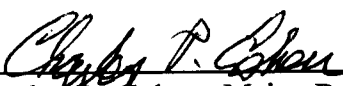
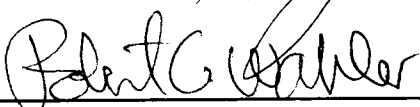
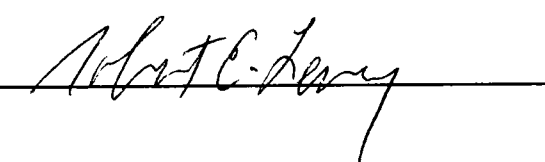


To the Graduate Council:

I am submitting herewith a dissertation written by Eric Glenn Carbone entitled "Cognitive Style Differences Between Histrionic and Obsessive Personality Types." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Psychology.


Charles P. Cohen, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:


Associate Vice Chancellor
and Dean of The Graduate School

COGNITIVE STYLE DIFFERENCES BETWEEN
HISTRIONIC AND OBSESSIVE PERSONALITY TYPES

A Dissertation

Presented for the
Doctor of Philosophy
Degree

The University of Tennessee, Knoxville

Eric Glenn Carbone

August, 1994

DEDICATION

This dissertation is dedicated to my father

Saverio William Carbone

for stressing the importance of education and determination.

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ABSTRACT

Predicted differences in cognitive style between obsessive and histrionic personality types were tested. Subjects in each group were psychotherapy patients who had been diagnosed using Leary's measure of character structure. Each subject had also been administered the WAIS-R. Six subtests were expected to be useful in discriminating between the groups. A discriminant analysis of all eleven WAIS-R subtests was performed in order to determine which subtests would actually predict group membership, and to what extent. At the end of the analysis, four of the six predicted subtests remained in the model, along with two subtests that had not been expected to be included. The resultant discriminant function was successful at classifying almost 77% of cases correctly, which was significantly greater than chance. In general, the results are seen as supporting the hypothesized cognitive styles of obsessive and histrionic prototypes, as well as the heuristic use of WAIS-R subtest scatter in developing a comparative framework for studying personality.

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CHAPTER I

INTRODUCTION

Traditionally, clinical psychology has viewed cognitive functioning and personality as separate domains. To this day, psychological evaluations often reflect this dichotomy with separate sections describing the individual's "personality functioning" and "cognitive functioning." However, the research and clinical data accumulated thus far indicate that this is an artificial dichotomy, possibly a remnant of the distinct origins of intellectual assessment and personality theory. In more recent times, it has no longer appeared useful or valid for psychology to conceptualize cognitive functioning as separate and distinct from personality (Markus and Zajonc, 1985). In fact, behavior and personality appear closely intertwined with cognitive processes, possibly to the extent that, as Andrews and Moore (1991) put it, "The content of cognitions and the style of information processing largely make up a person's personality..." (p. 58). Cognitive style, in other words, is seen as a major element in this more integrated conceptualization of personality.

The view that cognitive style is intertwined with other aspects of personality is conspicuous in the work on development of prototypal models of personality classification, systems which combine some attributes of both dimensional and categorical systems in an attempt to improve on both (e.g., Cantor et al, 1980; Horowitz et al, 1981; Millon, 1984; Frances and Widiger, 1986). Prominent among

those currently working in this area, Andrews and Moore (1991) argue that there is a need for basic, empirical research to substantiate cognitive styles and utilize them in a systematic derivation of personality prototypes. To accomplish this, they have called for a comparative perspective, suggesting that polar contrasts between homogeneous groups will be helpful in delineating the cognitive functioning of prototypes.

It does not appear unreasonable to expect that any personality type would manifest certain characteristics of cognitive style which, taken as a whole, would set it apart from the others. Andrews and Moore (1991) argue that comparative research on cognitive style will eventually allow us to:

. . . develop a set of dimensions that can be used to describe and compare the cognitive styles of many sorts of individuals . . . [and] enable us to coordinate personality descriptions parsimoniously and to view each personality type in conceptual relation to every other. (pp. 60-61)

As a step towards these goals, the work that follows is an attempt to determine whether two personality types, obsessives and histrionics, can be differentiated on the basis of predicted contrasts in cognitive style. The problems of personality classification, background of the cognitive style and personality prototype concepts, and rationale for the instruments used in this project are discussed at length below.

Conceptual and Methodological Problems in Personality Classification

The endeavor to classify individuals has been of major concern to humans for a long time, and psychologists have been particularly interested in undertaking this basic scientific enterprise. Yet the classification of personality, and especially of

psychopathology, has been fraught with both philosophical as well as pragmatic difficulties. Bandura (1982) argued that the subject matter of personality is inherently inexact, possesses only moderate levels of intrinsic order, and is such that very small variations in context or antecedent conditions yield highly divergent consequences.

If so, then a key issue must be to what extent personality classification is even possible? This basic question has been addressed by authors such as Szasz (1957), Hempel (1965) and Meehl (1978). The basic ambiguities in psychological concepts are generally seen as impediments to all attempts at classification, but most authors conclude that pragmatically useful classification systems are still possible. Further, the classification of personality must assume at least a moderate level of stability of behavior. However, this assumption has been subject to extensive debate (see Mischel, 1968, 1975; Block, 1977; Epstein, 1977, 1983). The extent to which behavior is stable across time and situations is related to how effectively a classification system will allow for prediction. The fact that persons and situations interact complicates the classification endeavor.

Although infrequently mentioned, the concept of "levels" of personality is another issue in classification. Timothy Leary (1957) dealt with this by incorporating five levels into his interpersonal system of personality. As he stated, "The fact that behavior exists at more than one level of awareness has been intuitively recognized for centuries" (p. 75). His system includes separate levels for one's overt behavior as seen by self and by others, "unconscious" motivations and

fantasies, "character structure," and "ideal self." This particular arrangement may or may not be valid; as Leary stated, "We must assume no divinely instituted or platonically ideal number of personality divisions" (p. 76). Nonetheless, there are often discrepancies, for example, between one's self-perception and the perception of others. These discrepancies may be large, as has been demonstrated to often be the case with patients diagnosed with personality disorders (Sim and Romney, 1990). It was Leary's belief that a personality theory and classification system account for, or at least describe, such differences between self-perceptions and the perceptions of observers.

One of the purposes of most personality classification systems is the organization and prediction of behavior. Questions about whether prediction is necessary, helpful, or even possible have been raised frequently in the context of the free will-determinism debate. Holt (1984) discusses the free will controversy as it relates to prediction in personality theory, arguing that the situation is admittedly discouraging to hopes of building a scientific personology according to available models [but] brighter for the future--especially if we first recognize the need to put our metaphysical houses in order, root out the vestiges of animistic and mechanistic world hypotheses in our psychology, and set about consciously choosing or constructing a sounder philosophical foundation for our work. (p. 206)

Beyond this, the notion of "objectivity" in psychology that is implied by classification and prediction may be illusory (e.g. Sartre, 1956; van den Berg, 1961; Laing, 1965).

Moral objections to classification have also been made. Szasz (1970) has argued that psychiatric classification systems artificially construe "problems in living" as forms of "mental illness" and that these systems are used by society to control others or suppress unacceptable or unusual ideas. A somewhat different criticism is made with respect to the personality disorders, which are not usually classified as forms of mental illness per se (Lewis, 1974). Gunn and Robertson (1976) assert that these personality "disorder" labels are essentially "derogatory moral judgments" and have little scientific value.

An important methodological difficulty is that classification systems traditionally assume that what is not class relevant is inconsequential. The dilemma is that we are never certain what is inconsequential, and this is the heart of the idiographic versus nomothetic controversy in diagnosis (Zigler and Phillips, 1961; Pervin, 1990). Nonetheless, the idiographic approach may be viewed as an impetus towards more meaningful classification systems, rather than a stand against all classification in psychology.

From both conceptual and methodological viewpoints, the classification of personality and psychopathology poses special problems not encountered in other fields. Millon (1990) contrasts the classification endeavor in medicine with the classification of psychopathology. In medicine, the logic of classifying bodily disorders is generally clear. The bodily changes resulting from infectious diseases, for example, repeatedly display themselves in a generally uniform pattern that "makes sense" in terms of how anatomy and physiology are altered and dysfunction.

These biological changes provide the basis not only for identifying the etiology of these disorders, but also for anticipating their course and prognosis. As Millon points out, bodily diseases usually demonstrate a clear, consistent relationship between clusters of symptoms and etiology. This is not the case with psychopathology, since symptoms or behaviors are linked to a diverse assortment of unobserved processes and mental constructs, depending on one's particular paradigm of personality. With respect to psychopathology, therefore, we traditionally have had to choose between Kraepelinian classification systems based on description of symptoms or classifications based on presumed etiology.

The Issue of Dimensions versus Categories

Millon (1990) points out that a crucial issue separating medical and psychological traditions is that of categorical versus dimensional analysis. Psychology has attempted to understand its subject matter by quantitative methods of dimensional analysis, relying on trait magnitudes, intelligence measures, aptitude levels, and so forth. Medicine, on the other hand, has progressed by increasing its accuracy in identifying and categorizing discrete "disease" entities. These two different approaches point out a question for the personality field: should personality, "normal" or otherwise, be conceived and organized as a series of dimensional traits that combine to form a unique profile for each individual, or should certain central characteristics be selected to exemplify and categorize personality "types" found commonly in normal and clinical populations?

Dimensional models have certain advantages. First, they combine several personality traits or clinical features into a single profile. Further, dimensional trait profiles permit the inclusion of atypical cases, whereas in typologies, uncommon or "mixed" conditions do not fit the prescribed categories. Dimensional systems emphasize individuality, while categorical typologies sometimes force individuals into categories to which they do not belong. Finally, dimensional traits may be gauged quantitatively, allowing normality and abnormality to be placed on a continuous spectrum rather than conceived as separable and distinct phenomena.

Despite the apparent advantages, dimensional systems have not taken hold in the actual classification of normal personality or the psychopathology as usually practiced. Many complications and limitations of these systems have been noted, not the least of which is the fact that there is little agreement among theorists concerning the number of traits necessary to represent personality. For example, Menninger (1963) argued for a single dimension; Leary (1957) and Wiggins (1973) utilized two; Eysenck (1960) believed that three were needed; Buss and Plomin (1975) theorized four, and Cattell (1965) claims to have identified as many as 35 while stressing that more exist. Currently there is a revived interest in the five factor model based on the natural language of personality description (Tupes and Christal, 1961; Norman, 1963; Goldberg, 1981; McCrae and Costa, 1985; and others). As Millon put it,

Theorists appear to invent dimensions in accord with their expectations rather than 'discovering' them as if they were intrinsic to nature, merely awaiting scientific detection. The number of traits required to assess personality is not determined by the ability of our research to disclose

some inherent truth, but rather by our predilections for conceiving and organizing our observations. (p.348)

Another difficulty with describing personality according to dimensions is that systems utilizing more than a few traits produce complicated patterns that are represented geometrically or algebraically and are of minimal practical use. These complex representations must be grouped into categories if they are to be useful. Thus, even though the original format may have been dimensional, those who are grouped according to such systems are invariably viewed as constituting "types."

According to Millon (1990), categorical typologies have retained their popularity over dimensional systems for this very reason: they are easily used, especially by clinicians who must make relatively rapid diagnoses with large numbers of patients. Further, whereas dimensional schemes divide personality into separate and uncoordinated traits, categorical typologies stress the unity of personality by integrating diverse elements into a single syndrome. Assignment of an individual to a type or category is often useful because it alerts the clinician or researcher to as-of-yet unobserved but frequently correlated behaviors.

Despite their continued prominence in the clinical field, strong objections have been raised to the use of categorical typologies. For one, they contribute to the fallacious belief that psychopathological syndromes are discrete entities, even "diseases," when in fact they are concepts that help focus and coordinate observations. This is misleading and contributes to stereotyping and unnecessary classification dilemmas (Cantor and Genero, 1986). Further, categories give primacy to a few characteristics at the exclusion of others, and the number and

diversity of categories are far less than the individual differences observed in clinical work. It is easy to see why clinicians often claim that the better they know a patient, the more difficulty they have in assigning him or her into a single category. Finally, a criticism which has been directed toward dimensional systems is also relevant to categorical typologies: namely, the sheer number and diversity of systems that have been proposed in this century alone.

Cattell (1970) argued that the issue of choosing between categorical types and dimensional traits is naive and illusory, since they are "face and obverse of the same descriptive system" (p. 40). The primary distinction between these approaches is the degree of comprehensiveness. Personality types are essentially higher-order syntheses of lower-order dimensional traits; types therefore have greater generality but lower specificity than traits. As we have already seen, each approach has its advantages and also its drawbacks.

Personality Prototypes

A more recent, potentially useful approach to personality classification which combines some of the attributes of both categorical and dimensional schemes is the prototype model. Horowitz, Post, French, and Siegelman (1981) describe the concept of the prototype as follows:

A prototype consists of the most common features or properties of members of a category and thus describes a theoretical ideal or standard against which real people can be evaluated. All of the prototype's properties are assumed to characterize at least some members of the category, but no one property is necessary or sufficient for membership in the category. Therefore, it is possible

that no actual person would match the theoretical prototype perfectly. Instead, different people would approximate it to different degrees. The more closely a person approximates the ideal, the more the person typifies the concept. (p. 575)

Mischel (1984) has argued for the usefulness of the prototypal approach in that it recognizes the "fuzzy" nature of natural categories. In this approach, category knowledge about both persons and situations is represented by a loose set of features that are correlated to varying degrees with membership in that category. The approach implies that categorization decisions are probabilistic and that members of a category vary in their degree of membership. The "fuzzy sets" that result are studied by seeking the best exemplars (most prototypic members) while omitting cases that do not fit as well. This prototypical approach lends itself to the construction of orderly taxonomies containing categories at different levels of inclusiveness or abstraction.

The traditional approach to personality categorization depends on identifying either singly necessary or jointly sufficient features. In contrast, the prototypal approach requires only that sets be comprised of correlated features. As Cantor, Smith, French, and Mezzich (1980) point out, prototypes "permit extensive heterogeneity of category instances. Thus, one instance may contain most of the correlated features of the prototype and another may contain hardly any at all" (p. 184). This diversity of correlated traits and symptoms gives the prototypal approach many of the positive attributes associated with the dimensional approach, as both approaches allow for heterogeneity among similarly classified individuals.

Frances and Widiger (1986) elaborate the advantages to be gained by utilizing a prototype format, especially as applied to personality disorders. They stress that measures of "prototypicality" may be established for each patient. In addition, the prototype approach allows for weighting of symptoms or traits to account for the fact that some are more important to a particular diagnosis than others. Variants of the prototypal approach have been elaborated. These include Skinner's (1986) "class-quantitative" approach, Livesley's (1986a, 1986b) prototype schema, and Millon's (1984, 1986) "prototypal domain traits." It appears that the prototype concept allows for the specification and use of categorical attributes while permitting the diversity and heterogeneity of a dimensional approach.

Definition of Cognitive Style

Goldstein and Blackman (1978) state that the construct cognitive style was developed to explain the process of mediation between stimuli and responses. They define cognitive style as "the characteristic ways in which individuals conceptually organize the environment" (p. 2). Forgas and Shulman (1979) describe cognitive style theory as "another way of talking about the hierarchical organization of personality" which "tries to explain both structure and dynamics." They define cognitive style as being:

a perceptual organization which includes instructions about an individual's self-concept, world view, typical instrumental responses, and ideals. It defines his mode and accuracy of perception, his style of thinking, his goal-directed behavior, his personal belief and myth system, and the focus of his attention. (p. 155)

Traditional Approaches to Cognitive Style

Theory and research on cognitive style may be traced as far back as Wulf's (1922) work on perceptual memory. Wolf developed the terms "levelers" and "sharpeners" to describe subjects' tendencies either to minimize the difference between figural elements or to accentuate them. Hebb and Foord (1945) demonstrated that these modifications result from active memory selection and elaboration. The notion of levelers and sharpeners was the first approach to the study of cognitive style, and later studies would relate these perceptual tendencies to personality. The work of Holzman and Gardner (1960) is generally considered the most important early work in this area.

A second approach to cognitive style was pioneered by George Klein (1954), whose ideas were conceived in the framework of psychoanalytic ego psychology. Klein introduced the term "cognitive control" to describe a hypothetical construct that directs the expression of need in socially acceptable ways, similar to Freud's idea of the ego managing the id impulses. His work distinguished between constricted and flexible control. Klein initially used the term "perceptual attitudes," later replacing this with "cognitive attitudes" and finally "cognitive controls" to emphasize that a delaying, controlling function was involved. Klein (1959) is also the originator of the term cognitive style.

Another approach to cognitive style involved the study of attention through the tracking of eye scanning patterns. In this study, Gardner and Long (1962) reported a difference in the eye scan patterns of individuals viewing a stimulus. Some

individuals were found to be "extensive scanners" while others are "narrow scanners. Research indicated that extensive scanners have more frequent shifts while scanning, scan more of the field, and are more accurate in estimating dimensions. Extensive scanners were also found to be more accurate in the discrimination of other types of information, such as understanding the behavior of others. They also coped with anxiety more effectively, presumably because they process information more accurately.

Meanwhile, Witkin (1962) described another approach to cognitive style, psychological differentiation. He reported that subjects differed with respect to their reliance on visual and bodily cues in the judgment of the vertical dimension. While visual cues were more often used, some subjects used bodily cues as well. These more differentiated subjects were referred to as field-independent, the others as field dependent. Field-independent individuals are more accurate and adaptive in their perceptions, tend to be more analytical, and have a wider frame of reference. Further work by Witkin (1976) demonstrated a variety of personality correlates of this style.

The concept of underlying cognitive style was also studied in relation to tolerance and intolerance for ambiguity. For example, the work on authoritarian personality led to the notion that some individuals have a structure or style of thinking which makes them more susceptible to authoritarian ideas and behaviors (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950). Rokeach's (1960) work on dogmatism differentiated between open-minded versus closed-minded individuals.

Rokeach and Kliejunas (1972) pointed out later that situational factors interact with cognitive style to determine behavior, though cognitive style itself is seen as a relatively enduring quality.

Yet another approach to cognitive style was the idea of cognitive consistency, which derives from Heider's (1958) cognitive balance theory. According to this theory, cognitive balance occurs when there is congruence between expectancy and outcomes. This notion bears some resemblance to Festinger's (1957) theory of cognitive dissonance. Since individuals vary according to where and when they perceive dissonance (Aronson, 1972), cognitive consistency may be considered a cognitive style variable.

Locus of control (Rotter, 1966) is also considered a cognitive style variable. This is because it is seen as related not only to attribution, but also to "category width." Category width refers to the range in which individuals consider events likely to occur (Pettigrew, 1958). As opposed to externals, internally-oriented individuals have greater breadth of categories in their repertoire of expectancies. Numerous studies have related internal-external locus of control with various aspects of personality.

Other variables or approaches to cognitive style have included tolerance/intolerance for unrealistic experiences (Klein, Gardner, and Schlesinger, 1962) measured by perception of movement in the phi phenomenon; conceptual differentiation (Gardner, 1953); constricted-flexible control (Smith and Klein, 1953); contrast reactivity (Gardner, Lohrenz, and Schoen, 1968); conceptual style (Kagan,

Moss, and Sigel, 1963); and reflection-impulsivity (Kagan, Rosman, Day, Albert, and Phillips (1964).

Cognitive Style, Cognitive Schemata, and Psychoanalytic Theory

It should be noted that the distinction between cognitive style and cognitive controls was made early on. The former term was to refer to the specific dimensions or variables such as those discussed above while cognitive style was to refer to the organization of these dimensions within an individual (Gardner, Jackson, and Messick, 1960). This distinction was never well-adhered to in the literature, though this has become a moot point since more contemporary literature on the subject almost exclusively uses the term cognitive style. As currently used, it refers both to specific dimensions from the early literature, such as locus of control, as well as to an overall cognitive schemata which includes constructs such as expectancies, self-concept, and attributions. How an individual perceives events, focuses attention, processes information, organizes thoughts, and communicates reactions and ideas to others are all seen as closely related to cognitive style (Millon, 1990).

As already noted, Klein developed his ideas about cognitive style in a psychoanalytic framework, especially that of ego psychology (Hartmann, 1958). Drawing on these ideas, Shapiro (1965) gave a description of four "neurotic styles," including their preferred modes of defense as well as their cognitive styles. To Shapiro, cognitive and defensive styles are intertwined in the sense that each

"neurotic" personality type has developed both a style of thinking and a characteristic mode of regulating affect. The new perspective on "Freud's cognitive psychology" (Erdelyi, 1985) has led to more recent work on cognitive style by psychoanalytically-oriented theorists, such as Messer and Schacht's (1986) cognitive-dynamic theory of reflection-impulsivity and Horowitz's (1988) "new synthesis" of cognitive and psychodynamic theories.

Prototypes for the Hysterical and Obsessional Personalities

Some of the most recent attempts to describe psychiatric disorders illustrate the use of the prototype approach and the incorporation of cognitive style into the definition of personality. The histrionic/overconventional personality and the obsessional personality will be discussed from this perspective.

Andrews and Moore (1991) start with various related categories such as hysterical personality, histrionic personality disorder, overconventional personality, and approval-seeking personality, in their attempt at creating an internally coherent prototype of this personality style. They accept a continuum model, arguing that all personality styles may exist in adaptive or maladaptive form. Leary (1957) used the terms "leading" versus "dominating" to convey this same idea. In using the label "histrionic/overconventional," Andrews and Moore are referring to the two main streams of thought in the extensive literature relevant to this personality type. The first term refers to the psychoanalytic, categorical perspective (as well as the DSM label), while the second term reflects the interpersonal, continuum-based model

exemplified by Leary. It should be noted that both formulations are combined in recent work using circumplex models to analyze DSM-IIIr personality disorders (Kiesler, 1986; Wiggins, 1982).

Based on their review, Andrews and Moore (1991) delineate the five primary features of the histrionic/overconventional prototype: 1) gregariousness, 2) hostility denial, 3) histrionic, manipulative display, 4) psychosomatic symptomatology, and 5) diffuse, global cognitive style. While considerable research evidence supports each of these, only the last feature, the cognitive style, will be discussed here.

Cognitive Style of the Histrionic Personality

Shapiro (1965) formulated the classic statement on hysterical cognitive style. He states:

Hysterical cognition in general is global, relatively diffuse, and lacking in sharpness, particularly in sharp detail. In a word, it is impressionistic....the hysterical person tends to respond quickly and is highly susceptible to what is immediately impressive, striking, or merely obvious. (pp. 111-112)

Ortmeyer (1979) points out the adaptive aspects of this style, stating, "There is a fluidity of the mind, allowing relatively easy and often creative expressivity of imagery, dream life, and practical and concrete memories." He adds, however, that "complex living relatively easily overburdens conceptualizing in the hysterical adult, since concepts have not been developed in any great complexity" (p. 106).

On the cognitive style dimension of reflection-impulsivity, hysterics are seen as impulsive. As Moss, Thompson, and Nolte (1962) stated, "the hysteric has forsaken the world of reflection for impulsive action" p. 73).

In terms of general cognitive style and interpersonal relationships, Andrews (1984) writes:

The global perceptual style, the 'impressionistic' approach, facilitates the construction of conventionally idealized, oversimplified images of self and others. This style aids the hysteric in diverting attention away from displeasing realities, and helps maintain the pretense that everything in life is as 'nice' as it is supposed to be. (pp. 213-217)

A wide variety of research findings support these notions about the cognitive style of the hysteric. McMullen and Rogers (1984) selected college students on the basis of agreement with the prototypical statement that began, "Above all, I want pleasant relationships with other people. I know I will feel comfortable and at ease when I am well-liked. And most people are not hard to get along with. They simply want to feel that you like them" (p. 578). Individuals who agreed with this statement also scored significantly higher on the Comprehension subtest compared to both the Information and Vocabulary subtests of the Wechsler Adult Intelligence Scale (WAIS).

Hartlage and Tollison (1979) and Smokler and Sherrin (1979) found that MMPI-diagnosed and clinically diagnosed hysterics, respectively, have eye movement patterns indicative of right hemisphere dominance. Right hemisphere dominance is associated with high persuasibility (Sherrod, 1972), hypnotic susceptibility (Bakan, 1969), and diffuse, contextual thinking (Galin, 1974). Interestingly, Gur and Gur (1975) found that subjects with left-moving eye response patterns (right hemisphere dominant) scored higher on a defense cluster including repression and denial, while "right-movers" were more likely to engage in projection and turning against others.

A number of studies reported by Witkin et al (1962) demonstrated diagnosed hysterical personalities to be field dependent. More recently, Lawrence and Morton (1980) showed that hysterics identified by the MMPI were field dependent, as measured by the Embedded Figures Test. Magaro and Smith (1981) found association between external locus of control, field dependence, altruism, and extraversion. A great deal of research on field dependence has been conducted, much of which supports the hysteric prototype described. Examples that are particularly relevant here are the work of Birnbaum (1975), who found that field dependents recall more social aspects of a situation while field independents recall more task-related aspects; the finding by Oltman et al (1975) that field dependent subjects have better recall for names and pictures of faces, a finding not attributable to superior memory or learning ability; and the finding that field dependence is related to impulsivity (Loo and Townsend, 1977).

A recent study by Burgess (1992) found deficits in the neurocognitive functioning of "dramatic personalities" (histrionic, narcissistic, borderline, and antisocial). Specifically, personalities in this cluster demonstrated inferior performance relative to matched controls on tasks involving multi-step, multi-element associative operations. Though this study did not consider the hysterical personality as a single group, the findings would be consistent with their cognitive style.

After surveying the literature, Andrews and Moore (1991) concluded that:

The majority of clinical discussions and research studies of cognitive style present a consistent picture of information processing in the

histrionic/overconventional personality. First and most generally, the cognitive style of the histrionic/overconventional individual is diffuse and undifferentiated, impressionistic, field dependent, "right brain" or contextual, and relatively uncomplex. (p. 41)

Andrews and Moore also state that "the cognitive style qualities identified seem likely to support and reinforce the interpersonal and expressive style as a whole" (p. 43). This suggests agreement with Shapiro's (1965) conviction that cognitive style and characteristic style of defense or affect regulation are intertwined. Nonetheless, Andrews and Moore warn that there have been some puzzling and occasionally contradictory findings with respect to the cognitive style of this prototype, and they call for substantial further research.

With respect to determining and studying the cognitive style of personality prototypes, Andrews and Moore (1991) argue that comparison to the vaguely defined, overly heterogeneous reference groups such as "human beings in general" is insufficient. They stress the utility of invoking polar contrasts as well, and call for "a comparative framework for studying cognitive processing styles" (p. 59). In the spirit of this, we shall now consider the obsessive personality style.

Cognitive Style of the Obsessive Personality

Shapiro's (1965) discussion of the obsessive-compulsive style is one of the best analyses of the cognitive functioning of these individuals. Shapiro focuses on three primary aspects of the obsessive personality: 1) rigidity, 2) tense, driven activity and distortion of sense of autonomy, and 3) loss of reality through preoccupation with detail. The first and third aspects relate primarily to cognitive functioning.

By "rigidity," Shapiro refers to a lack of flexibility in attention. He states, "The most conspicuous characteristic of the obsessive-compulsive's attention is its intense, sharp focus. These people are not vague in their attention. They concentrate, and particularly do they concentrate on detail" (p. 27). Despite this sharpness, the attention of the obsessive is limited in the sense that it is unsuited "for the casual or immediate impression" (p.28). As a result, the obsessive will often "go after and get the facts - and will get them straight - but he will often miss those aspects of a situation that give it its flavor or its impact" (p.28). Hence, the obsessive is viewed as having an impairment of the normal volitional mobility of attention.

Shapiro describes the mode of activity of the obsessive as "driven," with the paradox that the obsessive is also the driver. The obsessive exerts continuous pressure on himself or herself, while at the same time suffering under the burden of this pressure. Shapiro suggests that this reflects a distortion of the normal function and experience of will or volition. Hence "the single most characteristic thought-content of obsessive-compulsive people: 'I should.'" (p. 34).

Obsessive individuals are often preoccupied with tasks or ideas that seem ridiculously trivial or even absurd to others. Shapiro links this to the obsessive's "loss of conviction," stating:

A sense of conviction about the world - a sense of truth, in other words - involves a breadth of attention, an interest in and sensitivity to the shadings and proportions of things, and a capacity for direct response to them for which the obsessive-compulsive person is not geared. Instead, he concerns himself with technical details, indicators, which he interprets according to authoritative rules and principles . . . he is characterized by . . . doubt and uncertainty, on the one hand, and dogma, on the other. (pp. 50-51)

According to Shapiro, this paradox makes sense since both doubt and dogma rely on narrow attention. This narrow attention allows the obsessive to avoid new information (it is only perceived as a potential distraction, anyway) and to feel satisfied with solutions so long as certain formal requirements are met. Meanwhile, facts that would be seen as contradictory to others are ignored. This narrow attention focus is also the cause of obsessive doubting: what would seem inconsequential to most people is often sufficient reason for the obsessive to form a drastically different perception of the total situation. It is also this mode of thinking which is expressed in the obsessive's ritual interests and behaviors.

Mollinger (1980) discussed the obsessive-compulsive style from a psychoanalytic point of view. He notes that the major defenses used by these individuals are undoing, isolation, and reaction formation, all of which involve opposites: contradictory acts following each other, keeping apart of ambivalent feelings, and transforming of wishes into their opposites. Likewise, the cognitive style is characterized by dichotomies: a sharply focused attention that misses the context and a "noninclusive all-inclusiveness."

Few empirical, data-based studies of the cognitive style of obsessives have been carried out. An early relevant finding is that obsessives are field independent, in contrast to the field dependence of the hysteric (Witkin, 1965). Reed's (1985) research on obsessive-compulsive disorder, an extreme version of the obsessional style, lends support to his theory that such individuals suffer from an impairment in the spontaneous organization and integration of experience, and try to compensate

by overstructuring, imposing rigidly defined categorical limits and time markers. As opposed to hysterics, obsessives have been found to be "under-inclusive" with respect to the cognitive variable category width on a variety of tasks (Reed, 1969a, 1969b). In other words, obsessives form and utilize categories and concepts that are "overprecise, rigid, and restricted" (Reed, 1991, p. 81). Later research (Turner, Newman, and Foa, 1983; Persons and Foa, 1984) also supports this notion.

Reed (1977b) found that obsessives perform better on structured tasks than on open-ended tasks, but no further studies seem to have been conducted to directly test this. However, the study cited above also found that obsessives scored significantly lower than matched controls on a timed, numerical series test, but the difference disappeared when subjects were allowed to continue in their own time.

Reed (1977a) also studied the memory of obsessives. He found that obsessives performed better on Digit Span, a test of immediate recall, than a mixed group of other personality disordered patients. However, the obsessives were not superior on Information, which taps, among other things, long-term memory. Limitations of the control group and the lack of other research led Reed to cautiously attribute the superior Digit Span score to a greater capacity for focused attention among obsessives, but he was unable to assert that obsessives have either deficient or superior storage or retrieval capacities. In a recent paper, Reed (1991) states, "It is possible that the uneasiness experienced by obsessionals in relation to memory [e.g. propensity for checking, uncertainty when expressing recollections] is due not so

much to how or what they remember but to the quality of the remembering itself" (p. 94).

Circumplex Models of Personality: Definition and Rationale

This project utilizes a component of Leary's system of personality assessment, which is a circumplex model of personality. Therefore, the rationale for circumplex models will be discussed. Circumplex models of personality utilize a circular arrangement of variables in a two-dimensional space. The logic of the general circumplex model was described by Guttman (1954) and later by Foa (1965).

Movement in one direction around a circumplex yields an increase in the dimension on the axis being approached and a decrease of the dimension on the axis behind.

One can move around a circumplex through opposite points and end up back at the starting place. The circle itself may be divided into geometric "slices" called

octants, which correspond to various "blends" of the two dimensions represented.

Octants that are adjacent to each other on the circle are more similar to each other than those that are more distant, both theoretically and empirically. The degree of correlation between octants should be a direct function of their distance from each other, with each octant being the dimensional obverse of its opposite on the circle.

The Leary System

Gurtman (1992) argues that the interpersonal circumplex provides a nomological net that is very useful in validating constructs and their measures. He attempts to

demonstrate this by subjecting multidimensional measures of dependency, empathy, and narcissism to interpersonal analysis. Leary (1956, 1957) used a circumplex model in his Interpersonal System of Personality Diagnosis. Leary's system is based heavily on Sullivan's theory of interpersonal psychology and uses the Interpersonal Check List as one of its measurement tools. The ICL was developed by Leary's colleagues (LaForge and Suczek, 1955) and modified until it met psychometric criteria for use in a circumplex system. Leary's circumplex system is defined by two orthogonal axis representing the dimensions of power (dominance versus submission) and affiliation (love versus hate). Based on the three facets of interpersonal behavior derived from Sullivanian theory (content: accept or reject; object: self or other; and mode: social or emotional), eight possible combinations or "interpersonal units" are possible. Within each of the eight octants of the circle, each corresponding to an interpersonal unit, the distance from the center of the circle to its perimeter represents the degree of intensity of that particular interpersonal "dynamism." A cumulative scoring technique is also used in which the eight units are viewed as vectors in two-dimensional space and, by computing a weighted sum of the vectors, a single point on the circle can be specified with respect to power and affiliation. This point serves as the "diagnosis" of interpersonal behavior in terms of the octant represented as well as the extremity (rigidity) of the behavior.

Within Leary's multilevel system, the ICL is used to derive an individual's diagnosis at the level of self-description (Level II) as well as the level of the "ideal

self" (Level V). The level of "reflexive interpersonal behavior," or overt behavior as seen by others, is measured by using an individual's t-scores on eight MMPI scales in a series of formulae. The level of "basic character structure" (Level III-MM) is also derived from the MMPI. In addition, a special coding system was also developed to score the TAT for use in deriving the level of "unconscious fantasy" (Level III). The innovative methods and scoring systems that Leary developed allowed the results obtained from these other instruments to be expressed on the circumplex model.

Character Style (Level III-MM)

Of special interest here is Leary's level of "underlying character structure." The III-MM variable differs from the rest of Leary's system in that it utilizes the Pd and Mf scales of the MMPI as the two axis in its derivation. This was based on the reasoning that these two scales are "characterological," as opposed to the other MMPI scales, which Leary viewed as "symptomatic" (with the exception of Pa, which he considered related to the level of self-description). The Pd scale taps a number of factors, including early trauma, feelings of deprivation, resentful rebellion, and disidentification with others. In moderate elevations, it may represent a healthy ability to distance oneself from others as well as self-confidence and a questioning stance towards authority. The Mf scale is seen as relating to passivity, capacity for empathy or sensitivity to others, and the ability to reflect on oneself (Graham, 1987). The factors tapped by both of these scales may, according to

Leary, "underlie any overt symptomatic adjustment." As with the other levels in his system, the results at Level III-MM are expressed in terms of a summary point in one of the eight octants.

In terms of the circumplex, the Mf and Pd axis are placed 45 degrees "off" from the Power (vertical) and Affiliation (horizontal) axes. For this reason, as well as the fact that the t-scores had to be transposed to be meaningful on the circumplex, Leary and colleagues developed two special grids for use in deriving the III-MM directly from a subject's Mf and Pd t-scores. There are separate grids for males and females because of the difference in direction of the Mf scale for males and females on the MMPI.

The III-MM variable has also been referred to as the level of "basic intentionality" (Cohen, White, & Schoolar, 1971). In Gestalt terms, The III-MM has been described as "the 'ground' from which public behavior emerges and becomes figural" and also as "the expressive aspects of behavior not consciously attended to by an individual" (Cohen, Johnson, and Hanson, 1971, p. 473). More recently, the term "character style" has been used instead of Leary's term "character structure" to avoid the implication of a highly fixed, spatial-temporal construct (Carbone & Cohen, 1993). This term also reflects a more integrated view of personality and cognitive style features. Research by Warren (1977) validated the use of the III-MM as a measure of subjects' approach to their environment. In a large-N study by Carbone and Cohen (1993), the III-MM successfully predicted differences in length of psychotherapy between "dominant" and "submissive"

character styles represented on Leary's circumplex. In addition, they demonstrated that neither the Mf nor the Pd scale co-varied with the length of treatment.

Correlation between Mf and Pd t-scores, respectively, with sessions of therapy were found to be .06 and .03, NS). Thus, the authors concluded that it was the unique combination of the two scales forming the III-MM which was predictive.

An issue that has yet to be studied regarding the III-MM concerns the stability of the Mf and Pd scales over time. Since these scales are used to derive a measure of personality style, we must assume that their elevation relative to each other (though of course, not necessarily in isolation) should be at least moderately stable over time. Research on MMPI scales show typical test-retest reliability ranges from .35 to .60 for periods of 1 year or longer and no scale has been shown to be consistently more reliable over time than any of the others (Dahlstrom, Welsh, and Dahlstrom, 1975; Schwartz, 1977). As for the key question of whether or not the Mf and Pd scales remain stable in relation to each other, no research has yet examined this.

The general validity of the Leary system has been supported by Foa (1961), Truckenmiller and Schaie (1979), and Lyons, Hirschberg, and Wilkinson (1980). The system has been used to study a wide variety of populations in a number of settings. Studies in which it has successfully differentiated one group of subjects from another on the basis of interpersonal variables include: high hypnotizable versus low hypnotizable subjects (Bentler, 1963), drug-abusing versus non-drug-abusing patients (Cohen, White and Schoolar, 1971; Schoolar, White, and Cohen,

1972), positive outcome therapy cases versus premature terminators (Peabody, 1981), high changers versus low changers in psychotherapy (Waterhouse, 1981), heterosexual males versus transsexual or homosexual males (Sipova and Brzek, 1983), and highly skilled interpreters of projective drawings versus low skill interpreters (Scribner and Handler, 1987).

Nonetheless, there has been criticism of the Leary system. Apart from its laborious scoring, which is familiar to anyone who has used it, the major criticism has been leveled against Leary's use of discrepancies between scores on the various levels, for example, interpreting discrepancies between the Level II (ICL-derived) and Level III (TAT-derived) as a measure of repression. Gill (1963) stated that Leary's belief that different measures tapped different levels of awareness was in the tradition of the topographic view of psychoanalysis. In any case, Wiggins (1965) argued that there is little empirical or substantive justification for making interpretations about discrepancy scores. He later stated, however, that "there is no a priori reason why other measures of the variables in the Interpersonal System could not be derived under the same logic that guided development of the ICL" (Wiggins, 1973). Consequently, it appears that the system has utility, but that Leary probably stretched it too far with respect to the interpretation of discrepancy scores.

Other Circumplex Models

Other circumplex models of personality, based on Leary's system, have also been developed. Certainly the best known models were developed by Jerry Wiggins

and Lorna Benjamin. Wiggins (1979) developed a system which was similar to Leary's except that it only makes use of one level. Wiggins' work is somewhat more psychometrically sound than Leary's and he has continued to refine it. His most recent version of the adjective list which he utilized is the Interpersonal Adjective Scales - Revised (Wiggins, Phillips, and Trapnell, 1989). Like the ICL, the IAS-R measures eight facets of interpersonal behavior and these are definable in terms of the two dimensions of Power (Dominance) and Love (Warmth). Research has demonstrated that interpersonal behaviors are ordered by Wiggins' checklist in an incremental manner that closely accords with the theoretical basis of the circumplex (Gifford and O'Connor, 1987). However, his collapsing of the system into a single level is counter to the ideas behind Leary's work and takes away much of the appeal to clinicians that the Leary system has.

The other major circumplex system is Lorna Benjamin's (1974, 1982) Structural Analysis of Social Behavior (SASB). This complex system, influenced by the ideas of Murray (1938), is based on the two interpersonal dimensions of affiliation and interdependence. It involves classifying each interpersonal transaction according to its attributes along these two dimensions as well as on its "focus." The SASB allows interpersonal relations to be classified from the points of view of Self, Other, and Introject. A major difference between this system and Leary's is that Benjamin's system is structured such that submission is the complement of dominance, while emancipation is its opposite. Another difference is the inclusion of differentiated or independent interactions, which are not represented in Leary's model (Benjamin,

1984). The SASB is very sophisticated and psychometrically sound. It has proven useful for research involving psychotherapy, (e.g. Schacht, 1984), but its complexity is a drawback to its use.

Others have applied and extended Leary's work directly to problems of personality classification. Kiesler (1983) has been figural in this regard, developing a revised edition of Leary's circle and mapping DSM-III personality disorders on it. For example, his research has linked Octants 5 and 7 of the interpersonal circumplex to the obsessive and hysterical personalities, respectively (Kiesler and Federman, 1978; Kiesler, 1986). Other work along these lines has been conducted by Romney and Bynner (1989), who used Wiggins' model with moderate success in mapping DSM-III personality disorders to the circumplex.

The Wechsler Intelligence Scale: History and Structure

The WAIS-R (Wechsler, 1981), also utilized in this project, is the latest version of what was originally known as the Wechsler-Bellevue Scales (Wechsler, 1939), and later as the Wechsler Adult Intelligence Scale (Wechsler, 1955). In terms of structure and content, all three versions are quite similar. The WAIS-R, like its predecessors, is composed of eleven subtests (six verbal, five performance). Scaled score correlations of like subtests between the W-B, the WAIS, and the WAIS-R are quite high (Wechsler, 1981).

Wechsler (1939) defined intelligence as an aggregate or global capacity composed of various features which could each be measured but which are never

completely independent. This view is consistent with the intercorrelations of the WAIS-R subtests, which range from approximately .25 to approximately .80 (Wechsler, 1981). Thus it should be noted that the subtests were not conceived by Wechsler to measure distinctly different types of intelligence; instead they were viewed as all measuring global intelligence in different ways.

WAIS-R Scatter and Personality

Nonetheless, whatever one's view of the intelligence construct, inter-subtest scatter is evidence of the fact that individuals have relative strengths and weaknesses in their cognitive functioning. This partly explains why, from the very start, psychologists have attempted to glean more from the Wechsler-Bellevue test than simple IQ scores (Matarazzo, 1972). The contemporary view that cognitive functioning is interwoven with, rather than separate from personality, gives even more credence to the notion that differences in personality style should manifest themselves on the WAIS-R.

For many years, researchers have attempted to link psychiatric disorders to unique profiles of subtest scatter, with the hope that subtest profiles could classify individuals into personality and psychiatric categories. After all, Rapaport and colleagues had stated, "In our view, the scatter on the W-B is not random, but follows definite rules and is diagnostically differential between kinds of clinical and normal groups" (Rapaport, Gill, and Schafer, 1968/1945, p. 78). Yet these efforts

have mostly been in vain, in large part due to the problems of personality classification discussed previously. Matarazzo summed it up as follows:

Alas, hundreds upon hundreds of studies on the use of profile, pattern, or scatter analysis with the Wechsler Scales conducted between 1940 and 1970 failed to produce reliable evidence that such a search would be fruitful. Numerous investigators and periodic reviewers of this vast literature repeatedly pointed out that one of the major factors responsible for the inability of independent investigators (or the same investigator) to cross validate initially seemingly promising findings with such pattern or scatter analysis was the *unreliability of the criterion* (namely, the type of psychopathology involved). (pp. 429-430)

Recent empirical evidence continues to suggest that the use of WAIS-R subtest scatter for diagnostic classification is not promising (Piedmont, Sokolove, and Fleming, 1989; Matarazzo, 1990). However, this does not mean that the heuristic use of scatter for personality description is not justified, nor that differences in cognitive functioning characteristic of various personality styles or disorders do not manifest themselves on the WAIS-R. Matarazzo (1972) stressed the distinction between "state" versus "trait" scatter and recently (1990) argued that the use of scatter to describe stylistic differences in cognition was an important area needing further study. For example, Hibbard et al (1992) used the WAIS-R to test several cognitive style hypotheses among a mixed group of diagnosed personality disorder cases. Although only modest levels of significance were obtained and there were some difficulties with methodology and sample, the results were still encouraging for the support of heuristic use of WAIS-R scatter for describing personality types. Indeed, this is an area that is relevant to the continued development of personality prototypes.

Cognitive Styles of Histrionics and Obsessives

Manifested on the WAIS-R: Predictions

Given what is known about the WAIS-R subtests and the personality prototypes already discussed, what might we expect about the differences in performance between obsessive and hysterical personalities manifested on this instrument? A set of predictions were derived from the prototypal cognitive styles of these two personalities as described above. These are also congruent with the ideas and predictions of Rapaport and his colleagues (Schafer and Rapaport, 1944; Schafer, 1948; Rapaport et al, 1965/1948) and those of Blatt and Allison (1968). Based on the functions associated with the WAIS-R subtests and the features of the respective prototypes, histrionics would be expected to perform better than obsessives on the Comprehension, Picture Arrangement, and Digit Symbol subtests. This would reflect the histrionic's better social judgment, greater ability to grasp a situation in totality versus "missing the forest for the trees," and greater efficiency on a timed copying task in which the obsessive would "obsess." On the other hand, obsessives would be expected to perform better than histrionics on the Information, Vocabulary, and Picture Completion subtests. This makes sense given the obsessive's appreciation for facts and details versus the global, diffuse, and detail-barren cognitive style of the histrionic. Therefore, these six subtests should be useful in discriminating between obsessives and histrionics.

Since no relative differences in performance in the areas tapped by the remaining five subtests are predicted for the personality prototypes under consideration, neither group would be expected to perform better than the other on these subtests: Digit Span, Arithmetic, Similarities, Block Design, and Object Assembly. These subtests are therefore not expected to be useful for discriminating between obsessives and histrionics.

It is important to note that these are predictions about differences in performance between obsessive and histrionic personality types relative to each other. They are not statements about the strengths and weaknesses of either personality relative to "normals." The latter sets up the old, unfulfilled expectation that patterns of WAIS-R scores can identify or "diagnose" individuals on the basis of characteristic scatter that stands out even within a heterogeneous group. The difficulties with this have already been discussed, and this aim will surely not be met unless better reliability of diagnostic groups is achieved. Nonetheless, if the cognitive styles described are valid, then it should at least be possible to correctly predict subjects' membership in either the obsessive or histrionic group on the basis of their pattern of relative strengths and weaknesses on the WAIS-R.

CHAPTER II

METHODS

Subjects

Subjects in this study were patients who had been seen for individual psychotherapy at the Psychological Clinic, a training center for the clinical psychology doctoral program at the University of Tennessee. All data was obtained from archival records. A total of ninety subjects comprised the sample, all of whom had been seen at the clinic between 1984 and 1989 and had been administered the WAIS-R and MMPI as part of their intake evaluation. Subjects were drawn from a much larger group of 749 former patients whose III-MM diagnoses had already been determined as part of a prior study (Carbone and Cohen, 1993). The subjects in the prior study accounted for more than a third of all patients seen at the Clinic from 1977 through 1989.

Thirty subjects were assigned to each of the two experimental groups, based on their diagnosis at level III-MM of either histrionic (Octant 7) or obsessive (Octant 5). Data for an additional thirty subjects were utilized to form a third group comprised of five subjects from each of the remaining six III-MM octants. This last group, which will be referred to from this point on as "All Other Octants," is diagnostically meaningless because of its heterogeneity but was used to provide a context for comparison of the data from the two experimental groups.

The subjects ranged in age from 18 to 48, with a mean age of 26.96. The age characteristics were very similar for each group, with mean ages and standard deviations as follows: Octant 7: 27.2, 6.85; Octant 5: 26.17, 4.97; All Other Octants: 27.5, 7.11. The 90 subjects consisted of 57 females (63%) and 33 males (37%), approximately representative of the proportion of males and females obtaining psychotherapy at the Psychological Clinic as indicated by a previous study (Carbone & Cohen, 1993). The gender breakdown by groups was as follows: Octant 7: 18 females, 12 males; Octant 5: 19 females, 11 males; All Other Octants: 20 females, 10 males.

All three groups were also statistically homogeneous in terms of mean number of sessions of psychotherapy received by subjects. The mean number of sessions for each group was: Octant 7: 27.43, Octant 5: 28.97, and All Other Octants: 26.60.

Subjects classified as obsessive at level III-MM had level I-S diagnoses spread among seven of the eight octants, with 60% coming from Octants 3 and 4 combined, and a total of 70% coming from the "socially undesirable" half of the circumplex (octants 3, 4, 5 and 6). For level III-MM histrionics, all eight octants were represented at level I-S, with about 53% coming from octants 1 and 2 and almost 77% coming from the "socially desirable" half of the circumplex (octants 1, 2, 7, and 8). For exact distribution of cases, see appendix. The heterogeneity of the I-S diagnoses is in accord with the conception of the III-MM as capturing a basic

style which may underlie any symptomatic adjustment (e.g., Axis I versus Axis II pathology).

Measures

As indicated previously, archival data was used in this project. All subjects had completed the Minnesota Multiphasic Personality Inventory (MMPI) and Wechsler Adult Intelligence Scale - Revised (WAIS-R) prior to their first session of psychotherapy at the Clinic. The MMPI and WAIS-R results from each subject's clinic file provided the needed data. Leary's grids were used for determining the subject's III-MM diagnosis from the Mf and Pd t-scores. (Leary, 1956, pp. 108-109). The rationale for the III-MM, as well as the structure and validity of the Leary system, has already been discussed.

In addition, for each subject diagnosed obsessive (Octant 5) or histrionic (Octant 7) at level III-MM, the level I-S diagnosis, though not relevant to the analysis, was recorded for describing characteristics of the subjects comprising the experimental groups. To derive the I-S, the t-scores for 8 "symptomatic" MMPI scales are used in a set of formulae, yielding Dominance and Affiliation raw scores. These are then transformed to standardized scores and are plotted on the horizontal and vertical axis on the interpersonal circumplex to obtain the I-S diagnosis. The formulae, tables, and detailed information on these procedures are found in Leary's manual on use of the interpersonal system (Leary, 1956).

Procedure

Subjects were classified into groups on the basis of their III-MM diagnosis. For all subjects, the eleven WAIS-R scaled subtest scores were retrieved and coded. The scaled subtest scores serve as the predictor variables to be entered into the analysis, and we have made predictions regarding their efficacy. Verbal, Performance, and Full-Scale IQ's, derived from the subtest scales by using tables in the WAIS-R manual (Wechsler, 1981), were also coded for each subject.

Demographic information retrieved and coded for each subject included age, sex, and marital status. The number of sessions of psychotherapy completed was also coded for each subject. In addition, the level I-S diagnosis of each obsessive and histrionic subject was coded by octant number.

All data was analyzed utilizing the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were obtained for all variables. In addition, multiple comparison F tests using Scheffe's procedure were performed on the WAIS-R subtest means to note any significant differences between the experimental groups. As Cohen & Cohen (1983) note, multiple comparison F tests are of very limited value for comparing group means of intercorrelated variables, primarily because the intercorrelation results in a lack of statistical independence for such tests. Because WAIS-R subtests have been shown previously to be intercorrelated (Wechsler, 1981), these multiple comparison tests were performed only for illustrative purposes rather than for statistical inference. In addition, a correlation matrix of the WAIS-R

scaled subtest scores was computed to compare correlations in this study with the established correlations based on much larger samples studied by Wechsler.

Because of the severe limitations of multiple comparison tests for intercorrelated variables, evaluation of the hypotheses in this study was accomplished by discriminant analysis, the generally accepted solution for problems of this nature (Cohen & Cohen, 1983). Through discriminant analysis, all eleven WAIS-R scaled subtest variables were treated jointly in order to produce a linear composite that would maximally discriminate between the Obsessive and Histrionic groups. This in turn allows us to determine the extent to which the WAIS-R subtests would predict membership (discriminate) between the groups defined by III-MM.

The group "All other Octants" was excluded from this discriminant analysis because it is a heterogenous group and no meaningful predictions could be made for it. For the 60 subjects comprising the two experimental groups, Octants 5 and 7, a step-wise discriminant analysis using Wilks' method was performed. That is, at each step of the analysis, the variable resulting in the smallest Wilks' Lambda for the discriminant function was selected for entry.

Evaluation of the hypotheses was accomplished by interpretation of the discriminant function coefficients for each WAIS-R subtest, the correlations between the subtests and the discriminant function, and the classification results of the analysis. The overall results of the discriminant analysis were evaluated for statistical significance in two customary ways: computation of a chi-square statistic

for the classification table data, and analysis of variance performed on the discriminant function itself.

CHAPTER III

RESULTS

The results of the analysis demonstrated that, on the basis of the WAIS-R subtest scores, it was possible to discriminate between the experimental groups with a significantly greater degree of accuracy than would be expected by chance. Of the six subtests predicted to have some value as discriminant variables, five did so, although one of these, Information, was dropped from the analysis because of its very high correlation with a more powerful discriminant subtest, Vocabulary. The sixth subtest, Picture Arrangement, lacked sufficient discriminant power to enter the analysis. Thus, four of the original six became part of the discriminant model.

Meanwhile, a subtest which was not expected to have any utility as a discriminant variable, Similarities, was entered into the analysis and did in fact have a moderate correlation with the discriminant function. Another subtest which was not predicted to discriminate, Arithmetic, was also added to the analysis, but ultimately contributed very little to the function. After all steps of the analysis had been completed, the discriminant function model consisted of six subtests: four of the six originally hypothesized, plus Similarities and Arithmetic. Before presenting the results of the discriminant analysis in detail, the subtest means for the groups will be examined.

The mean scores of WAIS-R subtests and IQs for each group are presented in Table 1. Examination of the subtest means reveals differences in the predicted

TABLE 1

Mean Scaled Scores and Standard Deviations of
WAIS-R Subtests and IQ's by III-MM Octant

	Octant ^a					
	Histrionics ^b		Obsessives ^c		All Others ^d	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
Information	10.63	2.70	11.80	2.61	10.97	2.82
Digit Span	10.40	2.39	10.30	2.14	10.70	2.88
Vocabulary	11.30	2.71	12.30	2.93	11.50	2.86
Arithmetic	10.77	2.06	10.57	2.67	10.60	3.17
Comprehension	12.83	1.97	11.63	2.92	11.73	2.59
Similarities	11.77	2.08	11.03	2.51	11.93	2.41
Picture Completion	10.57	2.01	11.30	2.60	10.07	2.56
Picture Arrangement	11.63	2.44	11.97	2.79	11.13	2.50
Block Design	11.27	2.33	10.80	2.68	10.77	2.76
Object Assembly	11.33	2.20	10.87	3.21	10.83	3.25
Digit Symbol	12.13	2.15	10.50	2.71	11.60	2.34
Verbal IQ	108.73	13.32	108.43	14.49	108.17	15.04
Performance IQ	110.93	13.07	108.20	14.92	107.23	14.40
Full Scale IQ	110.53	13.79	108.83	13.98	109.03	14.02

^an = 30 for each group

^bOctant 7

^cOctant 5

^dGroup composed of five subjects from each of the remaining six octants.

direction for five of the six subtests expected to discriminate, with Picture Arrangement as the sole exception. However, this must be taken with a grain of salt, given the relatively small differences involved. Indeed, multiple comparison F tests using Scheffe's procedure were performed for all sets of means, but revealed only one subtest, Digit Symbol, to be significantly different between Octant 5 and Octant 7 ($F=.0321$, $p<.05$). As already noted, these comparisons of individual subtest means were performed for illustrative rather than evaluative purposes, since the high intercorrelation of the subtests do not allow for inferences based on the significance or non-significance of these differences.

The intercorrelated nature of these variables is evident from Table 2, which provides a correlation matrix for the WAIS-R subtests. As expected, the correlations are moderate to high for all variables with the exception of Digit Symbol. As seen in the table, the range of correlations for this relatively small, restricted sample is .02 to .87. Given sample size and restriction of range, this is comparable to Wechsler's data on intercorrelation of WAIS-R subtests for much larger, diverse samples, which showed a range of correlations from .21 to .83 (Wechsler, 1981).

The discriminant analysis was completed in 8 steps, as shown in Table 3. All variables not in the model after step 8 had F-to-enter values of less than 1, and all included variables had F-to-remove values of greater than 1. Therefore, the variable selection terminated at this point, with six WAIS-R subtests retained in the model and five others dropped. Five of the six subtests entering the model had been predicted to do so (Digit Symbol, Information, Comprehension, Vocabulary, and

TABLE 2

Correlation Matrix of WAIS-R Scaled Subtest Scores

	Info	Digspan	Vocab	Arith	Comp	Simil	Picom	Picar	Blockd	Object	Digsym
Info	----	.35	.87	.64	.49	.62	.53	.47	.33	.32	.02†
Digspan	.35	----	.38	.53	.20†	.40	.34	.21†	.46	.28	.28
Vocab	.87	.38	----	.60	.56	.59	.47	.40	.35	.25	.07†
Arith	.64	.53	.60	----	.30	.59	.48	.40	.50	.30	.20†
Comp	.49	.20†	.56	.30	----	.48	.28	.34	.18†	.18†	.09†
Simil	.62	.40	.59	.59	.48	----	.45	.38	.42	.32	.08†
Picom	.53	.34	.47	.48	.28	.45	----	.46	.43	.51	.08†
Picar	.47	.21†	.40	.40	.34	.38	.46	----	.39	.53	.18†
Blockd	.33	.46	.35	.50	.18†	.42	.43	.39	----	.61	.37
Object	.32	.28	.25	.30	.18†	.32	.51	.53	.61	----	.34
Digsym	.02†	.28	.07†	.20†	.09†	.08†	.07†	.18†	.37	.34	----

Note: All correlations have 1-tailed significance $p \leq .01$ EXCEPT †. N = 90.

TABLE 3

Summary Table of Discriminant Analysis

Step	Entered	Removed	Wilks' Lambda	Significance
1	Digit Symbol		.8966	.0122
2	Information		.8552	.0116
3	Similarities		.7482	.0009
4	Comprehension		.7010	.0005
5	Vocabulary		.6783	.0006
6		Information	.6881	.0003
7	Arithmetic		.6656	.0004
8	Picture Completion		.6419	.0005

Picture Completion), although as indicated already, one of these, Information, was later dropped. However, two subtests that had been predicted to have no discriminant power (Similarities and Arithmetic) were entered into the model.

The resultant canonical discriminant function is shown in Table 4. The transformation of Wilks' lambda to the chi-square statistic yields a very high significance level. Therefore, it is very unlikely that obsessives and histrionics have the same means on the discriminant function.

TABLE 4

Canonical Discriminant Function

Function	Eigenvalue	Percent of Variance	Cummulative Percent	Canonical Correlation
1	.5579	100.00	100.00	.5984
Wilks' Lambda	Chi-squared	D.F.	Significance	
.6419	24.39	6	.0004	

The standardized canonical discriminant function coefficients for the six variables comprising the model are listed in Table 5. Since the variables are correlated, it is difficult at this point to assess the importance of individual subtests. The positive values are associated with membership in Octant 7, while the negative values are associated with membership in Octant 5. Nonetheless, it must be kept in mind that the value of the coefficient for each variable depends on the other variables included in the function.

Much more useful is the structure matrix shown in Table 6. Here, all WAIS-R subtests are listed in order of the magnitude of their correlation with the discriminant function. While the first six variables all have moderate correlations with the function, one of them, Information, was dropped from the analysis. The reason for this becomes clear if one considers the intercorrelation of WAIS-R subtests discussed previously. Because Information scores correlated so highly with Vocabulary scores, Information did not add sufficient discriminatory power to the function to justify its retention statistically. Vocabulary is a more powerful discriminator variable and was therefore retained. Meanwhile, the results also show that Arithmetic, although added late to the analysis, makes a very weak contribution to the function and has the next to lowest correlation with the discriminant function among all subtests.

Therefore, the results indicate that five of the six subtests originally predicted to be discriminant are, in fact, among the six subtests most correlated with the discriminant function. Further, each of the five is discriminant in the predicted

TABLE 5

Standardized Canonical Discriminant Function Coefficients
by WAIS-R Subtests Remaining After Analysis

Subtest	Coefficient
Vocabulary	-1.28
Arithmetic	.68
Comprehension	.59
Similarities	.74
Picture Completion	-.48
Digit Symbol	.42

TABLE 6

Structure Matrix Pooled-within-groups Correlations
Between WAIS-R Subtests and
Canonical Discriminant Function

Subtest	Correlation with Function
Digit Symbol	.45
Comprehension	.33
Vocabulary	-.24
Information	-.22
Similarities	.22
Picture Completion	-.21
Digit Span	.14
Picture Arrangement	.08
Block Design	.08
Arithmetic	.06
Object Assembly	.01

direction. However, Similarities, which was not expected to have discriminating power, is shown to have a moderate correlation with the function, and slightly higher scores on this subtest are associated with membership in the Histrionic group. Meanwhile, Picture Arrangement, expected to be discriminant due to predicted better scores for Histrionics, appears to have virtually no discriminating power and was not entered into the model. Likewise, the remaining subtests show very small correlations with the function, indicating little or no discriminant power.

The effectiveness of the model in predicting group membership for individual subjects based on the WAIS-R subtest scores is shown in Table 7. The classification rate of almost 77%, although not phenomenal, is significantly better than the 50% rate that would be expected by chance alone, as indicated by the chi-square statistic.

The results of the analysis of variance of the discriminant function itself is shown in Table 8. The results here also show a high level of significance for the ratio of between-groups and within-groups variance for the discriminant scores in the experimental groups, a finding that would be expected for an effective discriminant function.

TABLE 7**Classification Results of Discriminant Analysis**

Actual Group	N	Predicted Group Membership	
		Octant 5	Octant 7
Octant 5	30	23	7
Octant 7	30	7	23
Percent of Grouped cases correctly classified: 76.67%			
Chi-squared	D.F.	Significance	
8.53	1	< .01	

TABLE 8

Analysis of Variance:
Discriminant Function by III-MM

Source of Variation	Sum of Squares	D.F.	Mean Square	F	Significance of F
Between Groups	32.36	1	32.36	32.36	< .001
Within Groups	58.00	58	1.00		
Total	90.36	59	1.53		

CHAPTER IV

DISCUSSION

General Considerations

Overall, the results indicate differences between obsessives and histrionics in the predicted directions for five of the six subtest means hypothesized to have utility in discriminating the diagnostic groups. The discriminant model that best predicted group membership was ultimately composed of four of these six subtests, plus two subtests that had not been expected to discriminate. Based on the results, obsessive and histrionic subjects classified by Leary's III-MM manifest a pattern of WAIS-R subscale differences, relative to each other, that is quite congruent with their respective personality prototypes. This lends some empirical support to the cognitive styles theoretically associated with each of these prototypes.

Specifically, the hypothesis that histrionics would show better performance relative to obsessives on Comprehension due to their better social perception and grasp of conventions is supported. In addition, the notion that obsessives would be unduly meticulous on a copying task, at least more so than the presumably more impulsive histrionics, is supported by Digit Symbol, the greatest contributor to the discriminant function. Vocabulary and Information, both expected to be relative strengths for the fact-oriented, more precise obsessives, both correlated moderately with the function and thus supported the hypothesis. However, their very high correlation with each other resulted in the somewhat less discriminant Information

subtest to be dropped from the analysis. The Picture Completion subtest was also moderately correlated with the function and became part of the model. Its moderate negative correlation with the function supports the notion of the detail-oriented, well-focused obsessives doing better on this task compared to the global, diffuse histrionics, whose perception is seen as lacking detail.

The Picture Arrangement subtest, expected to favor the histrionics because it taps the ability to grasp a total situation, did not become part of the model. In fact, the mean was slightly higher for the obsessives, though not sufficiently to be meaningful given the subtest's moderate to moderately high correlations with other subtests. How can we make sense of this apparent lack of difference between the two groups on Picture Arrangement, barring statistical anomaly? In truth, we can only speculate. Perhaps obsessives, despite their propensity to lose sight of overall situations or contexts because of their preoccupation with isolated details, may not manifest this deficit on the type of simplistic, well-defined task exemplified by a set of pictures that must be placed in proper sequence to produce a logical story. Another possibility may reflect a deficit of the histrionic rather than the obsessive: Picture Arrangement is also considered to tap planning ability, an area where the more impulsive histrionics may have greater difficulty.

As already mentioned, the Arithmetic subtest was added to the analysis late, initially appearing to be an unexpected discriminating variable. However, its addition appears to be largely a statistical artifact, the result of its moderately high correlation with Vocabulary and Information. Its extremely low correlation with the

discriminant function reveals that it contributes very weakly. The difference in means for this subtest, only two-tenths of a point between groups, is most likely spurious, given the relatively small sample size in this study.

However, the same may not be true for the Similarities subtest. Although the absolute difference in means is less than eight-tenths of a scaled point between the obsessives and histrionics, Similarities became part of the model and has a moderate correlation with the function. The direction of difference would suggest slightly better performance on this subtest by histrionics compared to obsessives. Since no difference was expected for this subtest, what can we make of this finding?

Similarities is essentially a test of abstraction and verbal concept formation. If there is truly a difference here, it might be due to weaker performance on the part of the obsessives. The task involves the ability to generalize and place objects conceptually into the appropriate, broader category (e.g., a fly and a tree are both living things; a poem and a statue are both art). Perhaps the notion that obsessives are "under-inclusive," forming and using overprecise or rigid categories and concepts (Reed, 1991), explains their weaker performance on this task.

Nonetheless, the significance of Similarities in the model should be interpreted cautiously. Given the small sample size, and the fact that Similarities has no high inter-correlation with any other subtest, the difference in means might be large enough to affect the analysis even if spurious. Although the rationale of deficits in category-width on the part of obsessives might explain the finding, only replication with larger samples would justify this.

In general, the pattern of differences found, and the ability of the resultant discriminant function model to correctly predict group membership based on the subtests in a significantly better-than-chance fashion, is taken as positive evidence supporting the cognitive styles of obsessives and histrionics described in this work. As discussed previously, empirical evidence supporting the cognitive styles of these prototypes has been scattered. The results are also seen as demonstrating that, although WAIS-R scatter may have limited utility for purposes of diagnosis among heterogenous groups, cognitive style differences between relatively homogenous groups may be manifested in such scatter, thereby allowing for further development of a comparative framework for studying and validating personality prototypes.

Limitations of this Study and Directions for Future Research

The preceding discussion has already noted some limitations of this study. The largest absolute difference in means for any subtest between the obsessive and histrionic groups is about 1.6 scaled points, for Digit Symbol. The Arithmetic subtest, as already noted, was included in the model despite only a difference of two-tenths of a point between the group means. The average difference for the six subtests in the model is only slightly more than eight-tenths of one scaled point. These small differences, in the context of the sample size of the groups being compared, are an argument for caution in interpreting the findings. Although the pattern of differences, rather than the absolute differences, is of primary concern

here, further study using considerably larger samples would allow for greater confidence that spurious differences are not affecting the model.

In addition, it must be noted that the procedure of discriminant analysis is designed to maximize differences between groups. Therefore, spurious or random effects can have a greater impact on results than with many other types of statistical analysis. Because of this, it is often useful to conduct the discriminant analysis on half of one's subjects, then subsequently test it on the other half. This procedure was not feasible in this study because of the limited sample size available, but would be a more effective way to test the effectiveness of the model in predicting group membership in future replications involving larger sample sizes.

A final consideration involves the use of Leary's III-MM as the basis for the a priori categorization in the study. Although evidence has been reviewed to support the validity of the system as well as the III-MM, a more preferable method of studying the cognitive styles of diagnostic groups might be to utilize subjects who had been diagnosed by multiple measures, including clinical or behavioral observation. Although concerns about the reliability of the diagnostic category can always be raised, no matter which instrument is used in classification, the use of multiple methods to group the subjects would likely add to the weight of the conclusions that might be drawn from any such analysis.

With respect to the use of circumplex models in general, the future is unclear. There has been recent recognition and empirical demonstration that the dominance and affiliation dimensions of the interpersonal circumplex correspond closely to the

Surgency/Extraversion and Agreeableness factors, respectively, of the five-factor model of personality (McCrae and Costa, 1989; Wiggins et al, 1989). The five factors of this model as commonly labeled are: Surgency (I), Agreeableness (II), Conscientiousness (III), Emotional Stability (IV), and Openness to Experience (V) (John, 1991). Trapnell and Wiggins (1990) recently expanded their IAS-R to include lexical terms that tap factors III, IV, and V, resulting in an instrument that has promising convergent properties with the NEO Personality Inventory, a measure of the five factors. This represents a step towards combining circumplex and five-factor assessment, an area for future research.

For example, Wiggins (1989) studied conceptions of personality disorder using both circumplex and five-factor models. He found that conceptions of personality disorder are strongly related to dimensions of normal personality and, although his circumplex model illuminated features of some of the personality disorders, the five-factor model was necessary to capture the entire range of disorders. Other recent work on integrating the five-factor theory with a circumplex model has been carried out by Hofstee et al (1992) and Saucier (1992). Although this work is promising, the five-factor theory is still purely descriptive. It is ultimately derived from the natural language but provides no explanation of the structures and processes underlying the domains of personality that it differentiates. Further, the concept of levels of personality, as addressed by Leary's system, is not accounted for by either the five-factor theory nor the more recent circumplex models. The integration of five-factor theory with a circumplex model such as Leary's, which attempts to deal

structurally with the concept of levels of personality, will be a formidable area for future study. This should be integrated with further work on validating and contrasting the cognitive styles of the various personality types, perhaps ultimately forming the basis for a comprehensive, parsimonious system of personality classification.

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APPENDIX

Frequency of I-S Octant Diagnoses for
Subjects with III-MM in Octants 5 and 7

I-S Octant	Leary Descriptors	Number of Subjects*	
		Octant 5 III-MM	Octant 7 III-MM
1	Managerial-Autocratic	4	6
2	Competitive-Narcissistic	2	10
3	Aggressive-Sadistic	9	3
4	Rebellious-Distrustful	9	1
5	Self-effacing-Masochistic	2	2
6	Docile-Dependent	1	1
7	Cooperative-Over-Conventional	3	3
8	Responsible-Hypernormal	0	4
		30	30

*total N = 60

VITA

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