstract sets of features, correlated to varying degrees with category membership. What then are the rules by which perceivers judge others to represent prototypical categories into which people are placed?

Cantor and Mischel (1979a) state that several factors may influence prototypicality judgments in the person domain: first, dominance (the number of category-consistent attributes relative to the total number of attributes); and second, the presence of attributes that are not compatible with the type. Other variables which have been speculated about include attribute intensity (Cantor & Mischel, 1979b), concrete versus abstract categories (Cantor, Mischel, & Schwartz, 1982), and feature overlap with closely related categories (Horowitz et al., 1981b). Intensity is not defined by Cantor and Mischel, either in the abstract of Cantor's (1978) dissertation, or in Cantor and Mischel (1979b). Concrete vs. abstract person or situation types was discussed with reference to the ease with which such types could be

imaged. The terms were not further defined, except to speculate that concrete person types might be more easily imaged than abstract situation types.

Cantor and Mischel (1979a) state that one of the most important variables in the information about a person concerns the breadth of their behavior which is congruent with category membership. Breadth refers to the number of attributes associated with a particular type category which a person exhibits. A person demonstrates increasing breadth by exhibiting an increasing number of category-consistent attributes. The greater the number of category-congruent features one exhibits the more prototypical he or she appears, and the easier it is for the perceiver to process the incoming information about him or her. Research on prototypicality has examined this variable most closely, usually by presenting subjects person information that varies in the number of category-congruent features. Ease of processing the information based on this variable has been examined, and effects have been noted both in recognition memory (Cantor & Mischel, 1977) and in recall memory (Cantor & Mischel, 1979b). However, recently Richter and Seay (1987) have suggested that the strength of the effects may be due to regarding stimuli as a fixed effect in the ANOVA model. In addition, examination of the structure of person

categories at different levels of a person taxonomy has been attempted (Cantor & Mischel, 1979a), revealing advantages to examining middle-level instead of superordinate or subordinate categories.

In her doctoral dissertation, Cantor (1978) investigated the rules that determine one's perception of a person as prototypical. She proposed that, when one has extensive information about an individual, three factors influence the perception: breadth of category-consistent features the person exhibits; the extent to which these features dominate the person's personality; and the extent to which the person's behavior is different from a polar opposite category. In one experiment, subjects wrote detailed descriptions of friends they considered "good," "moderate," and "poor" examples of extraverts. Another group judged the prototypicality of the descriptions. In addition, composite scores for the three factors above were derived for each description. It was found that the judges reliably rated the prototypicality of the descriptions; further, prototypicality was highly correlated with the composite score.

Cantor noted that prototypicality judgments are often made under conditions of "restricted view" (i.e., following only brief exposure to a person), and suggested that the rules determining prototypicality under these

conditions may be different from the rules that determine prototypicality under "full view" conditions (that is, when one knows a person well). Specifically, she stated that, under "restricted view", prototypicality would be a function of the degree to which the person exhibited the most central category features, consistently and intensely across many situations, particularly where such behavior is non-normative. These results were obtained in three experiments using different paradigms. Consistent characters were judged more prototypical if their behavior was exhibited in non-normative situations. Inconsistent characters were judged more prototypical if their behavior was consistent in normative situations.

The prototype approach has also been extended to describe how people perceive and categorize situations, as opposed to people (Cantor, Mischel, & Schwartz, 1982; Schutte, Kenrick, & Sadalla, 1985). Findings indicate similar internal structure of prototypes and similar effects on recognition memory.

Research on Prototypicality and Diagnosis

The prototype approach has also been applied to clinical psychology and psychiatry, specifically to the process by which diagnosticians categorize patients. Cantor, Smith, French, and Mezzich (1980) provided the first investigations in this area. The authors first

described the classical view of psychiatric categorization, in which categories are comprised of a small number of individually necessary and jointly sufficient features. They contrasted this with the prototype approach, in which category features are correlated with category membership, but are not considered necessary. They attempted to demonstrate that psychiatric categories more closely fit the prototype than the classical view. Thirteen clinicians listed the features they believed characterized the prototypical patient for nine diagnostic categories. The 13 features lists were then reduced to a consensual prototype for each category by listing category features mentioned by three or more subjects. Inspection of the consensual prototypes revealed that few features were mentioned by most of the clinicians. Most features were mentioned by two to four subjects. Further, the features in the consensual prototypes did not overlap completely with the features listed for those categories in DSM-II (American Psychiatric Association, 1968), the standard diagnostic manual used by clinicians at that time.

The authors also examined the effects of case history prototypicality on clinicians' diagnoses and typicality ratings. Prototypicality was defined by the number of category features in the case history. The authors found

that the atypical cases (i.e., those with only four features of a category) were diagnosed less accurately and confidently than cases of medium (five to eight features) or high (eight to thirteen features) prototypicality. Low accuracy of diagnosis of the atypical cases had been expected, due to the low degree of overlap between the case history information and the prototype for those categories. The authors argued, as a result, that "imperfect inter- and intra-judge reliability can all be accepted and studied as fundamental properties of the system, rather than branded as aberrations, errors in measurement or faulty utilization of an otherwise classical scientific system" (Cantor et al., 1980, p. 190).

Blashfield and Sprock (unpublished manuscript, 1983) attempted a partial replication of the Cantor et al. (1980) study. Regarding subjects' diagnostic accuracy and typicality and confidence ratings, the authors reported that only two of the eight categories- "manic-depressive, manic" and "paranoid schizophrenia"- were diagnosed with high accuracy. However, Cantor et al. (1980) conducted their study while DSM-II was the current diagnostic system. Then DSM-III was introduced, with major revisions in the categories used in the Cantor et al. study. The introduction of DSM-III probably contaminates the findings

of the Blashfield and Sprock study. To replicate, even partially, Cantor et al.'s (1980) findings would require finding clinicians who have not been influenced by DSM-III, a difficult task indeed.

However, Genero and Cantor (in press), claim to have replicated the Cantor et al. (1980) research. In addition, they examined the relative merits of using a summary prototype approach or an exemplar approach (Smith & Medin, 1981). They concluded that the summary prototype approach was best for training inexperienced diagnosticians, while the exemplar approach was more appropriate for experienced clinicians.

The prototype approach has also been extended to the study of depression (Horowitz, Post, French, Wallis, & Siegelman, 1981; Horowitz, Wright, Lowenstein, & Parad, 1981). Horowitz, Wright, Lowenstein, and Parad (1981) described a method for generating prototypes, and compared the prototypes developed by experts to those generated by less experienced people. In Horowitz Post, French, Wallis, and Siegelman (1981), the authors generated a prototype for a depressed person by asking 35 students in an introductory psychology class to think of the best example they could of someone who was depressed, and to describe that person's most usual feelings, thought, and behavior. After generating the prototype, the authors

re-examined the 35 essays and selected six essays, varying in the number of features present (low, 1 feature; medium, 4-9 features; and high, 17-20 features). These essays were presented to 24 other students, who were asked to rate the person (on a 5-point scale) in the essay along several dimensions, including depression. Subjects were also asked to select five adjectives from a list of 24 to best describe the person (depression was one of the adjectives). The results were that ratings of depression varied directly with prototypicality. In addition, the probability that the adjective depression was selected varied directly with prototypicality as well. The authors argued that degree of resemblance (defined by feature number) "defines a continuum that raters, at least, seem to use in judging the trait" (p. 578).

Horowitz, Post, French, Wallis, and Siegelman (1981) also examined disagreement among judges regarding a patient's depression as a function of prototypicality, again determined by the number of depressed features the patient exhibited. Twenty-four clinicians noted the depression of 12 patients viewed on videotape. Patients differed in self-reported depression, with depression highly salient in one group, less salient in another, and still less in a third group. Salience referred to the extent to which patients regarded depression as a symptom

when initially interviewed. Those in one group mentioned depression as a major symptom. Their depression therefore was considered highly salient. Those in a second group mentioned depression, but only as a secondary symptom; other presenting problems had led them to seek therapy. Those in a third group had not mentioned depression at all. Their depression was considered less salient. The judges were asked to identify patient characteristics (including features of depression) in the patients, and to rate them along various dimensions, including depression. Results indicated that the number of features of depression varied directly and significantly with salience of depression. Further, interjudge agreement regarding depression was higher, and patients were rated more depressed, the more features of depression they exhibited. The authors suggested that, while highly prototypical cases activate judges' prototypes, less highly prototypical cases may activate some judge's prototypes, but not others.

Horowitz, Post, French, Wallis, and Siegelman (1981) also asked whether judge's disagreement is more a function of few prototypical features being present or, instead, by many irrelevant features being present. They presented 26 cases to 20 clinicians and asked them to assign all the diagnoses they thought might reasonably apply to the case.

They then selected 24 cases with varying degrees of consensus of diagnosis (high, medium, and low). Cases with high diagnostic consensus had received a particular diagnosis by 80% to 100% of the clinicians. Medium consensus cases had received the same diagnosis by 30% to 50% of the clinicians. None of the clinicians (0%) had assigned the diagnosis to the low consensus cases. These 24 cases were evaluated by 20 subjects (each subject evaluated 12 cases for the presence of features of eight diagnostic categories). The authors found that degree of consensus in diagnoses varied with the number of relevant features present (the more relevant features, the higher the consensus), but not with the number of irrelevant features present.

Horowitz, French, and Anderson (1982) used the prototype approach to study the "lonely" person. The authors attempted to describe the prototype of a lonely person, and to examine the effects of prototypicality of person information on judgments of loneliness. Forty introductory psychology students were asked to think of the best example they could of a person they knew was lonely, and to write down that person's most usual thoughts, feelings, and behavior. Three judges then reduced the lists to a consensual prototype by selecting features supplied by 20% or more of the subjects (i.e.,

eight or more subjects). The authors do not state why the 20% criterion for feature inclusion was chosen. The final consensual prototype of the "lonely person" contained 18 features. Essays were then selected which contained one or two prototypic features (low prototypicality), five or six (medium), or nine or ten (high prototypicality) features. Thirty-nine subjects then rated three essays along various dimensions (including lonely) to describe the people about whom they read. It was found that essays were judged as describing people as lonelier, the greater the number of lonely features present.

Much of the research on prototypes and diagnosis has focused on examining the cognitive processes involved in choice of diagnosis and typicality of the choice made. Other research in prototypes and diagnosis have focused on the attempt to find prototypical exemplars in the psychiatric literature (Blashfield, Sprock, Pinkston, & Hodgin, 1985), effects on making a diagnosis on recognition memory (Arkes & Harkness, 1980), and an examination of the attributes exhibited by patients presumably correctly diagnosed with a particular disorder (Clarkin, Widiger, Frances, Hurt, & Gilmore, 1983).

Horowitz and Vitkus (1986) have recently extended the discussion of prototypes and diagnosis to include conceptualizing disorders along the lines of interpersonal

problems rather than psychiatric symptoms. The authors refer to the previous research by Horowitz, French, and Anderson (1982) regarding the prototype of the lonely person. It was observed that many of the elements of loneliness were related directly to interpersonal problems (such as socializing). An instrument designed to measure interpersonal problems was administered to a large group of very lonely persons and a large group of not lonely persons. Twelve elements related to socializing were included in the instrument. The lonely people, it was found, evidenced a higher level of distress on each of the 12 items than the not lonely people. The authors state that the findings suggest that the prototypic interpersonal elements of loneliness identified in the previous research appear to provide valid conceptual elements of loneliness.

Prototypicality Research Re-examined

The available research in the clinical area seems to provide support for the appropriateness of applying the prototype model to understand clinical diagnosis. Studies of diagnosticians (Cantor et al., 1980; Horowitz et al., 1981b) suggest that clinical judgment is guided at least in part by an interaction between the structure of knowledge about diagnostic categories in the head of the diagnostician, and the nature of the input information

about the person to be diagnosed. The research suggests that variation in diagnostic accuracy and typicality ratings is a function of variation in the number of category-congruent features the person exhibits.

However, an examination of Rosch's formula for determining prototypicality in the object domain (Rosch, 1978), as well as a re-examination of the Cantor et al. (1980) study, may make the above conclusion premature. Rosch states that prototypes develop through maximization of cue validity. Cue validity is probabilistic. The cue validity of a feature in predicting a certain category increases with an increase in the frequency with which the cue is associated with that category. Featural cue validity goes down as does the frequency with which the cue is associated with other categories. It follows that the prototypicality of an instance to a category goes up as the total cue validity (summed across features) goes up and decreases as the total cue validity of the information does down.

As Cantor and Genero (1986) point out, diagnosis is in part a matter of determining what an instance <u>is</u> an example of. Moreover, in determining how typical an instance is of a category chosen, it appears that the clinician uses a similarity (between instance and category)-matching procedure.

In Cantor et al. (1980), however, subjects were asked to choose a category of psychopathology, based on the information in a case history, from a list of possible choices. In other words, the subjects were being asked not only to decide what the person in the case history was, but also what the person wasn't. This type of judgment requires consideration not only of the features that are common to a category being considered, but also to features that are associated with other categories as well. This consideration is consistent with Rosch's formulation of cue validity.

A re-examination of the findings of Cantor et al. (1980) reveals a problem associated with their conclusion that feature number was responsible for the variance in clinicians' judgments of prototypicality. The authors, in fact, discuss the problem of featural overlap in their findings. However, they do so only to explain results that are not consistent with their original hypotheses. The same argument may be used to apply to findings that are consistent with their hypotheses. For example, the case history of the manic-depressive, manic with a high number of category-congruent features was diagnosed correctly by 100% of subjects, with an average typicality rating of 5.4 on a scale of one to seven (with one representing the lowest level of typicality and seven,

the highest). However, the high level of accuracy may not have been due to high feature number, but to low feature overlap. That is, the particular features in the case history may have been distinctive to that category. Along the same lines, the authors report that the case history of the manic-depressive, depressed with a low number of features was diagnosed accurately by only 33% of subjects, with a mean typicality rating of 1.8. But it may have been that the features in the case history for this category were also features of other categories (e.g., paranoid or chronic undifferentiated schizophrenia, which were the categories chosen by 67% of subjects).

One basic problem with Cantor et al. (1980), then, was the failure to control for overlapping features. The present study was designed to address this problem. A second problem with Cantor et al. (1980) concerns their conclusion that feature number was responsible for variability in diagnostic accuracy. An alternative view is that feature centrality, discussed in the following section, may have accounted in part for the results.

Feature Centrality

The results of the Clarkin et al. (1983) study suggest an intriguing possibility regarding the cognitive processes by which clinicians assign patients to diagnostic categories. It is possible that the features

of a clinician's prototype for a diagnostic category are subjectively or implicitly weighted as well, i.e., that the presence of particular features, rather than the presence of many features, leads the clinician to determine that the patient is appropriately diagnosed in a certain way.

The findings in personality and clinical psychology strengthen the argument that person perception and categorization involve an interaction between the features exhibited by the person who is perceived and the perceiver's structured belief system about the make-up of various personality types.

An alternative explanation of the findings in the studies summarized above, however, suggests that a variable other than, or in addition to, feature number may be operating to produce person information which is prototypical of a personality type category. It has been shown that the probability that the person perceived will be judged to be a member of a category increases as the number of features that person exhibits increases. However, this result may be more related to the correlation between the features and the category than to the number of features per se. That is, as the number of features present increases, so does the probability that features highly correlated with the category will be

present. Thus, it would seem that in some cases, information containing a smaller number of features might be considered more prototypical than that containing a larger number of features if those few features are the most central to the definition of the category; that is, those few features may have the highest correlations with category membership. A person described in this way may be considered more typical of a category than a person who is described by more category features, if, in the latter case, the features are the most peripheral to the category (i.e., have the lowest correlations with category membership). The findings of the studies summarized above may have resulted from the particular configuration of features in the information presented, rather than the number of features present.

In addition to feature number and category overlap, then, another variable which may affect diagnostic judgment concerns the extent to which a feature is correlated with category membership. The prototype approach assumes that categories consist of an abstract set of features, each correlated to a certain degree with category membership. However, there may be great variability in feature correlation with a category. It seems reasonable to propose that a person will be judged more prototypical if the person exhibits the features

highly correlated with the category than if they exhibit lower correlated features.

Support for this idea comes from the literature on the prototype approach. Cantor and Mischel (1979a), for example, differentiate between observations made when much information is available about the person (called "full" view) and when only limited information is available (called "restricted" view). Under restricted viewing conditions, prototypicality is proposed by Cantor and Mischel (1979c) to be affected by the extent to which the person exhibits the most central (highly associated) category attributes consistently and intensely across many situations, particularly in situations in which the behavior is not routinely observed.

Other researchers suggest the importance of examining feature centrality as well. Cantor and Mischel (1979b) suggest its importance for study in their research on the effects of prototypical information on recall. Other prototypicality research (Clarkin et al., 1983) indicates that certain features are more closely associated with category inclusion.

Why examine the effects of feature centrality on judgments of prototypicality? One answer to this question relates to the issue of the prototype approach to classification in relation to the traditional classical

approach. As Cantor et al. (1980) point out, the classical approach assumes that "a category is defined by a small set of simply necessary and jointly sufficient features" (p. 182). This means that all category features are associated 100% with category membership. The prototype view, however, assumes that features are correlated with category membership, but not perfectly. Categories are conceived of as "fuzzy sets," with heterogeneous membership. A fuzzy set simply refers to the fact that the features are not necessary and sufficient; rather, they are found to be present in some category members, but not necessarily in all.

Feature centrality is in a sense a recognition of both views. It recognizes that a feature may approach necessity in order for the entity (be it object or person) to be considered a member. Cantor et al. (1980) in fact suggest the existence of necessary features (e.g., feathered and winged) when discussing the features of the category "bird." Another example, from Carkin et al. (1983), concerns the features of BPD. "There is some theoretical base on which to expect differential efficiency for the eight BPD features. Although identity disturbance is not an essential criterion in DSM-III, high efficiency for this item might be expected because of its necessary presence in Kernberg's (1931) classical

category of "Borderline Personality Organization" (pp. 264-265). It appears, then, that those who write on the prototype approach recognize that all features of a prototype are not "created equal." Feature centrality is also a variable of potential theoretical import to the area of categorization generally. Rosch's (1978) formulation of cue validity relies on measuring the frequency with which subjects state that a feature is a member of a category. The more frequently the feature is regarded as being associated with the category, the higher is its cue validity. However, frequency as a measure tells us nothing about the degree to which a feature is thought to be associated with category membership. Moreover, the concept of feature centrality takes frequency into account, because it provides a measure of the frequency with which subjects associate a feature with a category, and an average of the degree to which those subjects thought that the feature and the category were associated. In other words, feature centrality loses none of the meaning captured by the frequency measure, and appears to be more precise than simple frequency. This variable deserves study in its own right.

Research Problem

The research on prototypicality, then, suggests that persons are perceived as more prototypical of a category if they possess more features correlated with that category than if they possess few features. However, it is not clear that the number of correlated features present in information about a person is the only variable affecting judgments of prototypicality. Feature centrality may also affect decisions about how prototypical persons are of certain categories (Cantor, 1978).

Feature centrality, however, has not been examined in the context of psychodiagnosis. In Cantor (1978) and Cantor and Mischel (1979c), undergraduates judged the prototypicality of information about people varying in extraversion and intelligence. Schutte, Kenrick, and Sadalla (1985) varied the centrality of situation (not person) prototypes. In Clarkin et al. (1983), the feature centrality of BPD patients was examined subsequent to diagnoses, and only DSM-III features were examined.

The present research examined the prototypicality judgments made by experienced clinical diagnosticians in the context of making diagnostic judgments based on information about people. The study attempted to overcome the limitation of previous research in the clinical area

by taking feature overlap into account explicitly. Case history information was manipulated so that feature overlap between categories was either low or high.

Of primary importance in the study was the effect of feature centrality and feature overlap on judgments of prototypicality. Will information about a person which contains the most central congruent features be regarded as more prototypical than if the information contains congruent features most peripheral to the category? Will case histories containing distinctive features be categorized more accurately than case histories containing features that are common to more than one category? How do feature centrality and feature overlap interact? The behavior of clinicians in applying diagnoses to case history was examined to answer these questions. Cases were developed so as to vary in the presence of central or peripheral features. Cases also varied in the degree of featural overlap. Prototypicality judgments were measured by calculating the accuracy of diagnoses, by comparing the diagnosis the clinician made to the diagnosis intended. The subjects's report of how well the case fits the diagnosis (i.e., a typicality rating) was also studied. This score was combined with the accuracy score to form a composite accuracy-typicality score. It was hypothesized that subjects would assign higher

accuracy-typicality scores to cases with more highly central attributes than to those with more highly peripheral ones.

In addition, the effect of feature overlap on prototypicality judgments was examined. It was hypothesized that cases with fewer overlapping features would be diagnosed with greater accuracy and with higher typicality than cases containing more features that are shared by more than one category. The research also examined the interaction of feature centrality and feature overlap on diagnostic agreement and typicality. It was hypothesized that case histories containing highly central and distinctive features would be judged as most prototypical (i.e., would yield the highest accuracy-typicality scores); conversely, case histories containing features with low category association which also overlap other categories would be judged least prototypical (i.e., would yield the lowest accuracy-typicality scores).

Predictions regarding the interaction of feature centrality and feature overlap were more problematic. Predictions regarding all cases depend on the cue validity of the case history for the categories being considered. The relative contribution of the two variables is not known; therefore, hypothesized interactions depend in part on the relative strength of the two variables.

CHAPTER II

METHOD

Subjects

20 subjects were randomly selected from a population of permanently licensed clinical psychologists practicing within a 50-mile radius of Greensboro, North Carolina. The population was derived from a list compiled by the North Carolina State Board of Examiners of Practicing Psychologists. Subjects were solicited through the mail. The solicitation requested the participation of psychologists who had been licensed for at least three years, and whose area of expertise included diagnosing personality disorders (see Appendix A for the solicitation letter). Approximately 130 solicitation letters were mailed. Of these, about 65 resulted in responses from psychologists. Approximately 40 psychologists agreed to participate. Eight respondents were eliminated because they stated that they did not perform diagnostic duties or failed to meet the experience requirements. Stimulus materials were sent to 32 subjects, and valid responses were received from 20 subjects.

Stimulus Materials

The stimulus materials used in the experiment consisted of a page of instructions, 32 personality profiles constructed according to certain specifications, and an attribute listing sheet; an introductory letter accompanied these materials (see Appendix B for a complete set of the materials sent to subjects). Each profile contained six attributes, chosen from a list of attributes of one of four personality disorder categories. The four categories were Antisocial, Borderline, Histrionic, and Narcissistic Personality Disorders. These particular categories were chosen because Livesley's (1986) research indicated that they were the four personality disorders showing the largest percentage of overlapping attributes. A large pool of overlapping attributes was considered necessary, from a technical standpoint, in order to construct profiles containing all shared attributes, while at the same time satisfying the requirement that the independent variables be orthogonal. Theoretically, it was assumed that misdiagnoses often occur between and among closely related categories; thus, selecting these four categories would presumably allow for the strongest test of the experimental hypotheses.

Below each profile was a space in which the subject indicated which diagnostic categories fit the profile

best, and how well they fit the categories. The four categories used in the study were listed first, in alphabetical order. Two "Other" categories were provided for the subject to list diagnoses other than the four above. Beside each category was a scale from one to seven, for the subject to indicate how well their choice fit the category they had chosen (with seven indicating the best fit, and one the worst).

The attribute ranking page asked the subject to answer some questions about the final profile. On the sheet, subjects were asked to refer back to the profile, and list the attributes which were important to them in arriving at their first-choice diagnosis. Six blank lines followed these instructions. Beside each line was a scale from one to five on which the subject could indicate how important the attribute was in their decision.

Constructing Personality Profiles.

The lists of attributes for the four categories were obtained from Dr. John Livesley, a researcher at the University of Calgary in Alberta, Canada. Livesley had reviewed the major literature on personality disorders and had extracted from the literature the attributes considered to be characteristic of each category. He then obtained ratings (on a 7-point scale) from psychiatrists regarding how characteristic of a category they felt each

attribute was. In addition, he and his colleagues analyzed the lists of attributes and determined which attributes were distinctive to a single category and which were shared by more than one category.

The attribute lists developed by Livesley for the personality disorders were ordered according to how characteristic each attribute was perceived to be of the category (with the most characteristic attribute listed first). Livesley provided the first quartile (representing the most characteristic attributes) and the fourth quartile (representing the least characteristic attributes) attributes for the four categories of interest.

The first task was to select twelve attributes (the six most and the six least characteristic distinctive and shared attributes) from each of the four lists, to use in the profiles. To meet the requirement that the independent variables be orthogonal, it was important that the total centrality (how characteristic the attributes were of the category) of the distinctive and the shared attributes chosen from each quartile be roughly equivalent. Initial examination of the lists revealed that distinctive and shared attributes were not randomly situated in the lists. Therefore, simply selecting the top (or bottom) six distinctive and six shared attributes

would not result in orthogonal independent variables. Consequently, adjustments were made in attribute selection which maximized centrality but met the requirement of orthogonality.

After all the attributes had been selected, they were used to construct the personality profiles. Six attributes were included in each profile, according to the requirements of the independent variables. The attributes were randomly ordered to control for sequence effects. In those conditions which included 50% shared and 50% distinctive attributes, shared and distinctive attributes were selected so as to assure orthogonality within that condition as well as between that condition and all other relevant conditions (see Appendix C for statistics concerning the average prototypicality of attributes selected so as to meet the requirement of orthogonality).

Each attribute was included in a sentence which stated that a hypothetical person exhibited that attribute. The person's gender was purposely concealed in order to control this potentially influential variable.

Procedure

Stimulus materials prepared for each subject consisted of 16 personality profiles, reflecting four conditions for each of the four personality disorder categories. The 16 profiles were randomly ordered to

control for sequence effects. An attribute listing form followed the final profile.

Instructions preceding the first profile asked the subject to consider each of the profiles in turn. Beginning with the first profile, the subject was asked to consider a person who was described in the profile. The subject was then asked to provide a diagnosis which they felt best fit the person. The subject was also asked to provide a typicality rating for the category they had chosen. Subjects were also asked to provide a second-choice diagnosis and typicality rating. Subjects were asked to perform these tasks for each profile. Following the final profile, they were asked to list the attributes they considered important for their first-choice diagnosis, in order of importance, and indicate how important each attribute they listed was.

Experimental Design

The overall design of the study consisted of two independent within-subjects designs. Ten subjects were randomly assigned to each. In the first design, subjects received 16 personality profiles to diagnose. These were defined by crossing four diagnostic categories with two levels of distinctiveness (either all distinctive or all shared) with two levels of centrality (either all high centrality or all low centrality). The profiles in this

part of the design contained attributes all of which were either distinctive to the category from which they were taken, or were shared by more than one category. The attributes, whether all distinctive or all shared, were either all of high centrality to the category from which they were chosen, or were all peripheral to that category. This was referred to as the 100% or 0% Distinctive Attributes design.

In the second design, subjects also received 16 profiles, defined by a 4 (categories) x 2 (levels of centrality of the distinctive attributes, either high or low) x 2 (levels of centrality of the shared attributes, either high or low). The percentage of attributes which were distinctive was kept constant at 50%. The other 50% of the attributes were shared with at least one other category. Within this 50/50 mix of distinctive and shared attributes, the centrality of the distinctive and of the shared attributes was completely crossed. This created four conditions: in one, both the distinctive and the shared attributes were highly central to the category from which they were chosen; in one, both the distinctive and the shared attributes were of low centrality; in one, the distinctive attributes were of high centrality, but the shared attributes were of low centrality; and in one, the shared attributes were of high centrality and the

distinctive ones were of low centrality. This was referred to as the 50% Distinctive Attributes design.

Independent Variables

Three independent variables, all pertaining to the information in the personality profiles, were manipulated. The first variable was diagnostic category. Profiles were constructed by selecting attributes from lists representing each of four categories of personality disorder. The four categories were Antisocial, Borderline, Histrionic, and Narcissistic Personality Disorders.

The second independent variable was attribute centrality. The lists from which the attributes were drawn were ordered according to how characteristic each attribute was perceived to be of the category. Attributes were chosen from the first quartile (representing the most characteristic attributes) and the fourth quartile (representing the least characteristic attributes).

The third independent variable was attribute distinctiveness. The lists from which the attributes were chosen included a notation beside each attribute to indicate whether it was considered to be distinctive to that category or shared with at least one other category. An equal number of distinctive and shared attributes were chosen.

Dependent Variables

Subjects were asked to provide both first and second choice diagnoses and typicality ratings for each profile presented to them. The major dependent variable was a score which combined the accuracy of each choice and the typicality rating accompanying that choice. The score was derived by taking the typicality rating and assigning a positive value to it if the diagnosis was accurate. If the diagnosis was inaccurate, the typicality rating was assigned a negative value. In addition to the accuracy/typicality score, the accuracy of the diagnosis without the typicality score was used for some of the descriptive analyses.

CHAPTER III

RESULTS

Subjects

Subjects were 20 Licensed Practicing Psychologists, within a 50-mile radius of Greensboro, who have been permanently licensed at least three years. Their current self-reported professional expertise included diagnosing personality disorders. Table 1 provides demographic data on subjects. As can be seen in the table, 70% were male. The mean age of subjects was 43 years. The majority, 63%, were in private practice. Subjects reported an average of 12 years' experience in diagnosing personality disorders. On the average, subjects had assessed 26 cases for the presence of personality disorder in the past six months.

Overview of Dependent Variables and Analyses

The dependent variable was a score which reflected both the accuracy of diagnosis and the typicality rating associated with the diagnosis chosen. The score was the typicality rating with a positive value if the diagnosis was accurate and a negative value if the diagnosis was inaccurate.

Table 1

Demographic Data on All 20 Subjects

Variable	Value
Sex (n = 20)	30% Female 70% Male
Age (n = 19)	$\overline{X}$ = 43.4 years SD = 9.7 years
Where Practice (n = 19)	63% Private 11% Hospital 11% Mental Health Clinic 11% Correctional Facility 5% Medical School
Years Experience (n = 19)	$\overline{X}$ = 11.8 years SD = 6.7 years
Personality Disorder Cases Assessed in Last 6 Months (n = 19)	$\overline{X}$ = 25.5 Cases SD = 32.6 Cases

Preliminary analysis of the data revealed that the data were not normally distributed. Therefore, parametric statistics were deemed inappropriate. Instead, Kruskal-Wallis Analyses of Variance of Ranked Data were performed. In order for these analyses to be performed, ranks for the four conditions for each subject were obtained by summing the accuracy/typicality ratings across the four diagnostic categories for each of the four conditions, and comparing the values for the conditions. All statistical analyses in this section refer to analyses of ranks.

Three separate statistical analyses were conducted on the ranked data for first-choice diagnoses. First, a separate analysis of the 100% or 0% Distinctive Attributes design was conducted. This analysis allowed for an examination of the main effects of attribute centrality and attribute distinctiveness, as well as their interaction. The results of the statistical analysis will be presented. Tukey post-hocs and utility indices will also be presented. The accuracy/typicality scores for the four conditions, and the accuracy scores alone, will also be presented.

Second, a separate analysis of the 50% Distinctive Attributes design was conducted. This analysis allowed an examination of the relative importance of the centrality

of distinctive attributes versus the centrality of shared attributes. Results will be presented as in the analysis above.

Third, an analysis which combined both designs was conducted. This analysis, as with the second analysis, allowed an examination of the importance of the centrality of distinctive versus shared attributes. In addition to the results presented in this analysis, pairwise comparisons of all conditions in the study will be presented. This presentation will demonstrate the predictive ability of the independent variables.

In addition to these analyses, descriptive analyses of inaccurate diagnoses will be presented. Descriptive analyses of second-choice data will follow. Finally, a descriptive analysis of the attribute listing data will be presented.

First-Choice Diagnostic Data for 100% or 0% Distinctive Attributes Group

The Interaction Between Attribute Centrality and Attribute Distinctiveness. One-hundred sixty first-choice diagnoses were made (ten subjects times 16 cases per subject). Of the 160 diagnoses, 101 or 63% were accurate. Because the effects of attribute centrality and attribute distinctiveness are of primary importance, analysis of the effects of attribute centrality and

distinctiveness involved summing across diagnostic category within each condition (see Tables 2 and 3 for the accuracy percentages for each diagnostic category for each condition).

Forty first-choice diagnoses and typicality ratings were made within each of the four conditions which reflect the complete crossing of attribute centrality (high or low) and attribute distinctiveness (100% shared or 100% distinctive attributes).

The results of the Kruskal-Wallis analysis of variance in the ranking of the four conditions is presented in Table 4. The analysis revealed the significant centrality by distinctiveness interaction, $F(1,9) = 5.06$, $p < .05$. Utility index indicated that the interaction accounted for 1% of the variance in the dependent variable.

Tukey post-hoc comparisons among means revealed that for the 0% Distinctive, Peripheral condition the accuracy/typicality value was significantly lower than any of the other three conditions. In addition, for the 100% Distinctive, Central condition the accuracy/typicality value was significantly higher than the 100% Distinctive, Peripheral condition.

These diagnosis/typicality rating scores were summed across subjects and diagnostic categories to examine the

Table 2

First-Choice Data for Subjects Receiving Profiles With 100% of 0% Distinctive Attributes

ANTISOCIAL			
ALL SHARED		ALL DISTINCTIVE	
HI C	LO C	HI C	LO C
70	0	100	50
(NARC 80)			

BORDERLINE			
ALL SHARED		ALL DISTINCTIVE	
HI C	LO C	HI C	LO C
100	20	90	80
(OTH 50)			

HISTRIONIC			
ALL SHARED		ALL DISTINCTIVE	
HI C	LO C	HI C	LO C
80	0	100	70
(BORD 60)			

NARCISSISTIC			
ALL SHARED		ALL DISTINCTIVE	
HI C	LO C	HI C	LO C
90	20	90	50
(BORD 70)			

Table 3

First-Choice Data for Subjects Receiving Profiles With 50% Distinctive Attributes

ANTISOCIAL			
DIST/SHARED			
HI/HI	LO/LO	HI/LO	LO/HI
90	56	90	20
			(BORD 50)

Borderline			
DIST/SHARED			
HI/HI	LO/LO	HI/LO	LO/HI
90	20	80	
	(OTH 50)		

Histrionic			
DIST/SHARED			
HI/HI	LO/LO	HI/LO	LO/HI
70	0	70	100
	(BORD 70)		

Narcissistic			
DIST/SHARED			
HI/HI	LO/LO	HI/LO	LO/HI
90	22	20	60
	(OTH 67)	(BORD 70)	

Table 4

Kruskal-Wallis Analysis of Ranks for 100% or 0%

Distinctive Attributes Group:

First-Choice Diagnosis

Source	df	SS	MS	F	p
Distinct	1	10.0	10.0	16.36	.0029
Error(Distinct)	9	5.5	0.6		
Central	1	28.9	28.9	123.86	.0001
Error(Central)	9	2.1	0.2		
Distinct X Central	1	0.9	0.9	5.06	.0510
Error(Distinct X Central)	0	1.6	0.2		

effects of attribute centrality and attribute distinctiveness on accuracy/typicality of diagnosis. The results are presented in Figure 1. The highest score, +5.9, was obtained under the 100% Distinctive, High Centrality condition. This score indicates that, on average, subjects diagnosed cases in this condition correctly, and thought that the cases were good examples of the category. The lowest score, -4.6, was obtained under the 100% Shared, Low Centrality condition. A score of +4.6 was obtained in the 100% Shared, High Centrality condition. In the 100% Distinctive, Low Centrality condition, a score of +1.1 was obtained. If the signed scores are compared, it is evident that the 100% Shared, Low Centrality condition score was significantly lower than scores in the other three conditions.

The accuracy of diagnosis for these four conditions is presented in Figure 2. Most notable are the percentage accuracy figures for the 100% Distinctive, High Centrality attributes condition (95%) and the 100% Shared, Low Centrality attributes condition (10%). In addition, 85% accuracy was found in the 100% Shared, High Centrality condition; 63% accuracy was found in the 100% Distinctive, Low Centrality condition. Thus, it appears that attributes that are both shared and low centrality combine to produce low diagnostic accuracy.

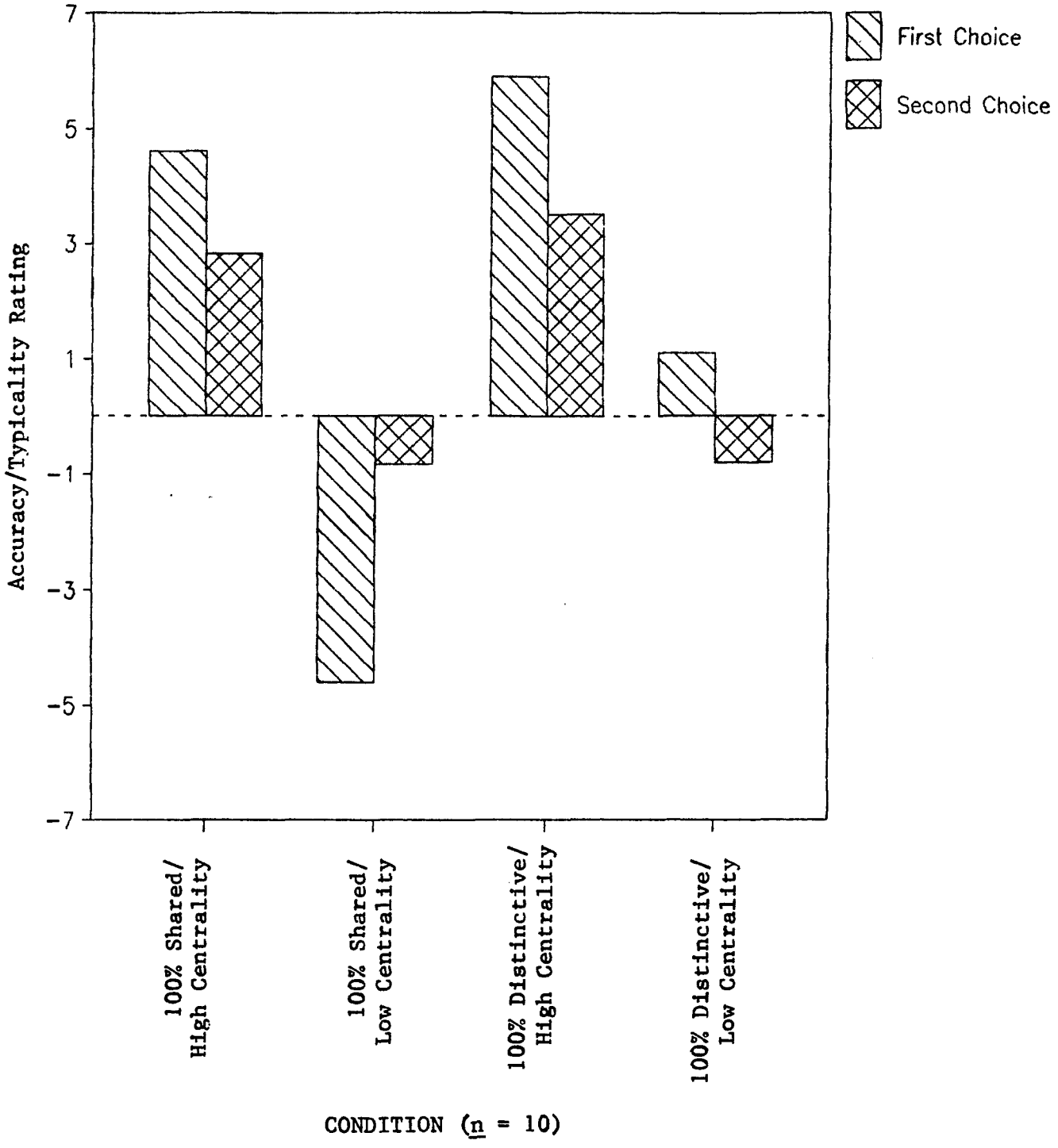

Figure 1. Accuracy/Typicality Scores for 100% or 0% Distinctive Attributes Group

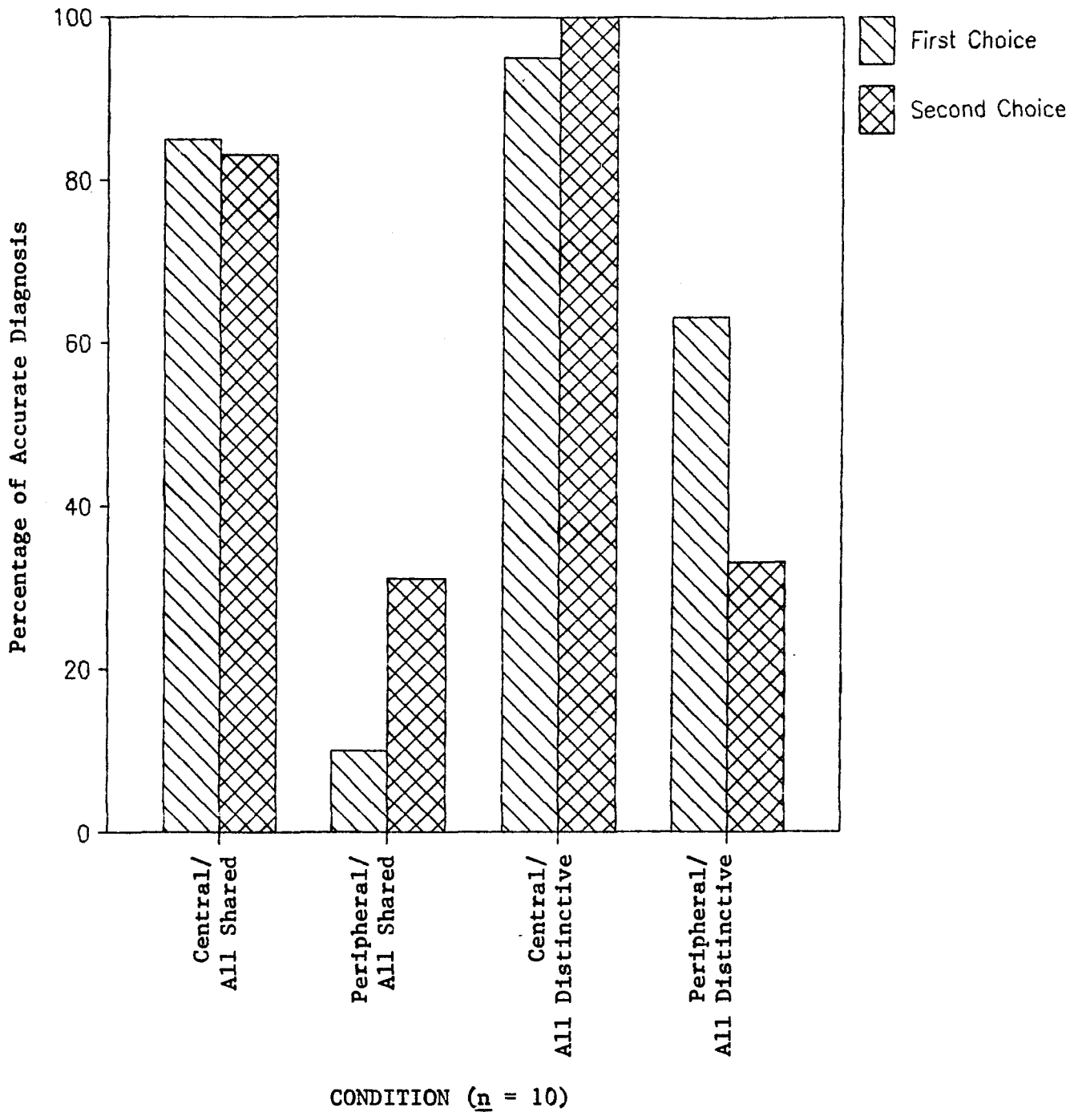

Figure 2. Percentage of Accurate Diagnoses By Condition (Summed Across Diagnostic Category) For 100% or 0% Distinctive Attributes Group

The Main Effects of Attribute Centrality and of Attribute Distinctiveness Attribute centrality, regardless of level of attribute distinctiveness, appears to have influenced accuracy, $F(1,9) = 123.86$, $p < .0001$. The utility index indicated that centrality accounted for 46% of the variance in the dependent variable. Attribute distinctiveness, regardless of attribute centrality, also appeared to exert an effect on accuracy, albeit a smaller effect than that exhibited by attribute centrality, $F(1,9) = 16.36$, $p < .0029$. The utility index indicated that distinctiveness accounted for 15% of the variance.

The two High Centrality conditions combined to produce a score of +5.3; the two Low Centrality groups combined to produce a score of -1.8. The two 100% Distinctive conditions combined to produce a score of +3.5; the two 100% Shared conditions combined to produce a score of 0.0.

The two High Centrality conditions combined to produce 90% accuracy, while the combined accuracy of the two Low Centrality conditions was only 36%. Thus, profiles with attributes of high centrality produced higher accuracy than those with attributes of low centrality.

The two 100% Distinctive groups combined to produce 79% accuracy; 47% accuracy was produced by the two 100% Shared groups.

First-Choice Data for the 50% Distinctive Attributes Group

As with the 100% or 0% Distinctive Attributes Group, 160 first-choice diagnoses were possible. However, only 158 diagnoses were made (only 39 Antisocial and 39 Narcissistic). Of the 158 diagnoses, 95, or 60%, were accurate. Because the effects of attribute centrality and attribute distinctiveness were of primary importance, the effects of these variables were examined by summing across diagnostic category.

The profiles in this group all contained 50% shared and 50% distinctive attributes. The centrality of the distinctive attributes and the centrality of the shared attributes were completely crossed. In the first condition, all attributes were of high centrality; in the second condition, all were peripheral; in the third, the distinctive attributes were of high centrality and the shared attributes were of low centrality; and in the fourth, the shared attributes were of high centrality and the distinctive ones, low. In the All Peripheral condition, only 38 diagnoses were made; 40 diagnoses were made in the other three conditions.

The accuracy of diagnosis for these four conditions is presented in Figure 3. Most notable are the accuracy percentages for the All Central (85%) and All Peripheral (24%) conditions. The accuracy percentages for both the Distinctive Central-Shared Peripheral and Shared Central-Distinctive Peripheral conditions were 65%. Thus, it appears that, in the 50% shared, 50% distinctive condition, low centrality of attributes produced significantly low accuracy. In the same condition, high centrality attributes produced significantly high accuracy. This effect represents a main effect for centrality. The Kruskal-Wallis revealed the main effect of the centrality of distinctive attributes, $\underline{F}(1,9) = 41.81$, $\underline{p} < .0001$ (see Table 5). Adding the All Central and Distinctive Central, Shared Peripheral conditions together yielded 75% accuracy, compared that obtained by adding the All Peripheral and Shared Central, Distinctive Peripheral conditions (45% accuracy). The percentages suggest that highly central distinctive attributes resulted in greater accuracy than low centrality distinctive attributes. The Kruskal-Wallis also revealed the effects of the centrality of the shared attributes, $\underline{F}(1,9) = 5.81$, $\underline{p} < .039$. In this analysis, the All Central and Shared Central conditions were combined (yielding 75% accuracy) and compared to the All

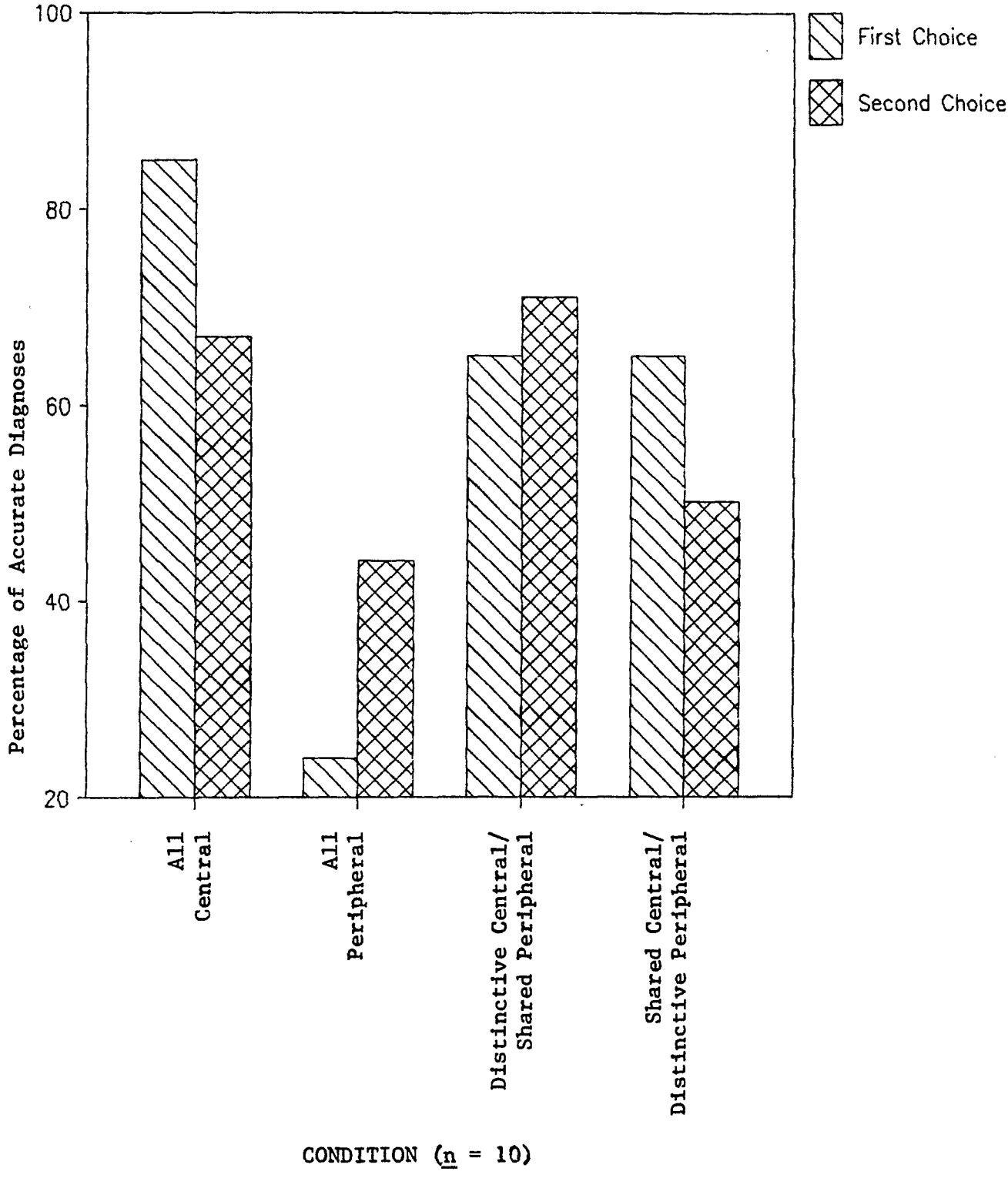

Figure 3. Percentage of Accurate Diagnoses By Condition (Summed Across Diagnostic Category) For 50% Distinctive Attributes Group.

Table 5
Kruskal-Wallis Analysis of Ranks for 50% Distinctive Attributes Group: First-Choice Diagnosis

Source	df	SS	MS	F	p
Distinctive Central	1	14.4	14.4	41.81	.0001
Error(D-C)	9	3.1	0.3		
Shared Central	1	10.0	10.0	5.81	.0393
Error(S-C)	9	15.5	1.7		
Distinct Central X Shared Central	1	0.4	0.4	0.64	.4433
Error(D-C X S-C)	9	5.6	0.6		

Peripheral and Distinctive Central, Shared Peripheral conditions (which yielded 45% accuracy). The percentages suggest that highly central shared attributes resulted in greater accuracy than low centrality shared attributes.

The diagnosis/typicality rating data also demonstrated the effects of centrality in the 50% Distinctive, 50% Shared condition. The scores for the four conditions are presented in Figure 4. The highest score, +4.5, was obtained in the All Central condition. The lowest score, -2.1, was obtained in the All Peripheral condition. In the Distinctive Central, Shared Peripheral condition, a score of +1.7 was obtained. In the Shared Central, Distinctive Peripheral condition, a score of +3.5 was obtained.

Analysis of the effects of the centrality of the shared attributes was accomplished in the same manner as with the diagnosis data alone. Combining the All Central and the Shared Central, Distinctive Peripheral conditions yielded a score of +4.0; this score was higher than the score of -.2 obtained by combining the scores for the All Peripheral and Distinctive Central, Shared Peripheral conditions.

The effects of the centrality of distinctive attributes also revealed an effect, although a smaller one than that above. The two Distinctive Central conditions

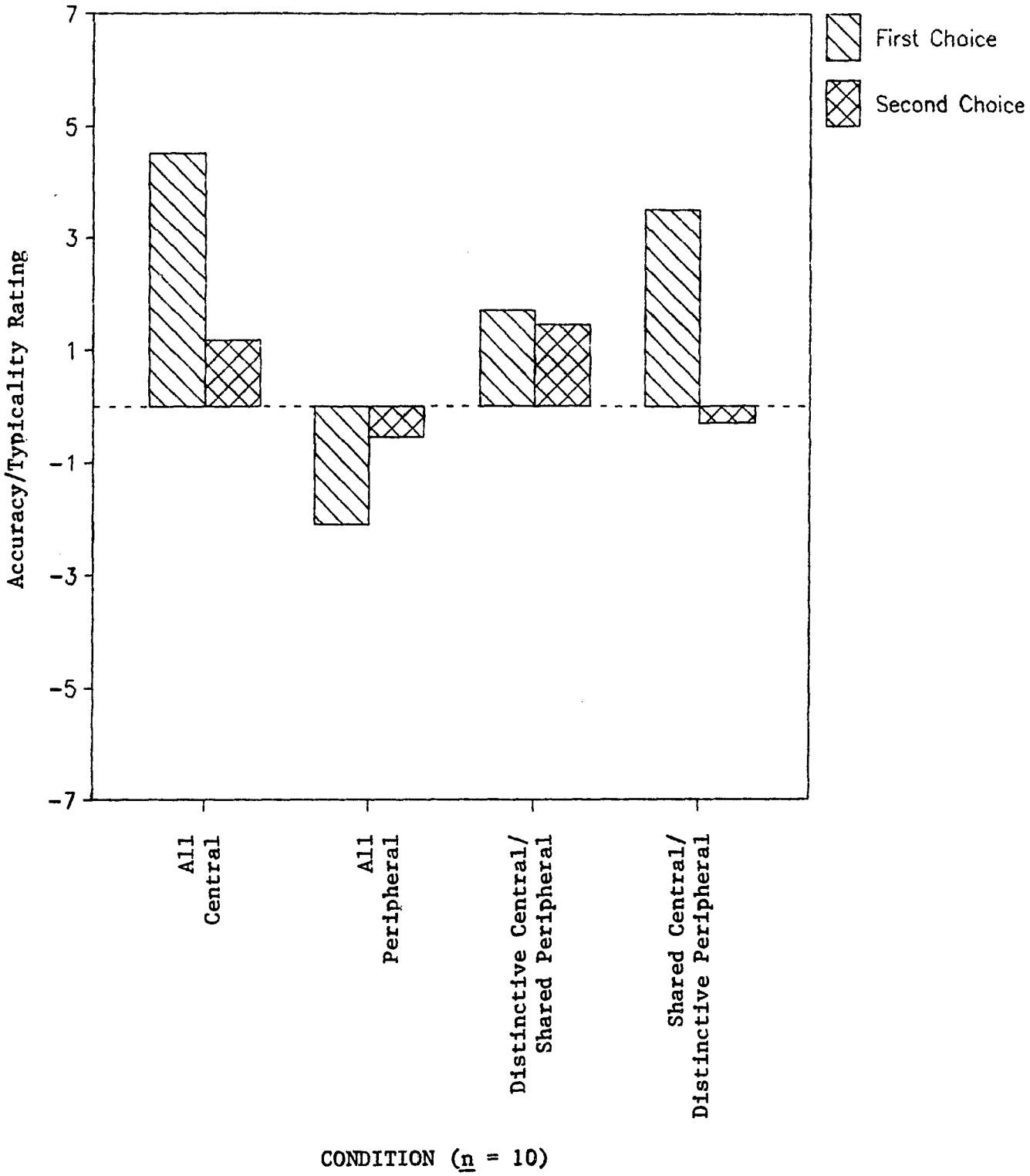

Figure 4. Accuracy/Typicality Scores for 50% Distinctive Attributes Group

combined to produce a score of +3.1, while the two Distinctive Peripheral conditions combined to produce a score of +0.7.

Comparison of All Eight Experimental Conditions

As in the previous analysis, the comparisons involved an examination of the main effects of the centrality of the distinctive attributes and of the shared attributes. The Kruskal-Wallis revealed a significant main effect for the centrality of the distinctive attributes, $F(2,19) = 25.36$, $p < .0001$ (see Table 6). Tukey's Studentized Range Test revealed that distinctive attribute conditions of high centrality produce significantly lower ranks (and thus significantly higher accuracy/typicality scores) than peripheral conditions or conditions where distinctive attributes are absent (i.e., the two 0% Distinctive conditions).

The Kruskal-Wallis also revealed the significant main effect of the centrality of shared attributes, $F(2, 19) = 27.5$, $p < .0001$. Tukey's Test revealed that shared attribute conditions of low centrality produce significantly higher ranks (and thus lower accuracy/typicality scores) than peripheral shared attribute conditions or conditions where attributes are distinctive.

Table 6

Kruskal-Wallis Analysis of Ranks for All Experimental Groups: First-Choice Diagnosis

Source	df	SS	MS	F	p
Subject	19	0.0	0.0		
Distinct	2	30.7	15.4	25.36	.0001
Shared	2	33.3	16.7	27.50	.0001
Error	56	33.9	0.6		
Corrected Total	79	98.0			

The experimental hypotheses have been previously discussed. Pairwise comparisons among eight conditions involves 28 possible comparisons. Direct predictions are possible in 20 comparisons. Predictions in the other eight comparisons depend on which independent variable exerts more control. Small differences, especially in between-groups conditions, should be interpreted cautiously. The following analysis may only reflect trends in the data in some cases.

The extent to which the model successfully predicts outcomes is presented in Table 7. The dependent variable predicted was the percentage of accurate diagnosis in each condition. In the table, the values for the two conditions are entered, along with the predicted relation between them. Outcomes were successfully predicted in 19 of the 20 comparisons which do not depend on the relative contributions of attribute centrality and attribute distinctiveness. In the one condition not successfully predicted, the two conditions had identical values. These conditions were the 100% Shared, High Centrality and 50% Distinctive-50% Shared, All Central conditions. Thus, in none of the 20 conditions is the outcome opposite that predicted.

In eight conditions which depend on whether attribute centrality or attribute distinctiveness controls more of

Table 7

Pairwise Comparisons of All Eight (8) Conditions

	100% Shared Hi Cent 1	100% Shared Lo Cent 2	100% Dist Hi Cent 3	100% Dist Lo Cent 4	50/50 All Central 5	50/50 All Periph 6	Dist-Cent Sh-Periph 7	Sh-Cent Dist-Periph 8
1		1 > 2 .85 > .10	3 > 1 .95 > .85	1 > 4 (c) .85 > .63	5 > 1 .85 = .85	1 > 6 (c) .85 > .24	1 > 7 (c) .85 > .65	1 > 8 (c) .85 > .65
2			3 > 2 .95 > .10	4 > 2 .63 > .10	5 > 2 .85 > .10	6 > 2 .24 > .10	7 > 2 .65 > .10	8 > 2 .65 > .10
3				3 > 4 .95 > .63	3 > 5 .95 > .85	3 > 6 .95 > .24	3 > 7 .95 > .65	3 > 8 .95 > .65
4					5 > 4 (c) .85 > .63	4 > 6 .63 > .24	7 > 4 (c) .65 > .63	8 > 4 (c) .65 > .63
5						5 > 6 .85 > .24	5 > 7 .85 > .65	5 > 8 .85 > .65
6							7 > 6 .65 > .24	8 > 6 .65 > .24
7								8 > 7 (c) .65 = .65

the variance, the results clearly indicate that attribute centrality exerted more control over diagnostic accuracy than did attribute distinctiveness. In seven of the eight conditions, the outcome was consistent with the prediction based on centrality being more important than distinctiveness. In the other comparison not favoring centrality (the Distinctive Central-Shared Peripheral and Shared Central-Distinctive Peripheral conditions, both involving 50% distinctive and 50% shared attributes), the values of the two conditions are identical. Thus, none of the outcomes were opposite those predicted based on centrality as the more important of the two independent variables.

Analysis of Misdiagnoses

Within the 100% Shared, Low Centrality condition, the percentage of accurate diagnoses for each diagnostic category was as follows: Antisocial, 0%; Borderline, 20%; Histrionic, 0%; and Narcissistic, 20%. However, diagnostic choice was not randomly distributed among the diagnostic categories. Most striking was the finding that, for the Antisocial profile, 80% of the subjects judged the profile to be an example of Narcissistic Personality Disorder. Seventy per cent of subjects used the Borderline category for the Narcissistic profile. Sixty per cent of subjects used the Borderline category

for the Histrionic profile. Fifty per cent of subjects used the "Other" category for the Borderline profile.

Examination of the lists of attributes for the four categories provides some clues as to why the particular diagnoses were made. For example, two attributes in the Narcissistic profile ("depressed" and "prone to brief psychotic episodes during periods of extreme stress") are also attributes of Borderline Personality Disorder. ". . . psychotic episodes . . .", in fact, is a highly central attribute of BPD. Similarly, two attributes in the Antisocial profile ("relies on self, rather than on the opinions of others, for self-esteem" and "highly independent") are attributes associated with Narcissistic Personality Disorder. One attribute in the Histrionic profile ("shows impaired reality testing under stress") is a highly central attribute of Borderline Personality Disorder. Further evidence of the effect of this particular attribute on diagnosis is found by examining the attributes listed as important to diagnosing the Histrionic case by the one subject who received this case last, and diagnosed it as a Borderline case. It was found that the subject had indeed included this attribute in her list, and in fact had listed it as the most important attribute in her diagnostic choice.

Within the All Peripheral condition, the percentage of accurate diagnoses for each diagnostic category was as follows: Antisocial, 56%; Borderline, 20%; Histrionic, 0%; and Narcissistic, 22%. However, diagnostic choice was not randomly distributed among the category choices. For the Borderline profile, 50% of subjects used the "Other" category; for the Histrionic profile, 70% used the Borderline category; for the Narcissistic profile, 67% used the "Other" category. In addition, the Distinctive Central, Shared Peripheral condition for the Narcissistic profile yielded only 20% accuracy; 70% of subjects used the Borderline category to diagnose this case. Also, for the Shared Central, Distinctive Peripheral condition for the Antisocial profile, only 20% accuracy was achieved; 50% of subjects used the Borderline category.

Examination of the lists of attributes for the Narcissistic and Borderline categories suggests a contributing factor to the use of the Borderline category in diagnosing the Narcissistic profile by 50% of subjects. One of the shared attributes in the Narcissistic profile ("prone to brief psychotic episodes during periods of extreme stress") is a highly central attribute of Borderline Personality Disorder. The presence of this attribute may have contributed to the use of the Borderline category for this Narcissistic case. This

conclusion is strengthened by the previously mentioned results concerning the Group One data, in which 70% of subjects responding to the 100% Shared, Low Centrality condition for the Narcissistic profile chose the Borderline category. "Prone to brief psychotic episodes . . ." was, of course, also an attribute in this Narcissistic profile.

Second Choice Data

Data for 100% or 0% Distinctive Attributes Group

Subjects were accurate on 101 of 160 first choice diagnoses. Consequently, 59 second-choice opportunities were available for analysis. The percentage accuracy figures for second-choice data are presented in Figure 2. The number of second-choice opportunities differed for the four conditions, and the relative accuracy scores for the four conditions paralleled the findings for the first-choice data. That is, the highest percentage accuracy was found for the 100% Distinctive, High Centrality condition (100% accuracy, based on two correct diagnoses out of two second-choice opportunities), while the lowest percentage accuracy was found for the 100% Shared, Low Centrality condition (31%, 11 correct in 36 opportunities). Again, the 100% Shared, High Centrality condition produced high accuracy (83%, 5 out of 6).

Accuracy was 33% (5/15) in the 100% Distinctive, Low Centrality condition.

Second-choice accuracy/typicality results are presented in Figure 1. As was the case with the first-choice accuracy/typicality data, the highest score, +3.5, was obtained in the 100% Distinctive, High Centrality condition. The lowest score, -.83, was obtained in the 100% Shared, Low Centrality condition. In the 100% Shared, High Centrality condition, the score was +2.83. In the 100% Distinctive, Low Centrality condition, the score was -0.8. The main effect for centrality is again evident. The two high centrality conditions combined to produce a score of +3.16. The two low centrality conditions combined to produce a score of -0.82.

No effect for distinctiveness appeared in the accuracy/typicality data. The two 100% Distinctive conditions combine to produce a score of +1.35. The two 100% Shared conditions combine to produce a score of +1.0.

Data for 50% Distinctive Attributes Group. Subjects were accurate on 95 of 158 first-choice diagnoses. Therefore, 63 second-choice diagnostic opportunities were possible. Four second-choice diagnoses were missing in the All Peripheral condition. Thus, 59 second-choice diagnoses were made. The number of second-choice

diagnoses varied in the four conditions. The percentage accuracy results are presented in Figure 3. As with the first-choice data, the lowest accuracy, 44%, was obtained in the All Peripheral condition (11 correct diagnoses out of 25 opportunities). However, contrary to expectations, the Distinctive Central, Shared Peripheral condition produced the highest accuracy, 71% (10 correct out of 14 opportunities). The All Central condition, expected to produce the highest accuracy, produced 67% accuracy (4 out of 6 correct). The small number of second-choice opportunities in this condition, compared to the number of opportunities in the Distinctive Central, Shared Peripheral condition, may have influenced the relative accuracy in these two conditions. In the Shared Central, Distinctive Peripheral condition, accuracy reached 50% (7 out of 14 correct).

The centrality of distinctive attributes was examined as it was with the first choice data. The two Distinctive Central conditions combined to produce 69% accuracy, while the two Distinctive Peripheral conditions combined to produce 47% accuracy.

The centrality of shared attributes was also examined. The two Shared Central conditions combined to produce 58% accuracy, while the two Shared Peripheral conditions also combine to produce 58% accuracy. Thus, it

appears that the centrality of distinctive attributes was more important than the centrality of shared ones in the second-choice diagnostic data.

The second-choice accuracy/typicality data (presented in Figure 4) mirrored the findings for the accuracy data alone. The All Peripheral condition produced the lowest score, -0.54. However, the Distinctive Central, Shared Peripheral condition produced the highest score, +1.43. The All Central condition produced a score of +1.17. The Shared Central, Distinctive Peripheral condition produced a score of -0.29.

The centrality of distinctive attributes was examined by combining the two distinctive conditions, producing a score of +1.3, and comparing this score to that obtained in the two Distinctive Peripheral conditions, -0.42.

The centrality of shared attributes was examined by combining the two Shared Central conditions, producing a score of +0.44, and comparing this score to that obtained by combining the two Shared Peripheral conditions, which produces a score of +0.45.

Attribute Listing Data

After subjects had provided diagnoses for their final case, they were asked to answer some questions about how they arrived at their first-choice diagnosis for that case. Specifically, they were asked to refer back to the

profile, and list all the profile attributes which were important to them in arriving at their diagnosis. They were asked to rank the attributes they listed in order of importance, with the most important attributes listed first. In addition, they were asked to rate the importance of each attribute on a scale of one to five, in terms of its importance to them in making their diagnosis.

This procedure was designed essentially as a check on the independent variable. It was assumed that there would be some relationship between subjects' category choice and the order of the attributes they listed as important. Generally, it was hypothesized that subjects would list distinctive and shared attributes in order of their centrality to the category chosen, regardless of which group subjects were in. If a profile contained distinctive and shared attributes, the distinctive attributes would be listed before the shared ones (except in the Shared Central, Distinctive Peripheral condition, where the prediction depends on whether centrality or distinctiveness is the more important variable).

The principle stated in the previous paragraph is most clearly illustrated by examining the Distinctive High, Shared Low condition when attributes are 50% distinctive and 50% shared. For any of the four diagnostic categories, it is predicted that a subject

whose diagnosis is accurate will list the distinctive attributes before listing the shared ones. It is also predicted that the subject will list the high centrality attributes before listing the peripheral ones. Since the distinctive attributes are also the high centrality ones, and the shared attributes are also the peripheral ones, the prediction holds regardless of whether centrality or distinctiveness is the more controlling variable.

Examining the Antisocial profile in this condition provides both an illustration and the best example of a good fit between prediction and outcome. The profile itself is included, along with all other profiles, in Appendix B. The distinctive attributes, in order of their centrality (with the most central attribute listed first) are: "unlawful behavior"; "disregard for the consequences of his/her actions"; and "disregard for the feelings of others." The shared attributes, in order of their centrality (with the most peripheral attribute listed last), are: "interprets minor slights as major insults"; "haughty and arrogant"; and "uncomfortable when alone for more than brief periods of time." This is the order in which it is predicted that subjects would list these attributes for this profile if they chose Antisocial as their first-choice diagnosis.

Complete analysis of these data may only be accomplished if the subject is accurate in their category choice, and if they list attributes which are in the profile; if accurate, the subjects' attribute list may be compared to the full attribute list for the category chosen.

The attribute listing data are provided in Table 8. Eleven of twenty subjects were accurate in their choice of category and listed only attributes in the profile. Three subjects were inaccurate in their diagnosis, but chose one of the four primary categories. They listed attributes from the profile. Two subjects incorrectly used "Other" category labels. Two subjects appear not to have understood the instructions, because the attributes they listed were not in the profile. Data were missing for one subject. And one subject was accurate, but some of the attributes listed were not in the profile. There was variability in the number of attributes listed by subjects. An average of 3.55 attributes were listed; the range was two to six. A great deal of variability also was present in the order in which subjects listed attributes. The clearest finding which supports the predictions made concerns the presence, anywhere in the attribute list, of the attribute expected to be listed first. For 10 of 11 subjects (91%), this attribute did

Table 8

The Order of Attributes Listed by Subjects Who Accurately Diagnosed Their Last Case, and Listed Only Attributes From Their Profiles

Subject Number	Order of Attributes
1	1 2
2	4 1 5 2
3	6 4 1
4	1 2 5
5	6 4 5
6	1 4 2 3
7	5 4 3 6 2 1
8	4 1 2
9	1 2 3 4 5
10	3 1 6 4
11	1 2

appear in the list, though the lists averaged less than four attributes. Further, for those 10 subjects including this attribute, five, or 50%, listed it first (i.e., most important). The second expected attribute also was listed frequently, in eight of 11 lists. It occurred after Attribute #1 every time, and before Attributes 3-6 five of the eight times. Attribute #6 only showed up in a list of less than six attributes three times. In three of the eleven lists, the attributes were ordered perfectly, according to the predicted model, three times. In no case was the listing done totally opposite of the predictions (though one subject almost did). Thus, it appears that there is some evidence to suggest that the subjects were responding to the stimuli in the way predicted.

As previously mentioned, the Antisocial profile in the Distinctive Central, Shared Peripheral condition (50% Distinctive, 50% Shared attributes) provided the best example of the fit between prediction and outcome. One subject responded to this condition. The order in which it was predicted the attributes would be listed has been previously alluded to. This subject listed five of the six attributes as being important in diagnosing the case as Antisocial. The subject listed all of the distinctive attributes first, in the predicted order; the subject then listed the two shared attributes with the highest

centrality. This is Subject 9 in Table 8. The subject whose data appeared to fit the predictions least well was Subject 5. This subject was responding to the Narcissistic profile in the 100% Distinctive, High Centrality condition. The subject listed three attributes, but listed the attribute expected to be listed sixth, first. The subject listed the fourth attribute second, and the fifth attribute third. The subject did not even list the attributes that occupied the first three places in terms of centrality. However, it is important to note that the centrality of the attribute expected to be listed first is only .82 points higher than the attribute expected to be listed last.

CHAPTER IV

DISCUSSION

Low diagnostic agreement among clinicians has, in the past, been thought to reflect either inadequate training of diagnosticians or problems in the diagnostic system being used. These presumptions are the outgrowth of the classical view of diagnosis dominating the field. In contrast, an alternative view, the prototype approach, has been advanced recently. This approach posits that attributes of categories may be correlated imperfectly with category membership. That instances may be judged to be better or worse examples of categories may be due, not to overlap in the number of category attributes the instance exhibits, but to overlap in attributes central or peripheral to category membership. In addition, categories vary in the extent to which they share attributes with other categories. An instance may exhibit attributes which are distinctive to only one category, or which are shared by more than one. In this latter case, diagnostic judgment is assumed to be more difficult if the person is attempting to assign a primary diagnosis. The presence of attributes which are peripheral and are shared by more than one category are

assumed by this approach to produce great confusion, and hence low agreement, in clinical diagnostic judgment.

In the present study, agreement among clinicians in diagnostic judgment was examined as a function of the nature of the attributes in personality profiles presented to them. Clinicians were presented with profiles developed from lists of attributes of four categories of personality disorder. The profiles contained attributes which were either distinctive to the category from which the attributes were drawn, or were shared by more than one category. The attributes, in addition, were either highly central to the category from which they were drawn, or were peripheral to it. The number of attributes in the profiles was strictly controlled to eliminate variance due to this factor. In addition, the sex of the person in the profile, thought to affect diagnosis for the categories utilized, was not divulged. The primary hypothesis was that attribute centrality and attribute distinctiveness would interact to produce the maximum effect on diagnostic judgment. Specifically, it was hypothesized that profiles containing all peripheral attributes which were shared by more than one category would produce the lowest levels of diagnostic agreement; conversely, the highest levels of agreement would be exhibited to profiles in which all the attributes were of high centrality to a

category and distinctive to it. Main effects were also predicted for each of the independent variables alone.

Support for the experimental hypotheses was provided by a statistical analysis of the first-choice diagnostic data. In the design in which attribute centrality (high or low) was completely crossed with attribute distinctiveness (100% distinctive attributes or 100% shared attributes), the strongest effect was produced by centrality (although the main effect for distinctiveness was also significant, as was the interaction).

The second-choice data strengthen the conclusions drawn from examining the first-choice data. While too few second-choice data were available for statistical analysis, visual analysis reveals that the second-choice data parallel the first-choice data. That is, the highest accuracy level as obtained in the 100% Distinctive, High Centrality condition, while the lowest accuracy level was in the 100% Shared, Low Centrality condition. In fact, in the 100% Distinctive, High Centrality condition, 100% accuracy was obtained.

Several general conclusions of the present study may be made. The most important conclusion is that the prototype approach appears to be useful in helping us to understand psychiatric diagnosis. This conclusion is important because, despite the growing theoretical

influence of the prototype model in psychiatric diagnosis, this study is one of only a handful of experiments testing its application in the area of diagnosis. It is the first known experimental examination of subjects' responses in the area of personality disorders (in Blashfield et al., 1985, the focus of the research on personality disorders was on the cases themselves, not directly the clinicians' responses to them).

Secondly, from the present study it may be concluded that some of the assumptions from the seminal research in this area (Cantor et al., 1980) require re-examination. The present study included a thorough critique, both theoretically and methodologically, of this pioneering research. As Blashfield and Sprock (unpublished, 1983) note, the Cantor et al. (1980) study has generated a great deal of interest, and has received many citations in the literature. Its current influence extends to a call by one of the leading, if not the leading, researcher and writer on personality disorders (Millon, 1986), for the prototype model to become the accepted model for conceptualizing personality disorders. There are indications that much additional research will be conducted in the area of prototypes. Therefore, it is important that theoretical and methodological issues

arising from Cantor et al.'s work be raised and examined empirically.

Third, while questioning the reason for the findings obtained by Cantor et al., (1980), the present study also confirms explicitly some of the predictions about diagnosis arising within the prototype framework. For example, the assumption by Cantor et al. that number of attributes was responsible for variability in diagnosis is questioned by the strong effect of attribute centrality in the present study. However, the findings of the present study confirm the importance of the presence of category-congruent attributes in influencing diagnostic judgment.

The implications of the finding of a strong main effect for attribute centrality is discussed in the next section. Other areas within the scope of this research are then discussed. These include: diagnosis based on Cantor and Mischel's (1979) notion of "full" versus "restricted" view; the importance of attribute centrality and attribute distinctiveness in proposing how the diagnostic process may operate; a re-examination of Cantor et al. (1980) findings, including appropriate statistical analysis of accuracy/typicality data; and a look at Borderline Personality as a possible "catch-all" category for otherwise poor category fits.

Cognition and Diagnostic Assessment

Cantor and Genero (1986) have used the prototype approach and their findings in applying the approach to psychiatric diagnosis to propose how the diagnostic process should work. Briefly, the authors suggest that diagnosis is simultaneously an attempt by the diagnostician to determine both "what it is" (i. e., to what category the person to be diagnosed does belong) and "what it isn't" (to what category does the person not belong). The cognitive process for determining "what it is" is similarity-matching to the closest target category (similarity-matching refers to determining how many category-congruent attributes the person exhibits). The cognitive process for determining "what it isn't" is differentiation from neighboring categories (differentiation is a process by which categories are "ruled out" because their prototypes do not contain the attributes which the person exhibits).

The model suggests that these processes work in concert to help the diagnostician determine how typical the person is of the most likely category, and to rule out as many alternative categories as possible. Failure to rule out all alternative categories should alert the diagnostician to the possible atypicality of the case or the appropriateness of a mixed or multiple diagnosis.

While the above model describes an ideal process for diagnostic judgment, it does not adequately explain the results of the present study. The above model would predict that in the present study attribute centrality and attribute distinctiveness would produce approximately the same effect on diagnosis. The findings of the present study, however, were that attribute centrality produced the more powerful effect. This finding suggests the need to consider further how diagnostic judgment may operate.

A revision in the Cantor and Genero (1986) model may account for these findings. Essentially, it is suggested that diagnosis be conceptualized primarily as a similarity-matching process. Diagnosticians are primarily concerned with "what it is", not with "what it isn't." When a diagnostician first encounters a patient, the first attribute which the person exhibits "cues" one (if it is a distinct attribute) or more (if it is shared) prototypes "in the head" of the diagnostician. Each subsequent attribute observed either adds to (if it is category congruent) or subtracts from (if it is category incongruent) existing prototypes under consideration, and/or introduces one or more prototype categories to consider. When all the information to be used in diagnosis has been obtained, the diagnostician is able to perform a similarity-matching process for all of the cued

prototypes. The closest matching category is the category most likely to be chosen by the diagnostician. Of course, the match must be similar enough for the diagnostician to choose any category.

This proposed process suggests a single goal of diagnosis: not to determine "what it is" and "what it isn't", but to determine "what it is most likely." This implies primarily a similarity-matching process. The model proposed here does not suggest that differentiation is unimportant to diagnosis. Rather, the proposed model suggests that the most important aspect of differentiation (i. e., whether attributes are distinctive to one category or are shared by more than one) is incorporated into the similarity-matching process. As previously stated, an attribute which is distinctive to a single category may only add to the "cue validity" (ability of a body of information to cue a particular prototype) to that category. However, a shared attribute adds to the cue validity of every prototype of which it is a member. The degree to which it adds to the cue validity of each prototype depends on its centrality to that prototype.

A weakness of the Cantor and Genero and the proposed alternate model is that neither explains misdiagnosis. Misdiagnosis is probably best explained with reference to

individual variation in the prototype categories of individual diagnosticians. As was mentioned in the Results under Misdiagnosis, shared features of low centrality may have resulted in very close values of cue validity for different categories. Individual variation in perceived attribute centrality may have been responsible for misdiagnosis in this condition. The current model, which relies on a nomothetic approach to assessment of the structural properties of prototypes in the mind of diagnosticians, will often fail to predict with high accuracy all of the diagnostic judgments an individual makes. An alternative approach, utilizing ideographic assessment, may enhance predictability. In either case, however, the diagnostic process is probably the same.

One final remark in this section concerns a possible line of research to determine when attribute distinctiveness would play a more important role in diagnosis. Cantor and Genero's (1986) model suggests that differentiation is important in determining "what it isn't." A useful direction for research in this area would involve asking diagnosticians to "rule out" categories, but not necessarily to make diagnoses.

Diagnosis as Person Categorization Under "Restricted View"

In their most comprehensive presentation of the prototype approach in the area of personality, Cantor and Mischel (1979a) proposed two different situations in which persons might categorize others. In the situation they referred to as "full view", the categorizer had an opportunity to sample a wide range of the behaviors of the person to be categorized, by observing them for substantial periods of time on several occasions. In such a situation, it was proposed that the number of category-congruent features exhibited by the person to be categorized would be a crucial determinant in how they were categorized.

However, the authors noted that sometimes people categorize others after only a "limited view" of them. That is, people may categorize others despite observing them for only a short time on one occasion. In this situation, it was proposed that categorization would be guided by the target person's exhibiting the most central category-congruent attributes.

Cantor et al.'s (1980) operational independent variable clearly implies a "full view" of the patient. The authors manipulated proposed patient typicality by varying the number of category-congruent attributes in the

case histories. Feature centrality was not mentioned as a variable that might affect the diagnostic judgments made.

In reality, however, diagnoses are often made under conditions more closely approximating "limited view" than "full view." In practice, initial diagnostic judgments may be made after the diagnostician has spent only one initial intake session of 50 minutes with the patient. In fact, such judgments are sometimes required by administrators or third-party payers. In such situations, it is reasonable to assume that diagnosticians will be impressed by the presence or absence of attributes which are central to categories under consideration.

The present study clearly demonstrated that variance in diagnostic accuracy can occur despite holding the number of attributes at a low, constant level. Six attributes (in the low-medium range according to Cantor et al.'s standard) was sufficient to produce high accuracy if the six were all distinctive and highly central to a single category. Moreover, high accuracy in this condition was not an artifact of the correspondence between the profiles and the DSM-III diagnostic system. Only one of the profiles (the Histrionic one) met the DSM-III criteria for diagnosis. High accuracy despite this lack of correspondence suggests that subjects shared a consensual construct of the disorders, abstracted from

knowledge "in the head" of the clinician. However, six attributes produced very low accuracy when all six were peripheral to a category and shared by other categories.

However, the present study is not intended to show that attribute number is not an important variable for understanding diagnosis. What is important to understand is that the present study indicated that which attributes are in a body of information, not just how many of them there are, is also important in the diagnostic process.

The "limited view" model of person categorization suggests an interesting line of research. How might feature number and feature centrality affect how typical patients are considered of categories of diagnosis? How few central category attributes need to be exhibited by a patient to induce a diagnostician to assign a diagnostic label? How many peripheral ones may be needed? No research has so far addressed these specific questions.

Additional Comments on Cantor et al. (1980)

As previously mentioned, Cantor et al.'s (1980) pioneering work on prototypes and diagnosis has generated a great deal of theoretical interest in the clinical area. The theory, method, results, and conclusions appear to have been accepted largely at face value. However, for research in this area to advance, it is necessary to build

upon the strengths of the research, while at the same time refining it theoretically and methodologically.

Alternative explanations for the findings of the study, which provide the bridge to the present research, have already been alluded to on several occasions, and will not be repeated. However, additional considerations not previously discussed deserve mention. These considerations include: selection of case histories presumed to represent diagnostic categories; case history information presumed to represent attributes; and choice of statistical analysis in light of the measurement of the dependent variable.

Cantor et al. (1980) state that the stimulus materials used in their study were case histories representing the four diagnostic categories chosen. The cases had been diagnosed, using those category labels, at the mental health facility from which they were taken. The diagnoses were presumed accurate, and were used as the standard against which to compare the diagnoses of subjects in the study. The authors do not say how many diagnosticians made the diagnoses, nor how they arrived at the diagnoses. If several diagnosticians used objective means to arrive at the diagnoses, then confidence in the accuracy of the diagnoses is enhanced. But if a single diagnostician used subjective means to arrive at the

diagnoses, then the assumption of accuracy becomes problematic. Subjective diagnostic judgment is the focus of the research, and becomes, in light of the study's findings, an issue in the selection of cases.

In the present study, profiles were chosen to represent diagnoses on the basis of their inclusion in lists of attributes for those categories. In all-shared conditions, profiles were examined to assure that no category other than the specified one shared all of the attributes. To assure that high attribute centrality for shared categories did not make the profile more representative of those categories than of the one specified, cue validities were estimated for the specified category and for the next most representative category (based on number of attributes congruent with that category). The estimation procedure took advantage of Livesley's data on attribute centrality, and was accomplished by simply adding together the centrality values for the attributes common to the category.

The cue validity for the specified category was always higher. Thus, there is reason to believe that the profiles represented the appropriate categories.

Second, the use of case histories in Cantor et al. (1980) suggests that the information available to subjects may have been in the form of behavior as well as traits.

In the present study, personality profiles containing only traits were utilized. In terms of external validity, the Cantor et al. study appears to have the advantage. However, not enough is known about the relationship between traits and behaviors in person categorization (for example, how one leads to inference about the other). The present study eliminated the need for inference, possibly reducing one potential source of variance. The key point to be made here is that behaviors vary in terms of how typical they are of traits. One act may easily cue a trait, while another behavior cues the trait less well. Because the prototype approach assumes that the cognitive structures in the mind of the categorizer consists of traits, early research efforts should probably attempt to assure that categorizers receive trait information, as was done in the present study.

Actually, the relationship between behavior and traits inferred from it is an active line of research currently being pursued by Buss and Craik (1986). Called the act-frequency approach to assessment, this methodology relies on the nomination of typical acts to represent dispositions, and statistical manipulations which reveal patterns in the relationship between behavior and traits. As the authors note, the act-frequency approach begins with the assumption that the basic purpose

of clinical classificatory systems is to describe individuals. Act-frequency research involves personality assessment, specifically analysis of dispositional constructs (concepts that summarize general trends in conduct). The starting point of this research involves "identifying the internal cognitive structure of dispositions by exploring the acts subsumed by them and the status of specific acts with respect to dispositional categories" (Buss & Craik, p. 389). In the clinical area, the act- frequency approach entails the analysis of multiple dispositional constructs which constitute personality disorders, and the use of clinical experts in the assessment process. The authors also note that the act frequency approach "accords well" with the prototype approach to diagnosis. Both approaches recognize the fuzzy structure of psychiatric categories and the heterogeneity of category membership. The similarity matching process may also be applied to act portraits generated using the act-frequency approach. This approach, as the authors note, has direct implications for the conceptual analysis of personality disorders.

The final point concerns the statistical analysis used in the Cantor et al. (1980) study. In the study, the accuracy/typicality scores were analyzed using a standard analysis of variance (presumably with repeated measures).

This analysis was also proposed for the present study. However, examination of the data obtained in the present study rendered use of ANOVA problematic. It was discovered that the accuracy/typicality scores were not normally distributed, a requirement for the use of ANOVA. Instead, unimodal and bimodal distributions, reflecting high typicality scores for correct and/or incorrect diagnoses, were the rule. These distributions served to make the effects of the independent variables stand out descriptively, but suggested that a nonparametric statistic was more appropriate to assist with making probability statements. Kruskal-Wallis with repeated measures was ultimately determined to be the appropriate statistic.

Since Cantor et al. (1980) presented their raw data in their paper, it was possible to visually examine the probable distributions of scores around their condition means. This examination revealed unimodal and bimodal distributions only slightly less pronounced than those in the present study. Therefore, it is suggested that their analysis, while probably not obscuring their basic findings, was inappropriate.

To complete the picture, it should be noted that controversy exists in the statistical literature regarding the consequences of violating the assumption of normally

distributed variance in using ANOVA. It is not clear that ANOVA is inappropriate in all such cases. The above discussion should simply alert those using confidence or typicality scores in judgment research to the possibility of this statistical issue being raised.

Diagnosis and Borderline Personality Disorder

Borderline Personality Disorder has been one of the more controversial DSM-III diagnostic categories (Millon, 19981; Wideger, 1986). Among the criticisms of this diagnosis is that it is a poorly conceived diagnosis which has become a "wastebasket" diagnosis for patients who do not fit into other diagnostic categories. Evidence supporting or refuting this proposition, however, has been lacking. The types of evidence which would shed light in this area are of two types: overlap between the Borderline category and other categories; and examination of misdiagnoses using the Borderline category.

Livesley (1986) has written on the extent of overlap between and among the personality disorder categories. Borderline PD is one of the four categories which shows maximum overlap of attributes. This overlapping, according to Cantor et al. (1980), sets the occasion for misdiagnosis when the patient exhibits attributes shared by more than one category. This sharing of attributes was studied as an independent variable in the present study.

In this study, there were nine conditions in which the accuracy of diagnosis was less than 50%. In the majority of these conditions, the category incorrectly chosen was Borderline PD. Upon first glance, such a finding might suggest that Borderline Personality Disorder is indeed a wastebasket category, used whenever a good fit with another category cannot be obtained. However, upon closer examination, some logic as to the choice of this category appears.

An examination of the conditions under which BPD was diagnosed instead of the correct category, and the nature of those conditions, reveals some interesting possibilities about the BPD diagnosis. In the conditions in which the BPD diagnosis was chosen, examination of the overlap of attributes of the intended diagnosis and the Borderline PD was made. Overlap of attributes with the Borderline category would explain the use of this diagnosis.

In the majority of the conditions, the intended category shared at least one attribute with BPD. In one case, two attributes were shared. Moreover, one of the shared attributes was a high centrality attribute of BPD. The presence of a high centrality BPD attribute might explain why the category was chosen.

Further examination of the shared attributes suggests another possibility regarding the choice of BPD in these conditions. In one condition, the shared attribute was "shows impaired reality testing under stress." In two other conditions, the shared attribute was "prone to brief psychotic episodes during periods of extreme stress." These attributes suggest severe impairment of function, which is consistent with how BPD is conceived in relation to other personality disorders. Along with Schizotypal and Paranoid Personality Disorders, BPD is considered a severe form of personality disorder. It may be that diagnosticians in the present study were responding primarily to their perception of the severity of impairment rather than to the nature of the impairment. This may be especially true since neither Schizotypal nor Paranoid Personality Disorder were offered as diagnostic alternatives in the present study. Future research into the use of BPD as an indicator of severity might study its use in relation to other severe forms of personality disorder.

Limitations of Present Study

The present study examined the effects of attribute centrality and attribute distinctiveness on diagnostic accuracy and typicality ratings. In it, trained clinical psychologists were presented with personality profiles in

which the centrality and distinctiveness of attributes varied systematically. They were asked to provide first- and second-choice diagnoses and typicality ratings. The results of the study demonstrated that the main effects of, and the interaction between, attribute centrality and attribute distinctiveness were significant. It was concluded that the data provided support for the prototype approach to diagnosis, but that a model based primarily on similarity matching was more consistent with the results than a model based equally on similarity matching and differentiation.

The study included several controls designed to enhance its internal validity. Despite (or perhaps because of) this control, there are limitations to the study. These limitations primarily involve the stimulus materials and the procedures. They are offered as a way of raising issues relevant to future research in this area.

In terms of stimulus materials, it is important to consider the source of the lists of attributes used in the study. The lists were not obtained by asking clinicians to list the attributes they associate with the diagnostic categories in the study (as Cantor et al., 1980, did). Instead, the attribute lists were obtained by examining the major literature in the area of personality disorders.

One would intuitively expect the two different procedures to yield greatly overlapping lists. However, there may be attributes perceived by clinicians as associated with the categories which are not on the lists. Future research should continue to examine the attributes clinicians really use in diagnosis.

The stimulus materials presented to the clinicians were personality profiles containing only traits. Cantor et al. (1980) used actual case history information in their study. While, as discussed earlier, it may be premature to use behavioral information in forming the information to be presented, eventually such effort should be made. As the relationship between behavior and traits becomes clearer, the use of behavioral information will be more useful.

In terms of procedures, the present study was conducted through the mail using written information. Better control over subject responding, resulting in lower error variance, may be achieved by conducting studies personally in the clinicians' offices. Enhanced external validity may only be achieved by closer analogy to the environment in which clinicians work.

Also, the subjects in this research were all clinicians who had been licensed for five or more years. Consequently, differences may exist between these

clinicians and less experienced ones, which could limit the external validity of the results. For example, many of the subjects in the present study may have been trained before both DSM-III and the advent of the prototype approach to diagnosis. It is conceivable that the tendency of subjects to use high typicality ratings in all conditions may have been associated with their being trained before the changes in thinking about diagnosis occurred. In addition, some evidence does exist in the literature on prototypes which points to differences between experienced and inexperienced clinicians, in the richness of the prototypes formed by the two groups (Horowitz, Wright, Lowenstein, & Parad, 1981). These potential group differences accentuate the need to learn more about the development of diagnostic judgment across the professional lifespan of the diagnostician.

Subjects in the present study were directed to use one of four diagnostic categories or write in a diagnosis. In the real world, clinicians utilize an open-ended choice format. Actually, the present study improved on Cantor et al. (1980), in which a true four-choice only multiple-choice format was used. Although in the present study subjects often wrote in their choice of category, it is true that the response format may have guided them toward using one of the four primary categories. An

open-ended choice format that includes either all of the personality disorder categories or none of them enhances external validity.

Conclusions

The research by Cantor et al. (1980) is laudable for several reasons. Its most creative contribution is that it represents a good example of the application of ideas in one area of psychology to other areas. The prototype model originally was used in cognitive psychology to advance knowledge about the categorization of objects. Its successful application to the personality and clinical areas suggests that there is great value to clinical psychologists being familiar with basic content areas in psychology.

The study has also been used as a cornerstone in the development of a theoretical model for understanding diagnosis (Cantor and Genero, 1986). This model may be examined empirically, refined, and used to further understanding. Hopefully, the present study is a good example of an empirical examination of the model.

Finally, the work done by Cantor et al. has practical value for clinical psychology. Its attribute listing methodology should be helpful in refining the DSM-III categories. Diagnostician training can take into account the variables that lead to accurate diagnosis, and

encourage diagnosticians to defer diagnosis, or to use mixed or multiple diagnosis when patients fail to easily fit categories.

The present study is not offered as a refutation of the work of Cantor et al. The frequent reference to this work in the literature assures that it will remain the seminal pioneering effort in this research area. Instead, the present study is offered as an expansion and refinement of the ideas expressed in this earlier work. As such, it hopefully represents the spirit of progress in science in general, and psychology in particular.

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APPENDIX A

Solicitation Letter

THE UNIVERSITY OF NORTH CAROLINA
AT GREENSBORO

Department of Psychology

My name is Ron Boykin. I am a Licensed Psychological Associate, and a candidate for the Ph.D. degree in clinical psychology here at UNC-Greensboro. I am writing to ask if you would be willing to serve as a subject in my dissertation research. The study deals with diagnosing personality disorders. It is designed to take less than one hour of your time and, because the materials can be mailed to you, can be completed at home. This project is being supervised by J.W. White, Ph.D., and has been endorsed by our department's Human Subjects Review Committee.

Practicing Clinical Psychologists who have been permanently licensed for at least three years, and whose current professional activities include diagnosing personality disorders, are being asked to participate. If you agree to participate, you will receive a packet containing information about several hypothetical individuals. After you have read and thought about each individual, you will be asked to provide some of your diagnostic impressions of him or her. The study is <u>not</u> designed as a test of your knowledge or a reflection of your clinical ability. Rather, it is designed to reflect your opinions and preferences, based on your own clinical experience.

I and my dissertation committee believe this study will yield valuable information, both practically and theoretically. It has implications for the training of diagnosticians and the further development of formal diagnostic systems. Theoretically, it will help us understand person categorization in general, better. Ultimately, we believe our work will help to enhance the informational value of diagnosis, through the use of information from experienced clinicians like yourself.

For your convenience in replying, I enclose a self-addressed, stamped postcard. Thank you for your consideration.

Sincerely,

Ron Boykin, M.A.

Ron Boykin, M.A.
Graduate Student

J.W. White

J.W. White, Ph.D.
Associate Professor

APPENDIX B

Complete Set of Materials for Subjects: Cover Letter, Instructions, Personality Profiles, and Attribute Listing Sheet

THE UNIVERSITY OF NORTH CAROLINA
AT GREENSBORO

Department of Psychology

Thank you very much for agreeing to participate in my dissertation research project. This study is designed to take less than one hour of your time to complete, and may be completed away from your office if you prefer.

This project is being supervised by J. W. White, Ph. D., and has been endorsed by our department's Human Subjects Review Committee. It meets all of the ethical guidelines for research using human subjects, of the American Psychological Association. No discomfort or risk is involved, and there is no misinformation. Your participation will be kept strictly confidential. Your responses in the study will be identified only by a special code number, thus assuring your anonymity.

After all participants have returned their responses, you will receive a complete debriefing statement, informing you fully about the nature of the study. If you would like, I will also send you information about the results of the study as soon as they are available.

If, at any time, you have any further questions regarding the procedures of this study, feel free to telephone me collect at (919) 334-5013. Our receptionist will not accept the charges; however, she will write down your name and leave a message in my mailbox. I will return your call as soon as I can.

Please read, then sign and date the enclosed consent form before beginning the study. Complete the entire study uninterrupted if possible. Then return all materials except this letter in the self-addressed, stamped envelope (if at all possible, try to complete the study within one week of receiving it).

This project will help us understand person categorization in general, and diagnosis in particular, better. I appreciate your taking part in it.

Sincerely,

Ron Boykin
Doctoral Candidate

INSTRUCTIONS

1. On the next page you will see a summary description of an individual. Please read the entire description; then think about an individual who would be described in that way.

2. Below the description you will see a list of categories. Please decide which category you feel fits the description best. Place a checkmark beside that category in the blank space labelled "FIRST choice."

3. After you have made your first choice of categories, please indicate how well you feel the person described fits into the category you have chosen. (Individuals often vary in terms of how well they are thought to exemplify categories. For example, an individual who fits a category very well is referred to as a "classic" example of that category. On the other hand, an individual who fits a category very poorly is considered an "atypical" example of that category.) Circle one number from 1 through 7 beside the category name. High numbers indicate good fits between the person and the category; low numbers indicate poor fits.

4. After you have completed the steps above for the category you feel best fits the description, please indicate which category provides the next best fit. Place a checkmark beside that category in the blank labelled "SECOND choice." Then provide a typicality rating (goodness of fit) for that category. (The number you circle beside your second choice should not be a higher number than the one you circled beside your first choice.)

5. Use the "Comments" section to clarify any choices you make which might be misunderstood (e. g., if you use one of the "Other" categories to specify a concept which does not directly refer to one or more specific personality styles). In your comments, please be as specific as you can concerning personality style(s) and typicality.

6. When you have completed your choices for the first case, please turn the page to the next case. Complete the above steps for this, and each subsequent, case.

POINTS TO REMEMBER:

1. Assume that all of the individuals described are adults. Also assume that all of the attributes in each description are characteristic of the individual's current and long-term functioning; that they are inflexible and maladaptive; that they are not limited to episodes of illness; and that they cause either significant impairment in social or occupational functioning or subjective distress.

2. Don't spend too much time on any one case. In a previous study similar to this one, clinicians spent a maximum of two minutes per case. Use this as a general guideline to complete the study in under one hour. Also, please do not return to a case once you have begun working on the next one. Complete all cases, in order.

3. Please keep in mind that this is not a test of your clinical abilities; rather, it is a survey of your preferences, based on your own experiences. We are interested in how you think about the individuals described and categories of personality disorder. Therefore, we ask that you not consult any outside sources of information such as diagnostic manuals, texts, notes, or colleagues, in completing the study.

THANK YOU AGAIN FOR PARTICIPATING IN THIS STUDY. PLEASE TURN THE PAGE AND BEGIN.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, Shared, Central)

> This individual is egocentric. He or she flouts rules and conventional authority. He or she is unreliable. He or she fails to learn from experience, and exhibits a self-defeating cycle of behaviors. He or she is selfish. He or she is manipulative.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
_____	_____	Antisocial	7 6 5 4 3 2 1
_____	_____	Borderline	7 6 5 4 3 2 1
_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, Shared, Peripheral)

> This individual is haughty and arrogant. He or she is highly independent. He or she interprets minor slights as major insults. He or she is uncomfortable when alone for more than brief periods of time. The individual relies on him- or herself, rather than on the opinions of others, for self-esteem. He or she fears loss of self-determination.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Borderline	7 6 5 4 3 2 1
_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, Distinct, Central)

> This individual shows disregard for the consequences of his or her actions. He or she is irresponsible. He or she fails to accept and adopt social norms. He or she exhibits unlawful behavior. He or she lacks guilt. He or she shows disregard for the feelings of others.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, Distinct, Peripheral)

This individual is vindictive. He or she lacks anxiety. He or she makes suicide attempts. The individual proudly displays his or her achievements. He or she exhibits pride in self-reliance and independence. He or she exhibits intense and persistent anger.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, 50/50, All Central)

> The individual is egocentric. He or she fails to accept and adopt social norms. He or she is manipulative. He or she fails to learn from experience, and exhibits a self-defeating cycle of behaviors. He or she lacks guilt. He or she is irresponsible.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, 50/50, All Peripheral)

This individual exhibits pride in self-reliance and independence. He or she is vindictive. The individual relies on him- or herself, rather than on the opinions of others, for self-esteem. He or she lacks anxiety. He or she is highly independent. He or she fears loss of self-determination.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle <u>one</u> number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, 50/50, Distinctives Central)

> This individual is haughty and arrogant. He or she exhibits unlawful behavior. He or she interprets minor slights as major insults. He or she is uncomfortable when alone for more than brief periods of time. This individual shows disregard for the consequences of his or her actions. He or she shows disregard for the feelings of others.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)						
_____	_____	Antisocial	7	6	5	4	3	2	1
_____	_____	Borderline	7	6	5	4	3	2	1
_____	_____	Histrionic	7	6	5	4	3	2	1
_____	_____	Narcissistic	7	6	5	4	3	2	1
_____		Other (specify)							
		_____	7	6	5	4	3	2	1
	_____	Other (specify)							
		_____	7	6	5	4	3	2	1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Antisocial, 50/50, Shareds Central)

This individual is selfish. He or she flouts rules and conventional authority. This individual proudly displays his or her achievements. He or she is unreliable. He or she makes suicide attempts. He or she displays intense and persistent anger.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)						
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_____	_____	Borderline	7	6	5	4	3	2	1
_____	_____	Histrionic	7	6	5	4	3	2	1
_____	_____	Narcissistic	7	6	5	4	3	2	1
_____		Other (specify)							
		_____	7	6	5	4	3	2	1
	_____	Other (specify)							
		_____	7	6	5	4	3	2	1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, Shared, Central)

This individual shows a marked disturbance of self-identity, and confusion about his or her self-concept. He or she is impulsive. He or she is demanding. He or she displays intense, irrational, inappropriate anger. He or she shows impaired reality testing under stress. He or she is involved in unstable interpersonal relationships.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, Shared, Peripheral)

> This individual is pessimistic. He or she is depressed. He or she is petulant and contrary. He or she is anhedonic, unable to experience pleasure. He or she is easily bored. This individual is self-effacing, and devalues his or her self-worth.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle <u>one</u> number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, Distinct, Central)

This individual is frequently overwhelmed by intense affect, either hostility or depression. This individual is unable to control his or her anger. He or she experiences mixed, conflicting feelings. This individual feels conflicting emotions of love, anger, and guilt towards those upon whom he or she depends. He or she fears, and reacts strongly to, actual or imminent abandonment. He or she reacts intensely to separation from others.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, Distinct, Peripheral)

This individual's shame regarding dependency on others is expressed as hostility toward him- or herself. This individual is uncertain of his or her sexual identity. He or she feels guilty for past attempts at self-assertion and independence. He or she appears self-sacrificing to avoid separation from others. He or she rarely accepts responsibilities. He or she exhibits irregular energy levels, which are unrelated to external events.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
_____	_____	Antisocial	7 6 5 4 3 2 1
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_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, 50/50, All Central)

This individual experiences mixed, conflicting feelings. He or she is frequently overwhelmed by intense affect, either hostility or depression. He or she is impulsive. He or she reacts intensely to separation from others. He or she is involved in unstable interpersonal relationships. He or she shows impaired reality testing under stress.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
_____	_____	Antisocial	7 6 5 4 3 2 1
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_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, 50/50, All Peripheral)

This individual is depressed. He or she feels guilty for past attempts at self-assertion and independence. This individual is self-effacing, and devalues his or her self-worth. He or she is petulant and contrary. This individual is uncertain of his or her sexual identity. This individual's shame regarding dependency on others is expressed as hostility toward him- or herself.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
_____	_____	Antisocial	7 6 5 4 3 2 1
_____	_____	Borderline	7 6 5 4 3 2 1
_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, 50/50, Distinctives Central)

> This individual is pessimistic. This individual is unable to control his or her anger. He or she is easily bored. He or she is anhedonic, unable to experience pleasure. This individual feels conflicting emotions of love, anger, and guilt towards those upon whom he or she depends. He or she fears, and reacts strongly to, actual or imminent abandonment.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Borderline	7 6 5 4 3 2 1
_____	_____	Histrionic	7 6 5 4 3 2 1
_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Borderline, 50/50, Shareds Central)

This individual exhibits irregular energy levels, which are unrelated to external events. This individual shows a marked disturbance of self-identity, and confusion about his or her self-concept. He or she is demanding. He or she displays intense, irrational, inappropriate anger. He or she rarely accepts responsibilities. He or she appears self-sacrificing to avoid separation from others.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, Shared, Central)

> This individual is demanding. He or she is exhibitionistic. He or she becomes involved in shallow, frivolous, and fleeting relationships. This individual incessantly draws attention to him- or herself, and is attention-seeking. He or she is emotionally shallow. He or she is manipulative.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle <u>one</u> number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____	_____	Narcissistic	7 6 5 4 3 2 1
_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, Shared, Peripheral)

This individual shows impaired reality testing under stress. He or she is incapable of being loyal. He or she is submissive. He or she is stubborn and obstinate. His or her thoughts are superficial and fragmented. He or she exhibits extraordinary sensitivity to the thoughts and moods of others.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, Distinct, Central)

This individual exhibits fleeting and superficial displays of affection. He or she displays labile emotionality. He or she is overly dramatic and theatrical. He or she is impressionable and suggestible. He or she interprets indifference as rejection. He or she is vain.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, Distinct, Peripheral)

This individual rarely vents his or her hostility. He or she is excessively trusting. He or she is dissatisfied with single attachments. He or she is creative and imaginative. He or she experiences cyclical swings in mood, between euphoria and hopelessness. He or she experiences strong feelings of aggression.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, 50/50, All Central)

> This individual displays labile emotionality. He or she is manipulative. He or she exhibits fleeting and superficial displays of affection. This individual incessantly draws attention to him- or herself, and is attention-seeking. He or she is vain. He or she is emotionally shallow.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, 50/50, All Peripheral)

This individual is excessively trusting. He or she is stubborn and obstinate. He or she is incapable of being loyal. He or she experiences strong feelings of aggression. His or her thoughts are superficial and fragmented. He or she is dissatisfied with single attachments.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

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_____	_____	Antisocial	7	6	5	4	3	2	1
_____	_____	Borderline	7	6	5	4	3	2	1
_____	_____	Histrionic	7	6	5	4	3	2	1
_____	_____	Narcissistic	7	6	5	4	3	2	1
_____		Other (specify)							
		_____	7	6	5	4	3	2	1
	_____	Other (specify)							
		_____	7	6	5	4	3	2	1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, 50/50, Distinctives Central)

This individual interprets indifference as rejection. He or she is overly dramatic and theatrical. He or she is impressionable and suggestible. He or she displays extraordinary sensitivity to the thoughts and moods of others. He or she is submissive. He or she shows impaired reality testing under stress.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Histrionic, 50/50, Shareds Central)

> This individual is exhibitionistic. He or she experiences cyclical swings in mood, between euphoria and hopelessness. He or she is demanding. This individual rarely vents his or her hostility. He or she becomes involved in shallow, frivolous, and fleeting relationships. He or she is creative and imaginative.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

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	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, Shared, Central)

> This individual wants constant attention and admiration. He or she lacks empathy. He or she is hypersensitive to real or imagined criticism. He or she has a grandiose sense of self-importance. He or she is selfish. He or she is egocentric.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, Shared, Peripheral)

This individual is prone to brief psychotic episodes during periods of extreme stress. He or she is highly independent. He or she is depressed. This individual relies on him- or herself for security and contentment. He or she is self-conscious. He or she is energetic.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, Distinct, Central)

> This individual's relations with others lack sustained positive regard. This individual is preoccupied with how well he or she is regarded by others. He or she has fragile self-esteem. He or she exhibits entitlement, expects special favors, and believes that he or she is entitled to unusual rights and privileges. He or she experiences feelings of rage in response to criticism, defeat, or the indifference of others, and has a tendency to rage. He or she is concerned with grooming and appearance.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle <u>one</u> number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

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		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, Distinct, Peripheral)

This individual pursues goals with a "driven", pleasureless quality. He or she exhibits an air of nonchalance and imperturbability, and is confident that matters will work out. He or she is calm and self-assured. He or she readily assumes the role of leader. He or she experiences feelings of unreality. He or she is optimistic.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

FIRST choice ↓	SECOND choice ↓	CATEGORY ↓	TYPICALITY RATING (how well person described fits category chosen; 7=best fit or "classic" example, 1=poorest fit or most "atypical" example)
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_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, 50/50, All Central)

> This individual exhibits entitlement, expects special favors, and believes that he or she is entitled to unusual rights and privileges. He or she is selfish. He or she lacks empathy. His or her relations with others lack sustained positive regard. This individual is preoccupied with how well he or she is regarded by others. He or she is egocentric.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle <u>one</u> number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

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	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, 50/50, All Peripheral)

This individual relies on him- or herself for security and contentment. He or she pursues goals with a "driven," pleasureless quality. He or she is depressed. He or she readily assumes the role of leader. He or she is calm and self-assured. He or she is energetic.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

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		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, 50/50, Distinctives Central)

This individual experiences feelings of rage in response to criticism, defeat, or the indifference of others, and has a tendency to rage. He or she has fragile self-esteem. He or she is concerned with grooming and appearance. He or she is highly independent. He or she is prone to brief psychotic episodes during periods of extreme stress. He or she is self-conscious.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle one number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

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	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

PLEASE THINK ABOUT AN INDIVIDUAL WHO IS DESCRIBED IN THE FOLLOWING WAY:

(Narcissistic, 50/50, Shareds Central)

This individual is hypersensitive to real or imagined criticism. He or she experiences feelings of unreality. He or she wants constant attention and admiration. He or she is optimistic. He or she has a grandiose sense of self-importance. He or she displays an air of nonchalance and imperturbability and confidence that matters will work out.

Please check (✓) the appropriate blank space(s) to the left of the category or categories you choose. Circle <u>one</u> number to the right of each category you choose. Clarify any choices which might be misunderstood (e. g., in the "Other" categories), in the "Comments" section.

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_____		Other (specify)	
		_____	7 6 5 4 3 2 1
	_____	Other (specify)	
		_____	7 6 5 4 3 2 1

Comments (optional):

WHEN YOU HAVE COMPLETED YOUR CHOICES FOR THIS CASE, PLEASE TURN THE PAGE.

REFER BACK TO THE LAST DESCRIPTION IN THE STUDY, WHICH YOU JUST COMPLETED, IN ORDER TO ANSWER THE FOLLOWING QUESTION:

Which attribute(s) in the description were important to you in making your first choice of categories? Please list the attribute(s) in the blank(s) below. If you list more than one attribute, please list them in order of their importance to you, beginning with the most important attribute. Then circle one number from 1 through 5 beside each attribute you list, to indicate how important that attribute was to you in making your first choice of categories (high numbers indicate a great deal of importance, while low numbers indicate mild importance).

ATTRIBUTE	DEGREE OF IMPORTANCE				
	very				mild
_____	5	4	3	2	1
_____	5	4	3	2	1
_____	5	4	3	2	1
_____	5	4	3	2	1
_____	5	4	3	2	1
_____	5	4	3	2	1

\- - - - -

THANK YOU FOR PARTICIPATING IN THE STUDY. PLEASE PROVIDE THE FOLLOWING INFORMATION ABOUT YOURSELF:

Age: _____

Primary setting in which you practice (circle one): Private practice
Community mental health center Hospital University
Other (specify) _____

Degree: Ph. D. Ed. D. Year received: _____

Year first licensed as Practicing Psychologist (any state), approximate:
_____

Number of years of clinical experience involving diagnosing personality disorders, approximate:
_____

Number of cases you have assessed for personality disorder in the last six months, approximate:
_____

APPENDIX C

Average Attribute Prototypicality by Diagnosis, For Levels of Independent Variables

Average Attribute Prototypicality by Diagnosis,

For Levels of Independent Variables

		DISTINCTIVE	SHARED
	HIGH ==>	6.05	5.94
BORDERLINE	Prototypicality		
	LOW ==>	4.21	4.15
	HIGH ==>	5.84	5.82
NARCISSISTIC	Prototypicality		
	LOW ==>	3.54	3.53
	HIGH ==>	6.00	6.02
ANTISOCIAL	Prototypicality		
	LOW ==>	3.89	3.91
	HIGH ==>	5.72	5.58
HISTRIONIC	Prototypicality		
	LOW ==>	3.63	3.71