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The Discrimination of Attachment and Affiliation:

Theoretical Propositions and Application

to Specific Personality Disorders

by

Adrienne Elizabeth Sheldon

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled, "The Discrimination of Attachment and Affiliation: Theoretical Propositions and Application to Specific Personality Disorders" submitted by Adrienne Elizabeth Sheldon in partial fulfillment of the requirements for the degree of Doctor of Philosophy, of Medical Science.

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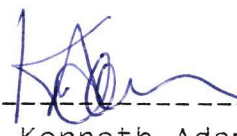
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ii

ABSTRACT

This thesis addresses two issues in the study of adult reciprocal attachment relationships. The first aspect is the definition of adult reciprocal attachment using criteria that are congruent with the definition for infants and children, and different than the definition of other relationships for adults. The definition and criteria of attachment in infancy and early childhood is reviewed; the representational model as a mechanism of continuity across the life span is discussed; and a congruent set of criteria for adult attachment relationships are defined.

The first research study operationalizes the general research question of whether adults organize their expectations of relationships in a manner that reflects the functions hypothesized to characterize attachment relationships? One hundred fifty-three young adult judges classified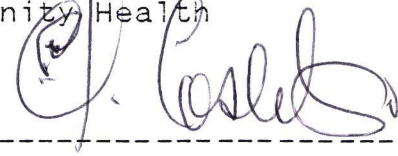 45 decriptive terms as to which of three kinds of social relationships each term was most closely related to. Seventeen of the descriptive terms are identified in the professional literature as unique to attachment relationships. Inspection and statistical analyses of the data indicate that most of the terms theoretically associated with attachment relationships are preferentially associated with one particular relationship. These findings agree well with Robert Weiss' formulations regarding the role of attachment for adults.

The second research study investigates the clinical relevance of the expressions of adult attachment. One particular aspect of clinical relevance, usefulness in differential diagnosis, is addressed in relationship to three DSM-III

Axis 2 personality disorders, Schizoid, Avoidant and Dependent. Using responses from a clinical sample of 146 patients, multivariate analyses of variance and covariance are used to investigate hypotheses derived from two general questions: What is the association between dysfunctional patterns of attachment and the three personality disorders? And, to what degree is the association between dysfunctional patterns of attachment and the personality disorders mediated by the underlying dimensions of adult attachment?

The results indicate that attachment patterns do offer a meaningful system for understanding differences among these disorders, with specific patterns and dimensions relating to different diagnostic categories.

The thesis concludes with a consideration of the limitations of John Bowlby's attachment paradigm, and a suggestion of directions for future research in this area.

DEDICATION

To my husband,

GORDON

with whom I found love, security and faith;

To my first children,

AARON, ARWEN AND MATTHEW

for all that they gave up to allow me this;

To my new son,

DAVID

for being so willing to share;

To my mom,

LORRAINE DAMIENS RANTZ

for being there when I needed help.

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basis, my most immediate model of quiet professionalism, my good friend, was Jeanette Cochrane. I still miss working with her.

Dr. Sebastian Littmann, the late chairman of the Department of Psychiatry at the University of Calgary, was a friend and advisor to me as he was to many young professionals who worked with him. Seb's scholarship, quiet humor, warmth and wide knowledge keep him very much alive in many memories. L'chaim, Seb.

Dr. John Livesley, now at the University of British Columbia, practically coerced me into entering graduate school and did his best to help me through some of rockier parts of this path. "Think attachment," John said in the staff room, one memorable day, and although we have since parted ways with John, Mac West and I have at least remained true to that injunction.

Three members of John Livesley's clinical team kept me thinking, kept me laughing and occasionally even dried my tears. I am particularly indebted to Geri Moerke, Odelle Sargeant and Kent Sargeant for friendship and for the coffee room discussions, backpacking trips and evenings at our favorite place that led to the idea for the first research study presented here.

To Dr. Malcolm West, my advisor and colleague and friend, I owe a debt that can only be acknowledged by continuing in the future to share with him the excitements and frustrations of trying to understand adult attachment. If I say the least about Mac, it is because I feel the most. In addition to our productive professional relationship, I have been sustained and enriched by my friendship with

him and Riva.

Many friends and colleagues, too numerous to mention though nonetheless special and unique for that, have shared my dreams and frustrations and hopes and work for a time. But one set of friends were there at the beginning and are here at the end, at least in my heart. I have had my own "Joy Luck Club" with Wendy Reid, Jackie Staples and Evie How, and they have brought me both joy and luck in abundance.

Two women have shared my enthusiasms and discouragements both personally and professionally. Wendy Reid is my best friend, my business partner, my children's "other mother", my sounding board, and -- with her husband, Sverre -- my exemplar of secure attachment. There is only one Wendy in my life -- and I believe that there will only ever be one Wendy. It must be very rare to find a person who soon seems like a life-long friend, who shares your interests and values, whose work complements yours, whose insights are so practical and so relevant that they are the anchors for theories that would otherwise drift into the upper reaches of the stratosphere. Many people believe that Wendy is the perfect wife, mother and boss. Luckily, I know differently -- she is not perfect in any of those other roles, but she is the perfect friend!

With my sister, Patricia Rantz Glaser, I share our own close, confusing, frustrating, interesting, infuriating and complex family; I share professional ambitions, interests and a tendency to compulsivity; hopes and fears for our

children; and much laughter. And I share a continuing challenge. I'm one-up now; it's her move!

It seems to me to be particularly difficult to properly acknowledge and thank my family. As I sit here typing, Gordon, my husband, is cooking dinner so that I can get on with my dissertation. Gordon, who just two years ago lived quietly with his mathematics and music and faith and books, has become the very active paterfamilias of our "weird and wonderful" family. Gordon has made secure attachment a reality for me and our children; he continues to teach me about love and safety.

My oldest son, Aaron, has helped so often in so many ways that I am sure he feels I could never thank him adequately. What I have valued most of all (aside from getting the wash done regularly) is his continuing interest in and enthusiasm for my work. I have seen attachment ideas appear in many of his own excellent papers.

I have written and re-written sentences about my daughter, Arwen, but none seem right. I think I must just thank Arwen for being herself, for bringing me so much joy and exasperation and memories and laughter as we stumble our way together through her teens.

My youngest son, Matthew, has allowed me many nights working when he would rather I be reading to him, or playing with him, or just being mommy. I thank Matthew for liking pizza and macaroni and cheese and spaghetti, for being

so funny and so bright, for letting mom go a little further a little more often than his own attachment needs would prefer.

Finally, here at the end of this road and the beginning of the next, I want to thank my new son, David. Mainly I want to thank him for not running into any more deer this week as I was trying to get this finished. But I also want to thank him for his generosity, his sense of fun, his patience, and his acceptance of me. If all stepsons were like David, no stepmothers could be wicked (though they might at times be a bit exasperated).

If I were to write another dissertation on families (I will never, ever, ever write another dissertation on anything) I would write about humor. It seems to me that family attachments are not sustained by the large dramatic events, but by the every day, humdrum, forgotten-before-they-are-ended, give and take in a family. And, for our family at least, laughter is the key to success. So with a modicum of knowledge and wisdom, and a lot of love, laughter and faith, we continue.

As all students do, I owe a very special thank you to those professional men and women who have contributed their time and talents to my graduate work. In particular, I would like to thank the members of my Candidacy Examination Committee: Dr. Nady el-Guebaly, Dr. Gordon Fick, Dr. Anne Mahoney and Dr. Timothy Yates. Dr. el-Guebaly and Dr. Fick also serve on my Ph.D. Examination Committee. They are joined by Dr. Charles Costello of the Department of

Psychology, University of Calgary, and Dr. Ken Adam of McMaster University. I am very fortunate to have a committee that so ably represents the diverse areas touched on by this work: psychiatry, psychology and biostatistics. I want to again thank my advisor, Dr. Malcolm West, for guiding me through this maze and for assembling such an excellent committee.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF FIGURES

1.0 INTRODUCTION

A human infant, to survive, must be cared for. Between infant and care-giver, the process of receiving and providing care requires repeated interactions which, viewed as a whole, create a relationship (Hinde, 1976). But, as is true so often, the whole relationship is greater than the sum of the interactions which are its parts.

From the infant's perspective, certain behaviors elicit a response from a "not-me" component of the infant's world. Recent research has shown that very young infants can discriminate this "not-me" component as a unique individual (Stern, 1985). Behavioral evidence suggests that by as early as 6 weeks old, the infant exhibits a preference for human over other environmental components and for the usual care-giver over other humans (Lichtenberg, 1983). The infant does not appear to exist in an amorphous, undifferentiated world (Mahler *et al.*, 1975) but rather in a world that is centered around a particular "responder" whose actions complement the care-eliciting behaviors of the infant.

These care-eliciting behaviors are called attachment behaviors. The interactions which result from these attachment behaviors are described as the intermeshing of the infant's attachment system and the adult's care-giving system. Each interaction between infant and care-giver meets a physical need of the infant: providing, variously, food, warmth, protection and soothing. Each interaction looks

to be fully visible and explicable to the external world. But, as Guntrip (1974) has said, each of us lives in two worlds simultaneously, the internal and the external. So these care-based interactions have an internal reality, as well as an external reality, for each participant.

The internal reality of these interactions creates a superordinate structure: a relationship called an attachment bond. In the developing internal world of the infant, the attachment bond becomes more than the sum of attachment/care-giving interactions; the attachment bond accrues and includes expectations, emotions and action patterns. Concurrently, the external and internal worlds of the infant become more extensive, more complex and more richly textured with emotion.

As the interactions are both internal and external for each participant, so the attachment bond is both universal and unique. There is, of course, no universal attachment bond to be found in the external world. But each unique bond between a particular infant and care-giver has familiar elements: elements we have observed in other attachment bonds between other pairs, although the elements may be expressed very differently. So we observe, quite casually, that one mother picks up her crying baby immediately and another mother deliberately refrains from picking up the baby immediately. Both are responding to the baby's cry, although the responses are expressed in opposite actions.

From such observations, researchers deduce two facts:

1.   The attachment bond is universal, at least within our species (Hinde,

      1974); and

2.   The varieties of expressions of the attachment bond are multiple and

      very evident (Ainsworth, 1982).

Following from these deductions come two hypotheses:

1.   All humans will be influenced by their attachment bonds (Draper and

      Belsky, 1990); and

2.   Whether the influence is for good or ill depends on the predominant

      varieties of expression of attachment within a particular relationship

      (Bowlby, 1988b).

From these theoretical beginnings, researchers in child development have

related differences in the quality of the attachment bond to later developmental

milestones. Based on the study of infants and children, attachment researchers --

notably Mary Ainsworth (Ainsworth *et al.*, 1978) -- developed a typology of

attachment relationships. This typology is both reliable (consistent across subjects,

researchers and time) and valid (meaningfully related to observed phenomena and

meaningfully differentiated from other concepts). Subsequent research using these

categories has demonstrated that the quality of the attachment relationship

influences all aspects of the child's development, including peer relationships (Cohn,

1990), cognitive development (Matas *et al.*, 1978), self-esteem (Kobak & Sceery,

1988) and affective expression (Feldman & Ingham, 1975).

In Sroufe and Waters' words, attachment has served as a powerful "organizational construct" within psychosocial research on infants and children (1977). Attachment theory has provided this research with the coherency of language and methodology so essential to scientific inquiry.

Researchers concerned with the interpersonal relationships of adults have long struggled to find such an organizational construct. Among sociologists and related social scientists, the concept of a social support system or social support network (Vaux, 1988) has achieved the most prominence, along with the related ideas of a "confidante" relationship (Brown *et al.*, 1975) and the rather ambiguous "significant other" relationship (Cramer, 1990). But despite popularity among social scientists and the general public alike, the concepts related to social support systems have three pronounced failings:

1. They are descriptive only, lacking a theory of origin and a mechanism of development (see, for example, Freeman & Sheldon, 1985);

2. The concepts attend only to the external world and cannot easily or successfully be modified to include the internal reality of all humans (Mueller, 1980);

3. Finally, and perhaps most critically, they are, in the end, simply not very useful, lacking empirical stability, measurement reliability and

theoretical validity (O'Reilly, 1988).

Research efforts have produced a plethora of findings relating social support constructs to each other and to various indices of coping and adjustment (Cohen & Syme, 1985). Replications generally find different relationships among the variety of dependent, independent, confounding, modifying and control variables studied (Sarason & Sarason, 1985).

Eschewing theory for description, psychiatric clinicians have tried to incorporate experiential descriptions of relationships into diagnostic categories. Unfortunately, description becomes muddled when not guided by theory. Psychiatric researchers and clinicians are themselves the strongest critics of the resulting diagnostic systems, which demonstrate unacceptable overlap among categories and confusion among criteria (Gorton & Akhtar, 1990).

Psychologists are almost invariably strong proponents of a theory-based descriptive system. The problem is that psychology seems caught in a Kuhnian dilemma among competing, incompatible paradigms (Kuhn, 1970). These paradigms include classic psychoanalytic theory, object relations theory, cognitive and learning theories and -- more recently -- information processing and neural network theories (Draper & Belsky, 1990).

In a light-hearted vein, one might ask, "Can attachment theory save the day?" The answer is most assuredly NO. To the degree that it is accepted, it will become

a component of the social network for the social scientist (see, for example, Heard & Lake, 1986), an alternate descriptive system for the psychiatric clinician (Livesley *et al.*, 1989) and yet another competing paradigm for the psychologist (see, for example, Rice *et al.*, 1990). Nonetheless, the demonstration that attachment bonds are both universal and specific for adults as for children is a first step towards attachment as an "organizational construct" capable of lending continuity to research on important adult relationships.

To define and establish attachment as a primary organizational construct for the study of essential relationships between adults is the broad and grand goal of our research endeavor. This dissertation focuses on two aspects of this work. Each aspect is discussed theoretically, operationalized for a research study and tested empirically. All in due course. As this section is an Introduction, I will content myself here with simply introducing each aspect.

The first challenge is to define attachment relationships for adults using criteria that are congruent with the definition for infants and children, and different than the definition of other relationships for adults. We can identify the criteria of an attachment relationship for infants and children. We can identify criteria associated with close personal relationships for adults. We need to identify how these two sets of criteria overlap. If the overlap is substantial and if the overlapping criteria occur primarily in one relationship for an adult, then we may

fairly designate that relationship an attachment relationship.

The second challenge is to demonstrate that, as an organizational construct for adult relationships, attachment is *useful*. Specifically, I investigate one aspect of clinical utility: contribution to differential diagnosis. The investigation focuses on the association of specific styles or patterns of attachment with Schizoid Personality Disorder, Avoidant Personality Disorder and Dependent Personality Disorder as defined by DSM-III, Axis 2 (1980).

What I have called "challenges" are represented diagrammatically in Figure 1 and expressed there as questions. The goal of this dissertation is to bring these challenges/questions into focus as hypotheses and present the results of studies to investigate the hypotheses.

FIGURE 1.1:

SCHEMATIC REPRESENTATION OF GENERAL RESEARCH QUESTIONS

Criteria of Various Adult Relationships

Attachment Criteria

Criteria of Various Infant Relationships
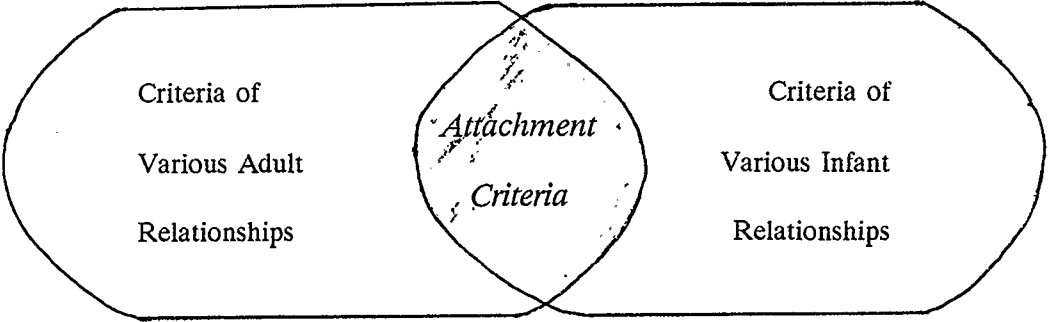
DOES THE SHADED AREA DEFINE A UNIQUE

RELATIONSHIP FOR ADULTS?

Lines are Criteria; Nodes are Personality Disorders

Criteria Set 1

Criteria Set 2
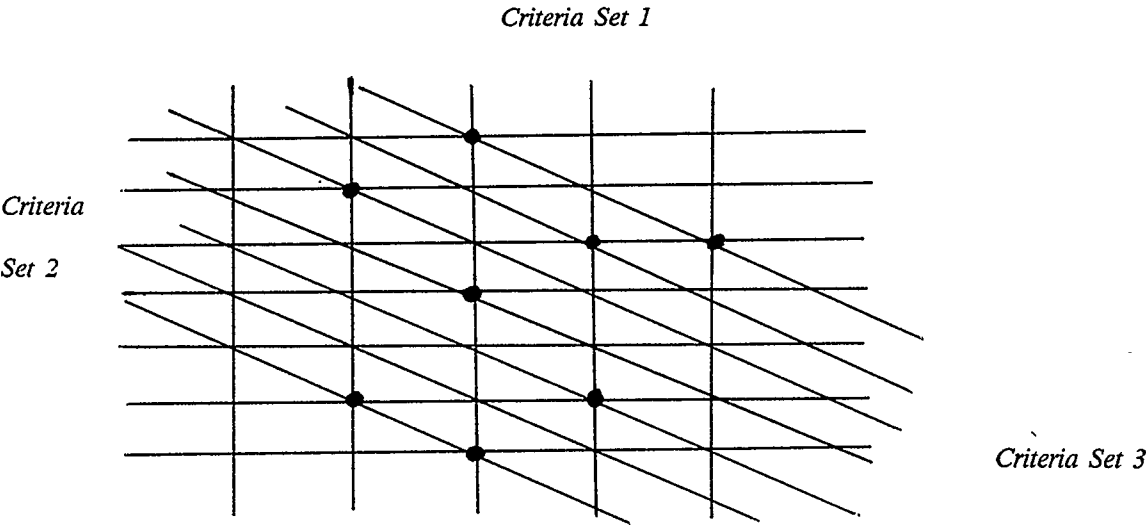
Criteria Set 3

CAN ATTACHMENT PATTERNS SERVE AS A CRITERIA SET

FOR PERSONALITY DISORDERS?

2.0 LITERATURE REVIEW: ATTACHMENT RELATIONSHIPS

2.1 BEHAVIORAL CONTROL SYSTEMS. The central thesis of attachment theory is

that attachment in humans, and in many other species, is a particular type of

biologically "wired-in" control system, specifically a *behavioral control system*.

Behavioral control systems organize and direct *behaviors* or activities to achieve

specific *set-goals*, which had survival value within the "environment of evolutionary

adaptedness" (Stevenson-Hinde & Hinde, 1990). Within any one species, animals

with better control systems had greater probability of survival to reproductive age.

Consequently, control systems eventually become species-wide.

The set-goal of a behavioral control system is defined as:

> ...either a time-limited event or an on-going condition either of which is brought
> about by the action of behavioral systems that are structured to take account of
> discrepancies between instruction and performance. ...a set-goal is not an object in
> the environment but is either a specified motor performance...or *the achievement
> of a specified relation* [with] some object in or component of the environment.
> (Bowlby, 1982, p. 69, emphasis added)

The ability to take account of discrepancies between the set-goal and the current

condition, and to modify responses accordingly, is an important component of

control systems; that is, a control system always includes mechanisms for *feedback*.

This type of system is differentiated from a fixed action system, which may be

oriented towards a goal, but is not subject to regulation of expression by feedback

mechanisms (Hinde, 1975).

The concept of a set-goal is important to understanding the crucial difference

between *cause* and *function* in the context of control systems. Causes refer to the

stimuli activating control systems; functions refer to the purposes of activation. Thus, for example, a rapid drop in ambient temperature may *cause* shivering; the *function* of shivering is to raise body temperature. In reference to control systems, function is defined as "...the consequences of differences between characters, and...has reference to the action of selective forces" (Hinde, 1975, p.13). Thus the function of a behavioral control system determines the system's contribution to probability of survival. Expressed behaviors are the means of achieving the system's set-goal. The set-goal is the means of accomplishing the system's function.

Control systems, as with other abilities of the organism, are subject to developmental change and elaboration (Bowlby, 1982). The conditions for activation, termination and suppression; the nature of feedback information; and the associated behaviors are each modified as the organism develops. In addition, the integration among behavioral systems generally becomes more elaborate with development. In the earliest stages, behavioral systems are usually competitive, with one system at a time predominating. The simplest relational organization is a linked chain wherein termination of one system serves as an activation signal for another system. If an activation signal is shared, the set-goals of systems can become integrated.

The most complex organization is a hierarchical structure, such that each component is a behavioral system in its own right, through many levels to an over-all system. Arthur Koestler terms such components "holons" and notes that the over-all system remains stable as long as the "integrative" and "self-assertive"

tendencies of the component holons are in dynamic equilibrium (Koestler, 1967).

One final elaboration is possible: an elaboration which reaches full expression only in humans. This is the modification and control of control systems themselves by higher processes of consciousness and cognition. Bowlby refers to the construction of "working models" (Bowlby, 1982, p. 80) which are based on actual experiences but are used to extrapolate those experiences to novel situations. Bowlby postulates that, to be effective, working models must be internally consistent, include realistic abstractions from the environment and the self (that is, an awareness of one's own abilities, limitations and potentials), must be permeable (that is, subject to revision due to new information) and must, at least at times, be consciously explored.

In summary, a properly functioning behavioral control system responds to causes for activation with a variable pattern of behaviors such that progress towards a set-goal is subject to correction through feedback. The set-goal confers evolutionary advantages. Signals or causes for activation, termination and suppression of the control system are often complex and multi-determined. The control system is subject to developmental elaboration, both through increasingly sophisticated connections among systems and through modification by higher processes.

Attachment as a Behavioral Control System in Infancy. With the key components of behavioral control systems in general delineated, the description of the attachment behavioral system in infancy is very straightforward. The key components, as they apply to the attachment behavioral system in infancy (that is, from early infancy to about 24-30 months old) are summarized in Table 2.1.

The attachment behavioral system is a control system with the function of protecting the altricial animal from danger, specifically, the danger of predation. More generally, the *function* of the attachment behavioral system is to ensure safety and security, and thereby enhance the chances of survival. This safety is achieved through proximity to the primary care-giver, which is the *set-goal* of the attachment behavioral system. The primary information modifying the behavioral responses to activation (that is, the primary *feedback* information) is simply the response of the care-giver. Attachment in infancy is not truly integrated with other behavioral systems, rather it predominates: activation of the attachment behavioral system will supersede all other behavioral systems (Weiss, 1982). As the infant has limited cognitive abilities, the modification by higher processes is minimal. The primary causes of activation and termination, and the primary attachment behaviors are listed in Table 2.1. The point must be emphasized that, in infancy, attachment is a very powerful but very simple behavioral control system.

TABLE 2.1: ATTACHMENT DURING INFANCY

Source:	Behavioral Control System
Function:	Safety (protection from danger)
Set-Goal:	Proximity to a specific care-giver
Relationship Type:	Complementary
Feedback Information:	Response of care-giver
Integration with other systems:	Limited: Attachment overwhelms others
Modification by higher processes:	Minimal
Causes of activation:	Distance from primary care-giver
	Condition of child
	Behavior of primary care-giver
	Environmental stressors
Causes of termination:	Vary with intensity of activation:
	High: physical contact with care-giver
	Moderate: sight or sound of care-giver
	Low: proximity to a substitute
Causes of suppression:	Rare
Associated behaviors:	Approach behaviors, for example:

Reaching
Clinging
Following

Signalling behaviors, for example:

Crying
Babbling
Calling

2.2 THE CONTINUITY OF ATTACHMENT ACROSS THE LIFE SPAN.

> That attachment behaviors in adult life is a straightforward continuation of attachment behaviors in childhood is shown by the circumstances that lead an adult's attachment behaviors to become more readily elicited. In sickness and calamity...in conditions of sudden danger or disaster a person will almost certainly seek proximity to another known and trusted person. (Bowlby, 1982, p. 208)

Every component of the attachment behavioral system undergoes some degree of change from infancy to adulthood. But most of these changes are accommodated by the theory itself, which postulates change and elaboration of control systems with development of the organism (Hinde, 1974). Thus, although changes in most components (i.e., behaviors; causes of activation, termination and suppression; modification by higher processes; and feedback information) may cause methodological problems, they do not present theoretical problems, as all behavioral systems undergo similar changes. The theoretical problems center on three issues:

1. Does attachment have a *function* for adults and, if so, is that function congruent with the function for infants?

2. Can a *set-goal* related to the function and to the set-goal of infancy be identified?

3. Can the loss of primacy (that is, loss of the ability to overwhelm other behavioral systems) be reconciled with the function and set-goal of attachment for adults?

Concerning the function of attachment for adults, the ethological construction of function as conferring survival advantage is considered (Hinde, 1975). The survival advantage of attachment for infants is protection from danger; that is,

safety and security (Bowlby, 1982). An argument that attachment for adults is based

on the atavistic need for protection from predation is neither persuasive nor

relevant to the psychological and relational well-being of the modern adult. A

stronger argument can be built from a consideration of learning theory and the

meaning of danger.

In infancy, attachment is activated in situations of perceived danger. The

danger can simply be increased distance from the care-giver. The important point

here is that when the attachment behavioral system is activated, the infant has

perceived some threat or danger. Perceived danger thus becomes a reinforcer for

the attachment behavioral system (see, for example, Gewirtz, 1961; Greenberg &

Marvin, 1982; Neisser, 1976). The young child *learns* that attachment behaviors are

an appropriate response to danger. It is important to note that this reinforcement

of attachment behaviors depends only upon the *activation* of the attachment system;

it is independent of the successful termination, which may act as a further reinforcer

in its own right. Thus the learned response to danger develops even in the absence

of appropriate responses by the care-giver (Bretherton, 1980; Main & Solomon,

1986).

If attachment becomes, with development, not simply an instinctive control

system but a learned response to danger, then the question becomes, Do adults

perceive danger in their environment? Bowlby has used the example of the

vulnerability of a single mother to argue that even in our highly evolved society, real

and present dangers exist (Bowlby, 1988a). It is perhaps more relevant to note that the perception of danger, like other perceptual abilities, changes with development. In addition to the physical dangers recognized by infants and children, the adult recognizes other dangers to continued well-being, namely, threats to the internal world of the self (Klein, 1976; Rutter, 1981). The accretion of a learned response onto the existing behavioral system and the more elaborate interpretation of danger support the argument for the continuity of the function of attachment across the life-span. The argument for the function of attachment for adults will be completed after consideration of the set-goal of attachment for adults.

The set-goal of attachment for infants and children is proximity to a specific care-giver, who is perceived to be stronger and better able to cope than the self (Bowlby, 1977). The relationship between infant and care-giver is described as *complementary* (Hinde, 1976); that is, each partner exhibits distinct behaviors in relation to the other and these behaviors are not the same but interlock. The infant's behaviors are consistently care-seeking; the parent's behaviors are consistently care-giving. This has been described as the intermeshing of two different control systems: the attachment control system of the infant and the care-giving control system of the parent (Ainsworth, 1985; Bowlby, 1988a; Hinde & Stevenson-Hinde, 1988).

A permanent complementary relationship of this type is neither usual nor psychologically healthy for the adult (Gewirtz, 1972). The normal primary

relationship for the adult is a *reciprocal* pair-bond with a peer (Weiss, 1974). In reciprocal relationships, one partner is not perceived to be stronger or better able to cope nor are the behaviors distinct between each member of the pair. Each partner has a pair bond (usually a sexual pair bond) to the other; either partner can exhibit the behaviors characteristic of the bond. But, as Hinde points out (1976), reciprocal bonds can include intermittent interludes of complementarity. The difference from infant attachment is that the complementarity is not always in the same direction. At times, one partner may be the care-giver for the other; at other times the roles can be reversed. (N.B. For the sake of clarity, the argument is confined throughout to the prototypical case: in the individual case, the relationship can exhibit these potentials to greater or lesser degrees through a range of normality and including dysfunctional extremes.)

In times of perceived danger when security is threatened, reciprocal relationships can function as complementary relationships. A pair-bonded peer can serve the same role as an attachment-bonded care-giver (Ainsworth, 1989). From the ethological perspective of survival advantages, bonds to a healthy adult peer should confer greater advantages than bonds to aging parents. Thus, the shift of the set-goal of attachment from proximity to a care-giver to proximity to a peer is congruent with the function of attachment.

The final consideration is the loss of primacy of the attachment system in relation to other behavioral systems (Weiss, 1982). At first glance, it would seem

that to serve the function of protection, the attachment system should always remain primary. But this would only be true if activation of other systems was competitive; that is, if their set-goals were in conflict with the set-goal of the attachment system. If the systems' set-goals are congruent, then simultaneous activation should be mutually enhancing. To evaluate the consequences of the loss of primacy of attachment, it is therefore necessary to consider the other systems with which attachment becomes interwoven.

Ainsworth notes that the attachment system in adults becomes part of an over-all sexual pair-bonding system which also includes two other major behavioral systems: the reproductive or mating system and the care-giving system (1985, p. 804). In Koestler's terms, attachment becomes a "holon" which both retains its original integrity and operates as a necessary component for a hierarchical behavioral system (1967). Attachment as a holon of the sexual pair-bonding system contributes to the maintenance of the individual within a group, defined as the family. Hinde (1975) and Ainsworth (1989) have pointed out that membership in a group confers survival advantages. Thus, the integration of attachment with other behavioral systems serves a function in the ethological sense of the word.

2.3 THE OPERATION OF THE ATTACHMENT SYSTEM IN ADULTHOOD. Although, as noted earlier, changes in most components of attachment do not present theoretical problems, they must be taken into account in the characterization of how the attachment system operates in adulthood. A brief review of the study of the

expression of the attachment system in infancy and early childhood can serve as a

background on which to paint the portrait of the attachment system in adulthood.

Infant attachment has been the subject of intensive investigation for almost

four decades (Watkins, 1987). Consequently the goals of the research have evolved

considerably. Briefly, the investigation of infant attachment can be organized under

four goals:

1. Identification of the behaviors associated with activation of the

    attachment behavioral system (Ainsworth & Wittig, 1969; Bowlby,

    1982; Main, 1977).

2. Organization of the behaviors into discrete patterns reflecting

    qualitatively different relationships with the care-giver (Ainsworth *et

    al.*, Main & Solomon, 1986; Waters & Deane, 1986).

3. Investigation of the continuity of these patterns into early childhood

    (see, for example, Feldman & Ingham, 1975; Lamb, 1985; Main *et al.*,

    1986).

4. Correlation of attachment patterns with indices of adjustment and

    psychological well-being (see, for example, Cohn, 1990; Matas *et al.*,

    1978; Rice *et al.*, 1990; Thompson & Lamb, 1983; Wartner, 1987).

These goals can be viewed as forming a hierarchical system, with each goal both

building on and encompassing previous goals. The system rests on the first goal, the

identification of attachment behaviors. All arguments about the differential

organization, development and effects of qualitatively different attachment relationships are inferences from the observation and classification of attachment behaviors.

The most successful and widely used strategy for identifying and classifying attachment behaviors is the Strange Situation Protocol developed by Mary Ainsworth (Ainsworth *et al.*, 1978). Within a controlled environment, a one-year-old infant is briefly separated from his/her primary care-giver, visited by a stranger and re-united with the care-giver in a precisely prescribed sequence of eight stages. The infant's behaviors on separation from and reunion with the care-giver and in the presence of a stranger are the data used to define four general patterns of attachment relationships: secure, avoidant, ambivalent and disorganized (Ainsworth *et al.*, 1978; Main & Solomon, 1986).

The key points are that the assessment of infant attachment relies exclusively on *behaviors* and that, because of the predominance of the attachment behavioral system in infancy, the behaviors are evoked by a very mild stressor (brief separation from the care-giver in a safe environment).

Mild stressors do not evoke attachment behaviors in the adult because the adult can retain confidence in the availability of the attachment figure in the absence of physical proximity (Hinde & Stevenson-Hinde, 1976); and, further, the adult has internal (e.g., cognitive) strategies as well as external (e.g., behavioral) strategies for responding to activation of the attachment system (Blass & Blatt,

1990; Braito *et al.*; Main, 1985).

As Guntrip has said, in another context, as adults we "...live in two worlds at once, the inner mental world and the external material world, and constantly confuse the two together" (Guntrip, 1974; p. 830). The adult comes to depend heavily on an internal representation of his/her relationship to the attachment figure: a representation begun with an early "working model" (Bowlby, 1982) and elaborated and extended through years of successive and varied attachment experiences. Although Bowlby preferred the term *working model* to emphasize the dynamic nature of the construct, many authors use the terms *working model* and *representational model* interchangeably, or prefer the term *representational model* (Hamilton, 1985; Main & Goldwyn, 1984; West & Sheldon-Keller, 1991). The term *representational model* is used consistently in this work.

While the representational model is certainly a higher process modifying expression of the attachment behavioral system, it cannot easily be classified as simply one component of the system. It is better understood as the mechanism mediating development in most components of attachment. One's internal understanding of the relationship between oneself and one's attachment figure influences activation, termination and suppression of the behavioral system; supplants, in many instances, the role of concrete behaviors; provides feedback to the system, and influences the system's sensitivity to other feedback. The pervasiveness of the representational model is summarized in Table 2.2.

TABLE 2.2: ATTACHMENT DURING ADULTHOOD

Source:	Behavioral Control System +
	Learned response system
Function:	Safety (protection from danger)
Set-Goal:	Proximity to a specific peer-partner
Relationship Type:	Reciprocal
Feedback Information:	Representational model
	Response of partner
Integration with other systems:	"Holon" within pair-bonding system
Modification by higher processes:	Representational model is the source of pervasive modification
Causes of activation:	Representational model
	Extended unavailability of partner
	Behavior of partner
	Life crises
Causes of termination:	Representational model
	Responsiveness of partner
	Return to environmental homeostasis
Causes of suppression:	Representational model
	Learned responses
	Behavior of partner
	Cognitive control
Associated behaviors:	Use of the representational model
	Approach behaviors
	Signalling behaviors

The representational model does not completely supplant attachment behaviors. Especially in times of major life crises, attachment behaviors are frequently both visible and predominant for the adult (e.g., crying, hugging, restlessness when alone, non-responsiveness to external events). Bowlby warns that to call such behaviors "...regressive is indeed to overlook the vital role that [attachment] plays in the life of man from the cradle to the grave" (Bowlby, 1982, p. 208).

2.4 THE CHARACTER OF THE REPRESENTATIONAL MODEL. "At the present time working models are not exact rigorously defined concepts." (Peterfreund, 1983, p. 81). In the broadest definition, representational model refers to the internal organization of memory, knowledge, experiences and affects into a coherent whole that can direct and influence evaluations and actions. Similar concepts are important components of psychoanalytic thinking (see, for example, Klein, 1958; Slap & Saykin, 1983), cognitive psychology (see, for example, Heil, 1983; Neisser, 1976) and the field of artificial intelligence (see, for example, Bobrow & Collins, 1975; Hofstadter, 1979).

The operation of the representational model of attachment can be understood by reference to hierarchical structures: the adult's representational model of attachment is composed of a coordinated system of sub-models, based on varied, cumulative and disjoint attachment experiences. It operates as a component *holon* of a larger system of models for different types of relationships, which

themselves are holons of a still larger system of models for different aspects of life

(c.f. Koestler, 1967). The representational model operates to direct the attachment

system (c.f. Koestler's self-assertive tendency); and, it operates as one component

of a larger system (c.f. Koestler's integrative tendency). The first aspect refers to the

contribution of the representational model to achievement of the set-goal of

attachment; that is, proximity to a specific peer. The second aspect refers to the

coordination of the attachment system with the mating and care-giving systems to

accomplish the set-goal of the sexual pair-bonding system (Ainsworth 1985 and

1989).

The *representational* or *working model* is a mechanism of development and

continuity across the life span (Bowlby, 1988b; Sroufe, 1986). From earliest infancy,

a young child has repeated experiences that contain at least one similar element:

a need is felt and expressed. The consequences of these repeated experiences can

be modelled by a physical metaphor.

Imagine a *chain* of 10 links; each *link* has two *beads of a particular shape and

color* Seven of the links have a white oblong bead with a green round bead, two

links have a black oblong bead with a green round bead and one link has a black

oblong bead with a red round bead. An *observer of patterns* could evolve diverse

theories, based on the co-occurrence of different beads in the chain: the most

common combination of beads is white oblong with green round; white oblong never

occurs with red round; black oblong can occur with either green or red round; but

seems more likely to occur with red round; the bead used least is red round.

This chain of beads becomes a metaphor for the construction of a representational model of attachment if we make the following substitutions: the *links* represent interactions between infant and parent; the *oblong beads* represent the parents, white for mother, black for father. The *round beads* represent feelings associated with the interactions: green for satisfaction; red for frustration. The linked *chain* stands for the growing attachment relationship; the *observor of patterns* is the infant; the infant's *theories* are the representational model.

Investigating our chain, we can see that for this infant, the mother is the main attachment figure (frequency of white oblong beads vs. black oblong beads) and the attachment relationship is largely the source of satisfaction (frequency of green round beads vs. red round beads).

The metaphor fails if we try to extend it to encompass any significant portion of the information actually encoded, organized and related within the representational model.   The emotions are more complex than simple satisfaction/frustration, the participants are more richly characterized than simply self/mother/father, the interactions are not uniform but form patterns of their own, and so on. But the metaphor does model the transition from discrete interactions to a relationship to a representational model. By the time we are adults, our past attachment experiences do indeed form encircling chains, restricting our freedom of movement within the realm of attachment.

The representational model construct is closely related to the cognitive concept of *schema* (Rumelhart, 1980). The philosopher Immanuel Kant first proposed the idea of schemata as part of the process through which data from our senses is converted to information, or knowledge, for our intellect (Kant, 1965; Aquila, 1983; Schiffer & Steele, 1988). Kant proposed that we use twelve natural or "inborn" categories to understand what the senses perceive: categories such as cause and effect, negation, unity and totality. In Kant's system, schemata were the rules governing the application of these categories. Schemata, in modern epidemiological parlance, are the inclusion and exclusion criteria for membership in a category. So, for instance, one important schema with which we make sense of our world may be stated simply as, "All causes have effects." In the Kantian system, it would not make sense -- nor would it occur naturally -- to place a perception in the category of *cause* if it was not matched to a perception that fit the category of "effect of that cause.".

The concept of schemata becomes more closely related to the concept of representational model in its twentieth century development by Henry Head (1926) and Frederic Bartlett (1932). Bartlett, in particular, elaborated Kantian schemata to model how human memory operates. Memory, according to Bartlett, does not access a simple museum of past experiences, where each experience is preserved in its "true" original form. Rather, memory creates a kind of story, using some historically accurate details, some partially accurate and partially reconstructed

details and some wholly fabricated details. No longer abbreviated "criteria" as in the

Kantian system, under Bartlett's tutelage schemata evolved into the "plausible

scenarios" which we use to construct these stories, supplying both the general outline

to follow and, as necessary, missing details and information to complete the story.

The great advantage which schemata offer is the ability to operate with

incomplete, fragmentary and even contradictory information (Ayer, 1946; Kempson,

1988). But the advantage can turn to disadvantage when what is required of us is

not recognition of old patterns but acceptance of a perception that does not fit old

patterns. The West Indies are so named because Christopher Columbus' schema,

dominated by the belief that the world was round and small, did not allow for

another continent between Europe and Asia. When he reached land after sailing

from Spain, his most plausible scenario (i.e., schema) was that the land was India;

hence the name of the islands in the Caribbean and the appellation of "Indians" for

the original inhabitants of the entire land. History is replete with examples of the

disastrous consequences of retaining outmoded schemata.

Schemata "...put together whole tracts of knowledge out of a scattering of

parts, amplify and extend impoverished data, and make sense of what seems to be

nonsense. Schemata guide us through the thickets of complexity that confront us

at every waking moment...[But] as aids to action, they are apt to anchor us in the

mundane, the plausible, the familiar and they are ruthless in the way they murder

possibilities, cutting a path along which we can move in confidence without being

diverted by alternative routes" (Campbell, 1989, pp. 95-96).

One major modification is needed to the concept of schemata in order to arrive at representational models. Schemata belong to the cognitive domain, converting perceptions to knowledge and enabling decisions and actions based on knowledge. Representational models include knowledge but are most closely concerned with converting discrete behavioral interactions into relationships and evoking emotional responses based on relationships. Schemata organize information; representational models organize relationships. To use another physical metaphor: imagine an abstract painting inspired by the biblical story of The Prodigal Son. An analogue to a *schema* would be a title of "A Farmer's Son Returns Home"; an analogue to a *representational model* would be a title of "An Anxious Son Hopes for Forgiveness from a Loving Father." Both titles predispose the viewer to a specific interpretation of the painting; but the second title focuses on the emotional relationship rather than the organizing facts. Representational models can be considered a special class of schema; namely, a class of schema that encodes emotional as well as cognitive information.

The representational model, which encodes our past attachment experiences into highly emotionally charged schema, is the primary feature of the adult attachment system (Bowlby, 1988b; Hinde, 1982; Main *et al.*, 1986; Weiss, 1982). It is through the representational model that the emotions evoked by past attachment experiences are translated into patterns of behavior which largely

influence current attachment experiences. Current experiences can, in turn be

incorporated into and modify the existing model. The attachment system of the

adult thus contains, through the single mechanism of the representational model, the

capability for both rigidity and flexibility (c.f., assimilation versus accommodation;

Piaget, 1978).

When the representational model (or relational schema) is over-determined

such that it severely restricts the expression of attachment behaviors to a narrow

range and is impermeable to new information, the attachment system of the adult

is characterized by rigidity. This rigidity is the essence of pathological patterns of

attachment (Bowlby, 1973; Main, 1985; West & Sheldon, 1988).

2.5 OPERATIONAL DEFINITION OF ADULT ATTACHMENT RELATIONSHIPS. Adult

attachment relationships can be defined operationally in terms of the *criteria* that

differentiate adult attachment from other social relationships and from infant

attachment relationships, and the *provisions* supplied by attachment relationships.

The best-defined criteria of adult attachment are those proposed by Weiss (1974;

1982) and Rutter (1981). The work of Henderson and colleagues (Henderson, 1977;

Henderson *et al.*, 1980; Henderson *et al.*, 1981) provides the most useful description

of the benefits of attachment relationships.

On the basis of his work with primary group relationships, Weiss (1982)

concluded that adult attachment bonds largely fulfill the following criteria for

attachment: 1) in the face of stress, individuals attempt to seek contact with their

attachment figure (proximity-seeking); 2) increased comfort and diminished anxiety occur in the presence of the attachment figure (secure base effect); 3) separation or threat of separation from the attachment figure causes "discomfort and anxiety on discovering the attachment figure to be inexplicably inaccessible" (separation protest; Weiss, 1982, p. 173).

Bowlby (1973) and Ainsworth (1989) have characterized the adult attachment relationship as one that persists over time and differing situations. There is the expectation that the relationship to the attachment figure will be long-lived or permanent. This expectation is mirrored in a feared loss of the attachment figure, dependent upon the ability of the individual to sustain confidence in the future of the relationship.

As noted earlier, infant attachment relationships are characterized as *complementary*; adult attachment relationships are *reciprocal*. Bowlby (1969) and Hinde (1982) have noted that the principal function of adult attachment is to provide protection from danger through the maintenance of a *mutually reinforcing relationship* with a specific adult.

These five features, then, characterize adult attachment relationships: *proximity seeking, secure base effect, separation protest, feared loss* and *reciprocity*. In addition, the role of attachment for the individual, that is, the unique provisions offered by attachment, can be specified. In general, attachment provides a unique relationship with another individual who is perceived as available and responsive.

Bowlby (1973) points out that not only must the attachment figure be available but

also he or she needs to be responsive to distress. This provision of attachment is

therefore best captured by the phrase *responsive availability*. Lastly, it is necessary

to take into account Henderson *et al.*'s work (1980) demonstrating the independence

of availability and perceived adequacy of attachment. Henderson and his colleagues

found that an individual could have a high level of accessibility to the attachment

figure but fail to use the attachment relationship effectively. This suggests that the

ability to make use of an attachment relationship is distinct from the availability of

the attachment figure. These two provisions of adult attachment relationships,

responsive availability of the attachment figure and *use of the attachment figure*

complete the characterization (West *et al.*, 1987; West & Sheldon-Keller, 1991).

2.6 DYSFUNCTIONAL PATTERNS OF ADULT ATTACHMENT. Chapter 4 of the third

volume of <u>Attachment and Loss</u> is titled, "An Information Processing Approach to

Defense" (Bowlby, 1980, p. 44). Bowlby refers to studies in neurophysiology,

cognitive psychology and human information processing as the basis for his theory

of dysfunctional attachment patterns. Bowlby defines the role of consciousness to

be the ordering of processed information, the retrieval of old information from long-

term memory, the comparison of different kinds of information, decision-making

based on evaluation of information, and "...the inspection of certain overlearned and

automated action systems, together with the representational models linked to them,

that may be proving maladapted" (Bowlby, 1980, p. 54).

Within this understanding of consciousness, selective exclusion is an adaptive mechanism for ensuring that relevant data is attended to in preference to irrelevant data. Selective exclusion differentiates information from data, or signal from noise. Defensive exclusion, by contrast, is the persistent exclusion of some particular data which should be information or signal but is treated as noise because past experiences have led to suffering or pain when the information is fully processed (Peterfreund, 1971). Defensive exclusion can occur at one of two general levels: perceptual exclusion which leads to deactivation of the relevant control system or pre-conscious exclusion which leads to the processing of information being stopped prior to the conscious level and, therefore, to the "...cognitive disconnection of a response from the interpersonal situation that elicited it..." (Bowlby, 1980, p. 67). These two processes of exclusion formed the basis for his differentiation of maladaptive patterns of attachment.

Perceptual exclusion: Deactivation of attachment. In the prototype for development of the attachment pattern which Bowlby called Compulsive Self-Sufficiency [c.f. Main's Dismissing pattern (Main, 1985); West & Sheldon's Compulsive Self-Reliance (West & Sheldon, 1988)], the activation of the attachment behavioral system in infancy is not met with appropriate responses and therefore is never successfully terminated. Attachment behaviors (e.g., crying, clinging) do not evoke a comforting response from and increased proximity to the care-giver, but rather provoke displeasure and rejection by the care-giver. As the infant's distress

increases, the attachment behaviors become more pronounced and demanding. This simply provokes more pronounced rejection. Through repeated similar experiences, the infant learns that attachment behaviors lead to rejection and are therefore dangerous. The control system is eventually deactivated completely by "...the defensive exclusion...of sensory inflow of any and every kind that might activate attachment behavior and feeling" (Bowlby, 1980, p. 70). Main has suggested, further, that deactivation of attachment behaviors offers, in these circumstances, the best possibility for achieving the system's set-goal of proximity to the care-giver: the care-giver rejects the demanding infant but is willing to maintain proximity as long as the infant is undemanding (Main, 1977).

Cassidy and Kobak (1987) extend the developmental sequence into consequences for affect regulation and content of the representational model. They suggest that the masking of negative affect serves the same function as avoidance of attachment behaviors; that is, it keeps the care-giver close by avoiding stimuli that have caused rejection and distance. (N.B. In the preceding sentence, "stimuli" refers to the infant's actions and reactions, which are the stimuli evoking responses from the care-giver.) With development, the necessity to mask negative affect generalizes to a "defensive restriction in affective expression" (Cassidy & Kobak, 1987, p. 305) which is interpreted by others as meaning that the individual is unaffected by others. The representational model that others form of the individual thus comes to complement the individual's need to avoid activation of the

attachment system.

Cassidy and Kobak hypothesize that the individual's representational model includes views of relationships that de-emphasize the importance of giving and receiving care, and information-processing biases that function to control or deny affective distress. They use idealization as an example of such a bias: the individual constructs an idealized semantic (i.e., general) model of parents, self and the relationship that contradicts and denies the real episodic (i.e., specific) model based on actual experiences (c.f., Tulving, 1972). The consequence of defensive restriction in affective expression and of this type of representational model is to maintain the pattern of defensively excluding information that would activate the attachment system; hence, a pattern of Compulsive Self-Sufficiency is established and continued.

The problem with this model of deactivation of the attachment system is that it implies that the system ceases to function; that is, it is permanently turned off. This, in turn, implies that in normal circumstances the system operates intermittently, turning on and off in response to activation signals. Bretherton has proposed that to fulfill its function of ensuring safety, the attachment system cannot be only intermittently active, but must be continually active, monitoring the environment to assess proximity to the care-giver and familiarity of the surroundings (Bretherton, 1980). *Attachment behaviors* are only intermittently activated; the *attachment system* is continually active as an environmental monitor.

Is the attachment system deactivated as a monitor, or is it just attachment behaviors that are deactivated in the case of Compulsive Self-Sufficiency? Bowlby is pretty clear (though not entirely consistent) in Volume III (Bowlby, 1980) that it is the system itself which is deactivated. Other authors (see, for example, Bretherton, 1980; Cassidy & Kobak, 1987; Main, 1977) hypothesize that the system remains active, both in terms of its environmental monitoring activity and in terms of orientation to achieving a set-goal.

Bowlby presents Compulsive Self-Sufficiency as the result of the defensive exclusion of attachment-relevant information *at the initial perceptual level*: the information is never allowed into the processing system. Later investigators model Compulsive Self-Sufficiency as the result of defensive exclusion of attachment-relevant information *at the representational level*: information relating to activation of attachment behaviors is processed until the level of comparison with the existing representational model is reached: at that point, the information is excluded from evoking behaviors and affects.

Exclusion from consciousness: Disconnection of cause and effect. Defensive exclusion of activation signals is not the only form of defensive exclusion hypothesized by Bowlby. Activation can be allowed but accurate interpretation of the meaning of activation disallowed. Bowlby implies that it is this form of defensive exclusion which is most likely to be supported by defensive activities and beliefs, "...to divert [the individual's] attention away from whoever, or whatever, may be

responsible for his reactions..." (Bowlby, 1980, p. 65). Bowlby emphasizes the defensive activity of giving care to others, with the subsequent development of a stable pattern of Compulsive Care-Giving in relationships.

Although Bowlby does not explicate the antecedents of Compulsive Care-Giving as precisely as he does for Compulsive Self-Sufficiency, the general developmental pathway is clear. Compulsive Care-Giving probably derives from experiences in which activation of the infant's attachment behaviors evokes anxious and ineffective concern, rather than comforting responsiveness, from the care-giver. The infant learns that attachment behaviors provoke distress. The care-giving behavioral control system is the complement of the infant's attachment system. This system is usually dormant in infancy and early childhood, although early intermittent activation can be seen frequently in the protectiveness of older siblings towards younger siblings (Ainsworth, 1985; West & Sheldon-Keller, 1991). If activation of attachment behaviors provokes distress in the care-giver, then the care-giver's distress could activate the care-giving system, setting the stage, as it were, for an association between attachment and care-giving within the representational model and, hence, the development of a pattern of Compulsive Care-Giving.

The final pathological pattern explicated by Bowlby, Anxious Attachment, seems more dependent on defensive beliefs, particularly those that lead an individual to "...dwell so insistently on the details of his own reactions and sufferings that he has no time to consider what the interpersonal situation responsible for his

reactions may really be" (Bowlby, 1980, p. 65).

The antecedents of Anxious Attachment, in terms of the care-giver's responsiveness are "...experiences that shake a person's confidence that his attachment figures will be available to him when desired" (Bowlby, 1973, p. 213). But this description could also describe the experiential antecedents of Compulsive Self-Sufficiency. In discussing the conditions predisposing a person to Anxious Attachment, Bowlby emphasizes interruptions of the primary attachment relationship, substitute care that fails to provide one primary care-giver, and threatened interruptions by the care-giver's actions (e.g., suicidal gestures, threats to abandon the child or send the child away if he/she is bad). Thus it becomes clear that it is the confusing and contradictory nature of attachment experiences that differentiates these experiences from those predisposing to Compulsive Self-Sufficiency. The person who exhibits Compulsive Self-Sufficiency experienced consistency: whenever attachment behaviors were expressed, the result was rejection. The person who exhibits Anxious Attachment experienced inconsistency, either through changing external circumstances or through inconsistent responsiveness of the care-giver. The care-giver would sometimes be responsive, sometimes rejecting, sometimes anxious -- seemingly, to the young child, capriciously and unpredictably. The child learns that no pattern of response can be automatically assumed but that activation of attachment must always include watchfulness and uncertainty. In another context, Dorothy Sayers has spoken of the consequences of such perception.

If the attachment figure's reactions "...are conceived as being arbitrary, capricious and irrational, we shall continue in a state of terror and bewilderment, since we shall never know from one minute to the next what we are supposed to be doing, or why, or what we have to expect" (Sayers, 1987, p. 17).

Recent research into adult attachment has extended Bowlby's classification of dysfunctional patterns. Mary Main and her associates have developed the Adult Attachment Interview (Main, 1985) to investigate adults' past and present relationships with their parents. The methodology focusses on *interpretation* of elicited information rather than simple recording of reported behaviors, memories and attitudes. This information, which has been described as assessing an adult's representational model of attachment relationships (Ainsworth, 1985), yields four classifications of adult attachment patterns. In experimental studies of infant-mother relationships (Main & Goldwyn, 1984; Main *et al.*, 1986), these four patterns correlated well with classifications of attachment patterns in infants as determined by Ainsworth's Strange Situation methodology (Ainsworth *et al.*, 1978). The pattern correlations are as follows:

MOTHER	INFANT
1. Dismissing of attachment	1. Avoidant
2. Secure, autonomous	2. Secure
3. Preoccupied with attachment	3. Ambivalent
4. Unresolved mourning	4. Disorganized/Disoriented

Following a different research orientation, West and Sheldon (Sheldon &

West 1990; West & Sheldon, 1988) have focussed on the development and empirical

validation of two questionnaires to investigate dysfunctional attachment patterns of

adults. The first questionnaire contains scales to identify the *criteria* and *provisions*

of adult reciprocal attachment relationships (see Section 2.5) and scales to

differentiate four *patterns of dysfunctional attachment* for those in attachment

relationships: Compulsive Self-Reliance, Compulsive Care-Seeking, Compulsive Care-

Giving and Angry Withdrawal (West & Sheldon, 1988). The second questionnaire

addresses the components of Avoidant Attachment, that is, the attachment needs

and expectations of those individuals who have had no long-term reciprocal

attachment relationship (Sheldon & West, 1990).

2.7 RELATIONSHIP OF ATTACHMENT THEORY TO OBJECT RELATIONS THEORY. A careful

delineation of the correspondence between attachment theory and object relations

theory is beyond the scope of this work. But John Bowlby's training and initial

theoretical orientation was within the object relations field of psychoanalysis

(Hamilton, 1985), so it is appropriate to provide a brief summary of the relationship between attachment theory and object relations theory.

In *Inhibitions, Symptoms, and Anxiety*, Freud placed *loss* at the center of his revised theory of anxiety: anxiety "can be reduced to a single condition, namely, that of missing someone who is loved and longed for ... *anxiety appears as a reaction to the felt loss of the object*" (Freud, 1956, p. 136, emphasis added). Although Freud never abandoned the energic model, the psychology of meaningful connections increasingly became the focus of personality study. Psychoanalysis now concerned itself more with the individual's creation of an interpersonal reality based on actual experiences with significant others. This initiative in psychoanalytic theory continued in the work of theorists such as Sullivan (1953), with his emphasis on the interpersonal field; Fairbairn (1952), who developed object-relations theory; and Winnicott (1957, 1964, 1965) who emphasized the importance of the mother's reflective role in establishing a secure sense of self in the child.

Freudian psychoanalytic theory models individual psychological reality as an internal and separate phenomena, arising from basic drives, rooted in physiology, and having content which precedes and determines social experiences (Blanck, 1986; Freud, 1961; White & Gilliland, 1975). Melanie Klein, for example, emphasizes the consequences of constitutional forces and fantasy on emotional relations to the other (Klein, 1948; Grosskurth, 1986). Schafer (1983) used the metaphor of the infant as beast to capture Freudian developmental theory. In this metaphor, development

begins "...with the infant and young child as a beast, otherwise known as the id, and ends with the beast domesticated, tamed by frustration in the course of development in a civilization hostile to its nature."

Object relations theorists, by contrast, emphasize the precedence of the interactional field, beginning where Freudian theory ends, with interpersonal relationships. As the name suggests, object relations theory considers the individual *subject* to be a function of relationships with other *objects* (i.e., persons) (Fairbairn, 1952; Hamilton, 1989). Within this general orientation, there are numerous versions of individual psychology and functioning as a product of object relations: Sullivan emphasizes the importance of peer relations in personality development (Sullivan, 1953); Fairbairn emphasizes the need for an intimate relationship as an overarching need (Fairbairn, 1952); Winnicott emphasizes the role of relationships in the development of a real sense of self (Winnicott 1953 and 1965).

In the emphasis on the importance and innateness of relationships, object relations theory and attachment theory are closely congruent. The theories diverge in the modeling of development and the consequences of adverse experiences on normal development. Within object relations theory, normal development is modelled as an invariant sequential and hierarchical process, proceeding through necessary stages. Each stage builds on previous stages; failure at one stage results in cessation of progress. Continuity with the past is accented; adult relationships are fixed residues of early childhood experiences (Blanck, 1986; Hamilton, 1989).

Attachment theory encompasses a different developmental model, as expressed in Waddington's model of branching pathways (Waddington, 1967). At birth, there are a large number of potential pathways to maturity. Varied experiences progressively narrow these choices and can constrain the choices into maladaptive pathways. Outcome is not "overdetermined" by past experiences but rather "restrained from alternative pathways. Unlike classical psychoanalytic and object relations theories of development, attachment theory does not define discrete "stages" of development, but rather formulates a theory of developmental continuity, built on the elaboration and expression of the internal representational model of attachment.

2.8 RELATIONSHIP OF ATTACHMENT THEORY TO SOCIAL SUPPORT THEORY. In 1974 John Cassel, physician and epidemiologist, published a paper in which he argued that deficiencies in the supportive network of family and friends surrounding an individual significantly increase the risk of a variety of stress-related disorders (Cassel, 1974). Gerald Caplan, a leader in preventive psychiatry and community mental health, incorporated Cassel's ideas into his theories on the importance of formal and informal caregiving systems in maintaining mental health and coping with life stressors (Caplan & Killilea, 1976). From these beginnings, theories and investigations regarding social support have achieved pre-eminence in the social sciences (Freeman & Sheldon, 1985; Sheldon *et al.*, 1981).

> The picture presented by the social support literature is both complex and
> confusing. Discord and diversity have coalesced around three issues: the range of
> social ties that are relevant to support, the relative importance of objective features
> of social relationships and supportive behavior versus the individual's perception
> or appraisal of these, and the variety of forms that support might take.(Vaux, 1988,
> p. 9).

Researchers focussing on the first issue, the range of relationships relevant to

support, generally organize relationships into a network which is *unitary* in structure

and *diverse* in intensity or saliency only.   In other words, the spectrum of

interpersonal relationships, in terms of ability to provide social support, is assumed

to be organized from casual acquaintances through role-related friendships to

intimate friends and family, including unique attachment relationships (see, for

example, Scott, 1988; Stewart, 1989). Attachment is assumed to arise from the same

needs as other close social relationships, to fulfil the same functions, and to be

maintained by the same behaviors, cognitions and affects.

Henderson's conceptualization is particularly instructive, as he is one of the

few investigators to attempt a systematic research study taking into account

attachment relationships in adults. Henderson states (in agreement with Caplan,

1974) that "'psychosocial supplies'...[are]...the essential commodity that people obtain

from their social network" (1977, p. 187). He further proposes that an individual has

"affective attachments" towards members of his/her primary group and "it is from

them that his psychosocial supplies are said to be derived" (1977, p. 187). As

supporting evidence for his thesis of the importance of attachment in adults,

Henderson (and many other authors) cites the study, by George Brown and his

colleagues, of working class women in Camberwell (Brown *et al.*, 1975). In this study, "lack of an intimate confiding relationship with a husband or boyfriend" was found to be one of four factors associated with increased psychiatric morbidity following stressful life events. By using this finding to support his thesis on the importance of attachment relationships, Henderson assumes that an intimate confiding relationship is synonymous with an attachment relationship in adults.

This general approach to attachment in adults defines attachment relationships as a subset, identified by intensity and intimacy, of an individual's social support or affiliative network. For example, in their study of "attachment and family integration," Troll and Smith (1976) accept Gewirtz's definition of attachment as a "2-person reciprocal relationship" (1972). The clearest statement of this understanding of attachment comes from a recent article by Heard and Lake in the British Journal of Psychiatry (1986):

> 'Preferred relationships' refers to relationships in which individuals regularly expect to find opportunities for companionable and/or supportive interactions...People who are so classed constitute an individual's attachment network...The concept of preferred relationships in the attachment network circumvents difficulties in describing attachment relationships and affectional bonds in adults. (p. 431)

There are two implicit assumptions in this approach: 1) attachment can be characterized using the same criteria as affiliation (for example, if affiliative relationships provide companionship and intimacy, attachment relationships provide preferred or more salient companionship and intimacy); and 2) attachment and affiliation serve the same function(s) with attachment, again, doing the job more and better (Sheldon & West, 1989; West & Sheldon, 1987). Neither of these

assumptions agree with theoretical formulations about the nature of the attachment system in infancy and childhood.

These assumptions can lead to seemingly confusing findings in regards to the function of intimate relationships, as demonstrated by the Camberwell study of George Brown and his colleagues (Brown *et al.*, 1975). Brown and his colleagues rated "intimacy" on a four point scale, as type 'a' through type 'd'. Type a and type b relationships were both defined as "close, intimate, and confiding" (1975, p. 234). Type a relationships were with "...husband or boyfriend, or in exceptional cases a woman with whom they lived." Type b relationships were with "...mother, sister or friend whom they saw at least weekly." Only type a relationships provide '...almost complete protection..." against psychiatric sequelae to stressful life events, while type b relationships "...failed to provide even relative protection..."

Attachment theory can explain the difference in effectiveness between type a and type b relationships. In the absence of a stressor causing decreased security, type a and type b relationships fulfill similar affiliative needs equally well. But when a stressor activates the attachment behavioral system, attachment needs -- that is, the need to re-establish a sense of security -- predominate. Only type a relationships have predominant attachment components and thus fulfill attachment needs. The findings of the Camberwell study can therefore be understood as differentiating the attachment versus affiliative components of close relationships.

As implied in the discussion of the Camberwell study, relationships can look equivalent when classified only according to affectional components but can nonetheless be quite different in terms of the ability to fulfill attachment functions. In accordance with the implications of Bowlby's theory, attachment is restricted to dyadic relationships in which proximity to a special other is sought or maintained to provide a sense of security. The principal function of adult attachment is protection from danger (as it is during childhood) although adults recognize other dangers to existence than those recognized by infants and children: specifically, threats to the individual's self-concept and integrity (Weiss, 1982; West *et al.*, 1986). Affiliative relationships have a quite different function, serving to promote exploration and expansion of interests from the secure base provided by attachment.

Theoretically, attachment in adults should be defined for investigation primarily in terms of *function* (achievement of felt security) rather than in terms of *structure* (specific behaviors or form of relationship or role-defined "other"). Any behavior becomes an attachment behavior when the purpose of the behavior is to achieve or enhance security through proximity to a particular person. Any relationship may have an attachment component to the degree that the relationship promotes security. A behavioral repertoire becomes an attachment pattern when it is used preferentially and consistently in an effort to achieve security (even in the face of persistent failure). A relationship becomes an attachment relationship when the primary purpose of the relationship is the provision of security. The question

addressed by the following research study is whether there is evidence that this

theoretical formulation of the specific function of attachment for adults is mirrored

in the expectations adults form about specific types of relationships.

3.0 RESEARCH STUDY 1:

THE FUNCTIONAL DIFFERENTIATION OF ATTACHMENT AND AFFILIATION

3.1 INTRODUCTION. This study investigates whether adults perceive functional

differences between attachment and affiliative relationships. College students acted

as judges to categorize forty-three phrases describing characteristics of social

relationships. The number of students assigning each phrase to the category

associated with an attachment relationship was examined, with particular reference

to those phrases ascribed by theory to attachment relationships. The central

question investigated is:

> Do adults organize their expectations of relationships in a manner that reflects the
> functions hypothesized to characterize attachment relationships?

Two competing models are investigated: the model that attachment variables are

preferentially associated with one category only (the *lover* category) versus the

model that attachment variables are associated with two categories (the *lover*

category and the *best friend* category). In other words, the functional distinction of

attachment relationships and close affiliative relationships is tested.

The task is a categorization task; the underlying distribution of variables is

unknown; the variables are nominal or ordinal. Therefore, a non-parametric

approach is taken to analyzing statistically significant differences. The analysis was

designed and interpreted following the work of several authors (Freeman, 1987;

Hinkle *et al.*, 1979; Read & Cressie, 1988; Rosner, 1986) and carried out using

Minitab (Ryan *et al.*, 1985) and SPSSX (SPSS Inc, 1986) statistical packages.

3.2 DESIGN OF THE STUDY. One hundred fifty-three (153) student volunteers from an undergraduate psychology course at the University of Calgary completed a simple paper-and-pencil categorization task. Forty-five (45) terms (*descriptors*) used to describe the functions and characteristics of various social relationships were culled from articles in professional journals. The students were asked to assign each term to one or more category according to which category they felt the term would best apply to in their own life. The categories were *lover, best friend*, and *friend*. The students were allowed to assign each descriptor to more than one category.

The instructions emphasized two points: first, that the term *lover* should be taken to signify "...someone you would feel 'in love' with..." rather than, necessarily, "...a person you have a physical relationship with..."; secondly, that "we want you to decide whether <u>for you</u> in your own life the descriptor would <u>best</u> apply to someone who was your lover, best friend or friend...There are no right or wrong answers."

College students were well-suited to function as judges for this task. The students have comparable levels of reading skills, so they could understand the task fairly easily. Most students were 18 to 24 years old; this age range is appropriate to the task because most subjects will have formed specific ideas about types of relationships, but these ideas will not ordinarily have been greatly modified by contradictory environmental responses. That is, the subjects' ideas about the functions of different types of relationship should reflect generalized expectations (i.e., representational models) at least as much as practical experience.

·*Instrument.* An informal content analysis of approximately 40 articles dealing with social support, attachment and affiliation, published over the last two decades in major periodicals in medicine and the social sciences (primarily psychiatry and psychology) resulted in a list of over 100 terms used to describe relationships. The review was focused particularly for terms used to characterize the *functions* of social relationships for adults. From this long list of terms, a "short list" of 45 *descriptors* were chosen, based on relevance to functional distinctions and frequency of appearance in the literature. The intent was to be representative rather than inclusive.

The works of three authors, John Bowlby (1969/1982, 1973, 1977, 1980, 1982), Mary Ainsworth (1972, 1982, 1985) and Robert Weiss (1973, 1974, 1982), constitute the primary references for the descriptors associated theoretically with attachment relationships. These "attachment descriptors" are characteristics associated with the unique function of the attachment system (i.e., protection from dangers) and the unique goal of the attachment system (i.e., security); the attachment descriptors constitute 17 of the 45 descriptors. Table 3.1 lists the 17 attachment descriptors; Table 3.2 lists the 28 "non-attachment descriptors".

TABLE 3.1

DESCRIPTORS ASSOCIATED WITH ATTACHMENT FUNCTIONS AND GOAL

Long-lived tie, enduring

Sexual intimacy

You fear loss of this person

Provides sense of being needed

Caregiver

Prevents loneliness

His/her happiness is a goal for you

You try to protect

Permanent relationship

Provides sense of security

Provides opportunity for giving nurturance

Separation causes distress

Faithful

Sought out in times of stress

Plan future with

You protest separation from

Exclusive relationship

TABLE 3.2

DESCRIPTORS ASSOCIATED WITH NON-ATTACHMENT FUNCTIONS

Important as unique individual

Shares common interests

Offers help when needed

Competitive at times

Loss causes grief

Frequent shared activities

Provides guidance and advice

Wants to maintain closeness

Independent

Companionship

Mutual trust

Provides reassurance

Shared activities are most important part of relationship

Helps you be sociable

Knows a lot about you

Loyal

You cherish

Mutually confiding about personal thoughts and feelings

Frequently sought out

Cooperative

Prevents isolation

Provides you with a sense of worth and competence

Pleasure, joy in reunion

Comfortable

Shared interpretation of experience

Predictable

Variable and Equivalent Relationship

Fixed and Complementary Relationship

The categories for the sorting task were chosen to represent common-language equivalents for three major types of social relationships for adults: *lover* was chosen to represent the unique pair-bonded relationship which would ordinarily constitute the attachment relationship; *best friend* was chosen to represent the close affectional and confidante relationship(s) within a social support system; *friend* was chosen to represent other more indefinite relationships within a social support system.

The terms can be thought of as representing points on several possible continuums: least interchangeable to most interchangeable; most frequent contact to least frequent contact; most permanent to least permanent; highly physically involved to low physical involvement, etc. So attachment functions are not necessarily a primary underlying construct in differentiating any of these types of relationships. But if attachment functions continue in adulthood, as in childhood, to be associated with one particular other (Bowlby, 1988b), then the functions characteristic of attachment relationships should be associated primarily with one particular relationship, namely, *lover*. This task therefore investigates the extent to which young adult judges associate attachment functions uniquely with a particular social relationship, represented by the word *lover*.

3.3 Demography of the Sample. The questionnaires asked only for the age and sex of the respondents, so these are the only demographic characteristics considered.

Table 3.3 relates these two demographic variables for these respondents.

TABLE 3.3 SEX AND AGE OF RESPONDENTS

	N	Age Mean	Standard Deviation	T-value	p-value
Females	84	21.7	5.9		
				1.41	0.2
Males	57	20.6	3.3		
Unknown	12				
Total	153	21.3	5.0		

Females constitute 55% of the respondents; males, 37%. Twelve returns (8%) were unmarked as to age and sex. As can be seen in Table 3.3, a t-test indicates that the age is not significantly different for females and males. In order to consider possible effects of the demographic variables on the categorization task, age was transformed to a binary categorical variable, using the median value of 19 years old as the group determinant. Table 3.4 presents the resultant numbers and percentages of respondents in each of the four cells determined by demographic characteristics.

TABLE 3.4 RESPONDENTS DIVIDED BY DEMOGRAPHIC CHARACTERISTICS

	Less than 20 years old		20 years old and older		Total	
Females	51		33		84	
Row percent	61		39		100	
Column percent		62		56		60
Total percent	36		23		60	
Males	31		26		57	
Row percent	54		46		100	
Column percent		38		44		40
Total percent	22		18		40	
Total N	82		59		141	
Row percent	58		42		100	
Column percent		100		100		100

3.4 STATISTICAL ANALYSES: *Justification of the analytic strategy.* This study does not investigate differences between the participants in the study but rather differences between the variables. The 45 variables are the true subjects of the experiment; the student judges are the measurement instrument. An analogy can be drawn to case-control experiments. In this study, the 17 variables associated with attachment relationships are the "cases"; the 28 other variables are the "controls." The null hypothesis could then be expressed as follows:

H_0: There is no difference in the proportion of cases and controls in the designated categories of *lover, best friend* and *friend*.

Parametric tests of statistical significance require, minimally, three assumptions: first, that the measurement variable has a normal distribution in the

underlying population(s); second, that the measurement variable has equal variance

in the populations studied; and, third, that the measurement variable is at least

interval.

Nonparametric tests are designed to accommodate data for which

assumptions of normal distribution and homogeneity of variance cannot be met

and/or data for which the measurement scale is less than interval. Nonparametric

tests generally are more conservative than parametric tests in regards to detection

of statistical significance; that is, nonparametric tests can increase the probability of

a Type II error rather than a Type I error. In this study, the underlying population

is the hypothetical population of all possible descriptors of social relationships; the

45 variables represent a non-random sample of that population. As noted earlier,

the measurement instrument is the student judges; the measurement value is the

number of judges placing each variable in a given category. It therefore seems most

appropriate to use nonparametric tests for this data.

Method of analysis. The method of analysis is summarized in five steps:

1.   Student judges are divided into four groups according to sex and age:

        females less than 20 years old; females 20 years old and older; males less

        than 20 years old; and males 20 years old and older.

2.   The variables are divided into two groups according to attachment functions:

        the 17 variables which are theoretically functions of attachment relationships

        for adults; and the 28 variables which are theoretically functions of other

social relationships for adults.

3.   These divisions are used to create eight groups:

Group 1 =   Attachment variables for females < 19 years old;

Group 2 =   Attachment variables for females ≥ 19 years old;

Group 3 =   Attachment variables for males < 19 years old;

Group 4 =   Attachment variables for males ≥ 19 years old;

Group 5 =   Non-attachment variables for females < 19 years old;

Group 6 =   Non-attachment variables for females ≥ 19 years old;

Group 7 =   Non-attachment variables for males < 19 years old;

Group 8 =   Non-attachment variables for males ≥ 19 years old.

4.   Three dependent variables are created:

LOV =   The number of judges who assigned each variable only to the
category of *lover*;

L+BF =   The number of judges who assigned each variable to both the
categories of *lover* and *best friend*, but not to the category of
friend;

OTH =   The number of judges who assigned each variable to any other
category or combination of categories.

5.   Three Kruskal-Wallis analyses of variance for ranks are performed to test
the following three null hypotheses:

H$_0$:   There is no difference in the mean ranks of the variable LOV among

the eight groups. In other words, attachment variables are not

preferentially associated with the category of *lover*, compared to non-

attachment variables.

H$_0$:   There is no difference in the mean ranks of the variable L+BF

among the eight groups. In other words, attachment variables are not

preferentially associated with assignment to both *lover* and *best friend*

categories, compared to non-attachment variables.

H$_0$:   There is no difference in the mean ranks of the variable OTH among

the eight groups. In other words, attachment variables are not

preferentially associated with assignment to any other combination of

categories, compared to non-attachment variables.

Results of the analysis: Two related descriptors, *Variable and Equivalent*

Relationship and *Fixed and Complementary Relationship*, were excluded from the

analysis as most subjects either ignored them or indicated confusion as to their

meaning. The set of variables analyzed therefore comprises 17 variables related to

functions of the attachment system and 26 variables related to functions of other

social systems. Table 3.5 presents the over-all percentage of subjects assigning each

variable to each of the three summary categories. The variables are listed in

decreasing order of assignment to the category of LOV. Variables related to

attachment functions are indicated by the @ symbol.

TABLE 3.5

PERCENTAGE OF ALL JUDGES ASSIGNING EACH VARIABLE TO EACH CATEGORY

	Categories		
Variables	**LOV**	**L+BF**	**OTH**
@ *Sexual intimacy*	97	3	0
@ *Plan future with*	74	16	10
@ *Exclusive relationship*	70	20	10
@ *You protest separation from*	66	26	8
@ *Separation causes distress*	64	29	7
@ *His/her happiness is a goal for you*	61	30	9
@ *Provides opportunity for giving nurturance*	55	30	15
@ *Provides sense of being needed*	49	32	19
@ *Provides sense of security*	44	34	22
@ *Faithful*	43	36	20
@ *Caregiver*	39	37	24
You cherish	37	48	15
@ *You fear loss of this person*	33	47	20
@ *Permanent relationship*	33	41	25
Wants to maintain closeness	33	58	10
@ *You try to protect*	28	40	32
Frequently sought out	26	45	30
Pleasure, joy in reunion	26	47	28
Shared interpretation of experience	24	35	41
@ *Long-lived tie, enduring*	22	45	33
Shared activities are most important part	21	27	53
Loyal	20	45	36
@ *Prevents loneliness*	19	26	55
@ *Sought out in times of stress*	19	47	34
Mutually confiding about personal thoughts and feelings	18	68	14
Provides you with a sense of worth and competence	18	52	30
Predictable	17	33	50
Companionship	17	30	53
Mutual trust	16	56	28
Provides reassurance	16	45	39
Frequent shared activities	14	44	42
Knows a lot about you	13	71	16
Loss causes grief	12	42	45
Cooperative	11	25	64
Important as unique individual	10	46	44
Prevents isolation	10	20	70
Independent	9	8	83
Comfortable	8	46	46
Provides guidance and advice	7	26	67
Shares common interests	5	29	66
Offers help when needed	5	39	56
Helps you be sociable	5	11	84
Competitive at times	4	9	86

The first eleven variables in this ordered list are from the set of attachment variables. The last nineteen variables are from the set of non-attachment variables. This simple ranking therefore presents immediate strong evidence that attachment functions are recognized implicitly by these judges as constituting a special subset of functions particularly associated with a special relationship.

Seventeen descriptors were placed in both categories of *lover* and *best friend* more often than in any other category or combination of categories. This pattern of categorization is interpreted as indicating the extensive functional overlap between attachment and affiliative relationships for adults in our culture. The relationship of *lover* is expected to fulfil the same function as the relationship of *best friend*. But the relationship of *lover* is also associated with the extra and unique functions characteristic of attachment.

Fourteen descriptors were placed in the *friend* category (either that category only or that category in combination with *best friend*, or both *best friend* and *lover*[1]). These patterns of categorization are interpreted as indicating functions assigned to general social relationships. Five variables were placed in these categories by over two-thirds of the judges; these variables are: competitive at times, independent, helps you to be sociable, prevents isolation and comfortable. The association of these functions with general social relationships has a face validity that lends

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[1] The combination of *lover* and *friend*, without the inclusion of *best friend*, did not occur for any variable.

credence to the general approach.

Table 3.6 summarizes the statistical tests.

KRUSKAL-WALLIS ANALYSES OF VARIANCE OF RANKS

Demographic Categories	Mean Ranks		Adjusted for Ties	
	Attachment Variables	Non-attachment Variables	Chi-Square	Signif.
I. FOR CATEGORY = LOV (Assignment to only the *lover* category)				
Females, < 20 years old	136.50	61.40	86.97	<0.001
Females, ≥ 20 years old	129.41	73.27		
Males, < 20 years old	131.68	54.17		
Males, ≥ 20 years old	117.71	46.46		
II. FOR CATEGORY = L+BF (Assignment to both *lover* and *best friend*)				
Females, < 20 years old	130.47	123.13	52.88	<0.001
Females, ≥ 20 years old	64.61	84.10		
Males, < 20 years old	69.32	100.19		
Males, ≥ 20 years old	43.97	63.31		
III. FOR CATEGORY = OTH (All other assignment patterns)				
Females, < 20 years old	87.38	140.33	71.86	<0.001
Females, ≥ 20 years old	59.24	104.60		
Males, < 20 years old	31.44	86.77		
Males, ≥ 20 years old	45.71	94.23		

All three null hypotheses are rejected. In the first test, the mean rank of the attachment variables is higher than the mean rank of the non-attachment variables for all demographic groups. In the third test, the mean rank of the attachment variables is lower than the mean rank of the non-attachment variables for all demographic groups. Only the second test shows any confounding of the results by demographic factors: the mean rank of the attachment variables is lower than the mean rank of the non-attachment variables for all groups *except* the group of females under 20 years old.

3.5 DISCUSSION. The results of this study can be compared with Robert Weiss' characterization of attachment relationships for adults (Weiss, 1982; see section 3.0). Two of the characteristics which Weiss describe as common to infant and adult attachment can be related directly to terms endorsed for *lover* only: secure base with 'provides sense of security' and separation protest with 'you protest separation from' and 'separation causes distress.' The third characteristic which according to Weiss is shared by infant and adult attachment, proximity-seeking, does not seem to be associated exclusively with the attachment relationship by these judges, as the terms 'frequently sought out,' 'sought out when stressed' and 'wants to maintain closeness' were each endorsed for both *lover* and *best friend*.

One interpretation of these results is that close affiliative relationships include the expectation of frequent contact but not the expectation that this

contact is guaranteed or will necessarily always be available when wanted or in the future. In contrast, the association of the terms 'plan future with,' 'faithful' and 'caregiver' with the *lover* category suggests that adults expect attachment relationships to provide availability and security not only in the present but also in the future. Expectations of a shared future appears to be a crucial hallmark of adult attachment relationships.

Weiss (1982) also identified three characteristics which differentiated adult from infant attachment: adult attachments are typically peer relationships, involve a sexual relationship and do not overwhelm other behaviorally-based systems to the extent that infant attachment can do in times of stress. The peer relationship component is indicated in these results by the expectation of reciprocity: 'his/her happiness is a goal for you,' 'opportunity to give nurturance' and 'provides you with a sense of being needed,' all of which were preferentially endorsed for the category of *lover*. The term 'sexual intimacy' indicates the close association of a sexual relationship with the category of *lover* (a finding that accentuates the obvious!); the terms 'exclusive' and 'faithful', endorsed preferentially for *lover*, can also be interpreted as relating to the sexual component of the relationship. The third characteristic identified by Weiss, the decreased ability of the attachment system to overwhelm other behaviorally-based systems, is not directly tested in this study, but can be inferred from the large number of functions assigned to both *lover* and *best friend*. The adult attachment and affiliative

systems are not antithetical in all functions; for adults, many functions are common to the two systems. One system would not ordinarily be capable of completely overwhelming the other, in that the shared functions, at least, should be maintained. The large number of functions endorsed for both *lover* and *best friend* is therefore in agreement with Weiss' observation.

This study demonstrates that attachment relationships serve unique functions for adults; that these functions are congruent with the functions of attachment for infants; and that the attachment relationship can be defined *specifically by these unique functions* (related to protection from 'danger' and maintenance/re-establishment of security) rather than by *structural characteristics* (e.g., specific behavior or form of relationship or role-defined other).

With the demonstration that the attachment system remains functional in adulthood, the stage is set for consideration of the clinical relevance of the attachment system. One particular aspect of clinical relevance, usefulness in differential diagnosis, has been proposed (Sheldon & West, 1988 and 1990) and is addressed in relationship to specific personality disorders. These limitations are artificial, to accomodate what is feasible in one dissertation. The possible applications of attachment theory to clinical issues is much broader and, possibly more interesting, than differential diagnosis of personality disorders (see, for example, Belsky & Nezworski, 1988; West *et al.*, 1989).

4.0 LITERATURE REVIEW: PERSONALITY DISORDERS

4.1 History of the Current Diagnostic System. In 1952, the American

Psychiatric Association (APA) published the first edition of a Diagnostic and

Statistical Manual of Mental Disorders (DSM). DSM-III, developed in 1980 by the

APA's Task Force on Nomenclature and Statistics, is the third edition of this

manual (APA, 1980). In the intervening years it has come to be the most widely

used system in North America for the classification of psychiatric diagnoses. The

general purpose of the diagnostic system is "...to provide clear descriptions of

diagnostic criteria in order to enable clinicians and investigators to diagnose,

communicate about, study, and treat the various mental disorders" (APA, 1987, p.

vii). The approach to classification has been described as "...atheoretical; it is

'phenomenologically descriptive'" (Webb *et al.*, 1981, p. 29).

One of the major differences between DSM-II and DSM-III is the multi-

axial classification strategy of DSM-III. DSM-III contains five axes of classification:

each patient should receive a code on each axis. The two diagnostic axes are Axis

I (Clinical Syndromes and V Codes) and Axis II (Developmental Disorders and

Personality Disorders). This literature review focusses on the Axis II Personality

Disorders in general, and specifically on Schizoid, Avoidant and Dependent

Personality Disorders.

4.2 DEFINITION OF PERSONALITY DISORDERS.

Personality traits are relatively stable patterns of thinking, feeling, behaving, or relating that are demonstrated over a wide range of situations. A Personality Disorder diagnosis is given when personality traits become inflexible and maladaptive, cause subjective distress, and result in significant impairment in social or occupational functioning. (Webb *et al.*, 1981, p. 125)

The personality disorders section of DSM-III includes eleven diagnoses organized into three "clusters" (APA, 1980). Both polythetic and monothetic diagnostic structures are used to organize positive diagnostic criteria. In polythetic structures, all criteria relevant to the disorder are listed and a minimum number of criteria which must be present is specified (Pfohl *et al.*, 1986). Monothetic structures require the presence of all specified criteria for diagnosis. Schizoid, Avoidant and Dependent Disorders are each defined by a monothetic structure of diagnostic criteria. The clusters, diagnoses, total number of criteria for each disorder and minimum number which must be present are listed in Table 4.1.

TABLE 4.1 DSM-III, AXIS II: CLASSIFICATION AND DIAGNOSTIC SCHEMA

Cluster	Personality Disorder Diagnosis	Criteria Total	Min.
1. Odd or Eccentric	Paranoid	16	7
	Schizoid	5	5
	Schizotypal	8	4
2. Dramatic, Emotional, Erratic	Histrionic	10	5
	Narcissistic	8	6
	Antisocial	22	8
	Borderline	8	5
3. Anxious or Fearful	Avoidant	5	5
	Dependent	3	3
	Compulsive	5	4
	Passive-Aggressive	8	5

4.3 DIAGNOSTIC RELIABILITY AND VALIDITY. The diagnosis of personality disorders is characterized by low discrimination among the diagnoses (see, for example, Frances & Widiger, 1989; Gorton & Akhtar, 1990; Stangl et al., 1985). Pfohl, Coryell, Zimmerman and Stangl (1986) report that 54% of patients in their study received two or more diagnoses. Drake and Vaillant (1985) report that, in their community sample, 40 of the 86 men (47%) with a personality disorder diagnosis met criteria for more than one Axis II diagnosis. Similar rates have been reported by other investigators (see, for example, Mellsop et al., 1982.; Frances & Widiger, 1989), including the report of initial field trials by Spitzer, Forman and Nee (1979.). Widiger et al. (1987), in a study of patients in a state hospital, found that the average patient in the study met DSM-III criteria for 3.75 of the 11 personality disorders, when diagnosed by structured interview. To some extent such overlap is inevitable because of shared criteria (Widiger et al., 1988). But reliability studies have also demonstrated poor interrater reliability among clinicians (see, for example, Mellsop et al., Morey, 1988; Spitzer et al., 1979).

Such investigations of the various forms of reliability of diagnosis for personality disorders has become a sub-specialty in psychiatric research over the last five years, generating a growing literature and a new professional journal, *The Journal of Personality Disorders*. The most consistent findings of this research are:

1. The criteria for Antisocial Personality Disorder are consistently among the most reliable (see, for example, Pfohl et al., 1986; Mellsop et al., 1982).

2. Narcissistic, Histrionic and Borderline criteria tend to be specific to the cluster, but not to individual diagnoses within the cluster; that is, patients with these diagnoses share many features in common. Antisocial Personality Disorder also exhibits these common features (see, for example, Pfohl *et al.*, 1986; Blashfield & Haymaker, 1988; Livesley *et al.*, 1987).

3. Avoidant shares common features with Dependent (see, for example, Livesley *et al.*, 1987; Trull *et al.*, 1987; Reich, 1990; Gorton & Akhtar, 1990; Torgersen & Alnaes, 1989), and Schizoid (deJong *et al.*, 1989; Blashfield & Breen, 1989; Gorton & Akhtar, 1990; Overholser, 1989).

4. Schizoid and Schizotypal share common features (see, for example, Pfohl *et al.*, 1986; Blashfield & Haymaker, 1988; Livesley *et al.*, 1987)

In addition to, and partially deriving from, these statistically-based observations, several general conclusions have been put forward (Pfohl *et al.*, 1986; Blashfield & Haymaker, 1988; Livesley, 1985):

1. The most reliable diagnosis, Antisocial, is also the most specific in terms of behaviors. The conclusion from this observation is that the diagnosis of personality disorders can be improved substantially by focusing on behavioral criteria (Blashfield *et al.*, 1985; Frances & Widiger, 1989; Livesley, 1985 and 1986).

2. Many criteria include more than one idea and therefore are susceptible to variable assessment dependent upon the relative importance ascribed to each idea. (Livesley 1985 and 1987).

3. Criteria which are worded differently can be difficult to differentiate in practice. For example, in DSM-III, the criterion of lack of self-confidence for Dependent is difficult to distinguish clinically from the criterion of lack of self-esteem for Avoidant (Widiger *et al.*, 1988).[1]

4. The theoretical and practical differentiation of Schizoid, Avoidant and Dependent personality disorders is particularly problematic (Trull *et al.*, 1987; Reich, 1990b; Gorton & Akhtar, 1990; deJong *et al.*, 1989). This last point is the focus of the present research study.

Trull, Widiger and Frances were the first to explicitly study the covariation of criteria sets for avoidant, schizoid, and dependent personality disorders (1987). Personality disorder diagnoses for 84 patients were determined by DSM-III-based semi-structured diagnostic interviews.

> Twenty-eight (33%) of the patients met DSM-III criteria for avoidant disorder, 40 (48%) for dependent disorder, and seven (8%) for schizoid disorder. Twenty (71%) of the 28 patients with avoidant disorder met the criteria for dependent disorder, and 20 (50%) of the 40 patients with dependent disorder met the criteria for avoidant disorder. None of the patients with schizoid disorder met the criteria for avoidant or dependent disorders, a results in part of the small number of patients with schizoid disorder. (p 768)

In this study, there was minimal overlap in criteria for Schizoid and Dependent disorders, but criteria for Avoidant disorder demonstrated substantial overlap with both other disorders. Schizoid and Avoidant disorders shared the clinical feature of *social withdrawal*, which DSM-III assigns only to Avoidant Personality Disorder. Dependent and Avoidant disorders shared the clinical features of *unwillingness to*

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[1]These criteria have been dropped in DSM-III-R (APA, 1987).

enter relationships, hypersensitivity to rejection, desire for affection and acceptance and

low self-esteem (all of which DSM-III assigns to Avoidant Disorder) and the features

of *lacks self-confidence, passively allows others to take responsibility* and *subordinates*

own needs (all of which DSM-II assigns to Dependent Disorder). The authors

suggest that Avoidant and Dependent disorders "...share interpersonal insecurity, a

strong desire of interpersonal relationships, and low self-confidence" (p. 770) and

are distinguished by "...the difficulty of the person with the dependent disorder in

separation and the difficulty of the person with avoidant disorder in initiation..." (p.

770).

James Reich recently reviewed the literature on the relationship between

Avoidant and Dependent Disorders, and conducted a diagnostic study of the

overlap (Reich, 1990b). Among 170 psychiatric outpatients, assessed by a structured

diagnostic interview, Reich found that 14 patients met the criteria for both Avoidant

and Dependent diagnoses, 8 patients met the criteria for Avoidant only, and 34

patients met the criteria for Dependent only. Based on his own study and his review

of other studies, Reich concludes:

> There are consistent findings of overlap between avoidant and dependent PDs...It
> appears that there is overlap at times between avoidant PD and the schizoid PD
> cluster, even though they are clearly conceptually different (one desires social
> attachments, while the other does not). There are also conceptual differences
> between avoidant and dependent PDs as well. Although both disorders relate to
> difficulties in interpersonal relationships in those who desire them, one type of
> patient has trouble in initiating relationships (avoidant PD) while the other type
> has difficulty in maintaining them (dependent PD). (pp. 290-291)

Issues related to validity. The validity of personality disorder diagnoses has

not been investigated as comprehensively as the reliability.

> The way to establish the validity of personality disorder diagnoses has not yet
> received much discussion or study and is an inherently difficult methodological
> challenge. (Frances & Widiger, 1989, p. 249)

Four approaches to investigating the validity of personality disorder diagnoses

are reviewed. The only longitudinal investigation of validity is contained in the work

of Drake and Vaillant (1985). Drake and Vaillant investigate the validity of the

underlying conceptualization of personality disorders as chronic disorders, originating

in childhood and resulting in pervasive impairment. Reporting on the assessment by

semi-structured interview of 369 men followed from childhood to mid-life, Drake

and Vaillant note that the 86 men diagnosed as having personality disorders were

characterized by significant social and occupational impairment and a high

prevalence of alcoholism. Investigation of their status at assessment as children

revealed that these men typically had "...early problems of environment, biology and

ego strength..." and, in particular, came from "...problematic families." (Drake &

Vaillant, 1985, p. 558)

Several investigators have used the technique of multidimensional scaling to

investigate the association between empirical classifications and theoretical

taxonomies. In particular, there has been a great deal of interest in comparing

empirically derived dimensions to the interpersonal circumplex model, first proposed

by Leary (Leary, 1957) and developed further by Wiggins (Wiggins, 1982) (see, for

example, Widiger *et al.*, 1987; Blashfield *et al.*, 1985; Endler & Edwards, 1988;

deJong *et al.*, 1989). According to Widiger and Frances (1985):

> An interpersonal nosology is particularly relevant to personality disorders. Each personality disorder has a characteristic and dysfunctional interpersonal style that is often the central feature of the disorder. There is also some empirical support for the hypothesis that a personality disorder is essentially a disorder of interpersonal relatedness. (p. 620)

Although exact configurations and loadings differ, these studies generally find that Schizoid and Dependent disorders define the two poles of the dimension originally labelled "affiliation"; and, further, that Avoidant is very close to the Dependent pole of that dimension (see, for example, Torgensen & Alnaes, 1989; deJong *et al.*, 1989; Widiger *et al.*, 1987).

A third approach to investigating the validity of personality disorder diagnoses has been to use panels of clinical judges to sort the criteria into relevant disorders. Blashfield and Breen (1989), in a study using 61 psychiatrists and psychologists, found that three pairs of disorder exhibited particularly high diagnostic confusion: Avoidant with Dependent, Histrionic with Narcissistic and Paranoid with Schizoid. Livesley and his colleagues (Livesley, 1986; Livesley *et al.*, 1987), using an average of 43 clinicians to rate the prototypicality of criteria for each disorder, found that *an inability to form relationships* is most prototypical of Schizoid Disorder, *fear of intimacy* is most prototypical of Avoidant Disorder, and *anxiety in the absence of a strong, nurturing figure* is most prototypical of Dependent Disorder.

The fourth approach to investigating validity is to attempt to capture the existing structure of Axis II disorders through factor analytic studies of traits and

behaviors associated with personality constructs. In a study of personality pathology

in a general population sample of 3,256 subjects, Livesley, Jackson and Schroeder

(1989) identified 15 factors, accounting for 75% of the total variance, to organize

100 scales of personality traits and behaviors. One of the factors, Insecure

Attachment, subsumed the traits and behaviors of *separation protest, secure base,*

feared loss, proximity-seeking, intolerance of aloneness and *need for affection*. In a

related study of dimensions associated with Dependent Personality Disorder

(Livesley *et al.*, 1990), these investigators report that two orthogonal factors were

identified in studies with a general population sample and a clinical sample. In each

study, these factors accounted for approximately 71% of the variance and exhibited

congruent loadings of trait and behavioral scales. Factor 1, labeled Insecure

Attachment, subsumed the scales of *separation protest, secure base, proximity seeking,*

feared loss and *need for affection*. This factor accounted for 39% of the variance in

both studies. The four scales comprising the second factor, labeled Dependency, are

low self-esteem, submissive, need for advice and reassurance and *need for approval*.

This factor accounted for 33% of the variance in the general population study and

32% of the variance in the patient study. In an earlier study by Hirschfeld *et al.*

(Hirschfeld *et al.*, 1977), similar factors were identified: Factor 1, labeled Emotional

Reliance on Another Person, contains items relating to feared loss of loved ones,

fear of abandonment, need for close relationships, feelings of helplessness when

alone, and general support-seeking. Factor 2, Lack of Social Self-Confidence,

contains items relating to advice seeking, submissiveness and lack of confidence in

one's own decisions. Factors 1 and 2 resemble the Insecure Attachment and

Dependency factors found by Livesley *et al.*

Recently, a single study has been reported which examines the discriminant

validity of schizoid and avoidant personality disorders in relationship to demography,

clinical status and MMPI profiles (Overholser, 1989). The author concludes that

"...no meaningful distinctions were found between the avoidant and the schizoid

personalities" (p. 34). Not surprisingly, the study did not include measures of

attachment functioning.

4.4 CLASSIFICATION PARADIGMS. Theodore Millon has noted that the diagnostic

structure of DSM-III, Axis II derives from many different sources, lacks a consistent

theoretical foundation and does not specify the predicted covariation of disorders

(1981). In other words, the authors of DSM-III based the classification on

"phenomenological description" (APA, 1987) or operational definitions, rather than

theoretical definitions. An operational definition is "...the sequence of steps you take

to obtain a measurement" (Kidder, 1981, p. 122). To take a simple example, an

operational definition of health can be a body temperature of 98.6°F as measured

by a body thermometer. It is useful because it is reliable; that is, easily and

accurately replicated in a variety of settings. It is deceptive because it is not entirely

valid; that is, it is not a full assessment of the underlying construct of health.

Confusion between operational definitions of a construct and the construct itself is

characteristic of the philosophical position of logical positivism (Shapere, 1966). In the name of objectivity, logical positivism advanced the tautological argument that a construct is identical to the measurement of the construct. A popular position in the mid-twentieth century, this philosophy has been challenged repeatedly, nowhere more successfully and popularly than by Thomas Kuhn (1970). Kuhn argues convincingly that scientific enquiry is always directed by "paradigms": theoretical orientations, be they explicit or implied, that direct the inquiries towards some particular set of information in preference to other possible sets of information. Specifically in relation to the behavioral sciences, Campbell (1969) and Adler (1947) have criticized the logical positivist approach, noting that it fails to acknowledge the error component of all measurement, arbitrates against improvement of the measurement and fails to provide a definition of the construct independently of the measurement. The additional criticism, deriving from Kuhn's argument, is that the position is simply not tenable: all research is directed by paradigms.

Several characteristics attest to an underlying confusion of paradigms in DSM-III, Axis II. As noted earlier, DSM-III organizes personality disorders into three clusters and, further, labels these clusters. This organization betrays an underlying theory about differential commonalities among the disorders. The label of Cluster 1 implies that, as a group, these disorders are differentiated from other disorders by odd or eccentric behaviors. Cluster 2 disorders are differentiated by dramatic, emotional or erratic behaviors; and Cluster 3 disorders are differentiated

as "...individuals who appear to be predominantly anxious or fearful" (Webb *et al.*, 1981, p. 128). These labels illustrate one danger in not making the theoretical stance explicit: two labels refer to behaviors (Clusters 1 and 2); it is not clear whether the third label refers to behaviors or affects. Thus an individual who is fearful or anxious could seek to accommodate this fearfulness in odd or eccentric ways -- leading to a confusion between placement in Cluster 1 and Cluster 3.

Secondly, criteria are not necessarily exclusive to one diagnosis. Not only do common criteria again betray underlying assumptions about the convergence of disorders, but they cross the boundaries of clusters, indicating that more than one pattern of association among disorders underlies the classification scheme.

The third piece of evidence is based on the observation that Antisocial Personality Disorder is both the most reliable and shares common features with all other Cluster 2 disorders. The important point to note here is that these common features do <u>not</u> constitute part of the operational definition of Antisocial Personality Disorder. The operational definition (i.e., the criteria) focus on the features unique to Antisocial. The diagnosis of Antisocial Personality Disorder thus comes closest to making the underlying theory explicit. The inclusion of criteria specific to Antisocial and the exclusion of criteria shared with other Cluster 2 disorders implies a hierarchical or decision-tree structure. The first level of differentiation is the cluster level; within the cluster, specific disorders are further differentiated by how the cluster characteristics are expressed in different behavioral

patterns.

The paradigm of organization is primarily hierarchical categorization with differentiation beginning at the cluster level and proceeding to the diagnosis level. The weaknesses of the organizational paradigm used in DSM-III can be summarized briefly as follows:

1.   At the initial level of differentiation among clusters, the definitions are not mutually exclusive.

2.   For most diagnoses, the specific criteria are composed of a combination of cluster criteria and disorder criteria. Antisocial Personality Disorder is the notable exception to this.

3.   More than one theory of association seems to be operating, as evidenced by the sharing of common criteria by diagnoses in different clusters.

4.   The implicit hierarchical structure from cluster to individual diagnoses is neither clearly formulated nor justified.

An Alternative Paradigm. Hierarchical structures are important and common structures in organizing information. Notably, the prototype of scientific classification systems, the taxonomy of the animal world, is hierarchical, proceeding from *kingdom* through *phylum, class, order, family, genus* to *species*. But hierarchical classifications are by no means universal. Many taxonomies use a *dimensional* classification system. So, for example, in anthropology, cultures are not compared by placement in a

hierarchy but by similarities or differences in a number of specific areas, such as familial structure, means of obtaining food, religious systems, etc. Although there may be correlation between the dimensions, cultures which are similar on one dimension will not necessarily be similar on other dimensions. The crossing of criteria between clusters in DSM-III suggests that a dimensional organization is more appropriate than a hierarchical classification for personality disorders. In a similar vein, Millon has recently proposed that "...it would make good scientific and practical sense if certain specific realms were consistently addressed, for example, affective response, style of cognitive functioning, pattern of interpersonal behaviors, self concept, and so on" (Millon, 1987, p. 110). These "specific realms" can be understood as dimensions for classification.

Dimensional systems have traditionally been favored by psychologists (Widiger & Frances, 1985; Endler & Edwards, 1988). These systems vary greatly in the number of dimensions specified, the structured correlation among the dimensions, labeling of the dimensions and correspondence to traditional diagnostic structure (Frances & Widiger, 1989). Nonetheless, the limitations of categorical models has made dimensional systems increasingly attractive:

> ...it is likely that a dimensional approach will eventually become a standard method for personality diagnosis because the personality disorders do not have the internal homogeneity and clear boundaries most suited for classification in a categorical system. (Frances & Widiger, 1989, p. 252)

As noted earlier, there is substantial agreement that the *interpersonal dimension*, traditionally identified as an *affiliation* dimension, is of particular

relevance to DSM-III, Axis II disorders. Several ways in which the interpersonal

domain is explicitly relevant to personality disorders can be specified. First, Table

4.2 lists the positive diagnostic criteria for the three personality disorders of

particular interest here, Schizoid, Avoidant and Dependent.

TABLE 4.2 DIAGNOSTIC CRITERIA OF SCHIZOID, AVOIDANT AND DEPENDENT PERSONALITY DISORDERS

1. Schizoid Personality Disorder: 3 criteria

    Emotional coldness and aloofness, and absence of warm, tender feelings for others

    Indifference to praise or criticism or to the feelings of others

    Close friendships with no more than one or two persons, including family members

2. Avoidant Personality Disorder: 5 criteria

    Hypersensitivity to rejection, e.g., apprehensively alert to signs of social derogation, interprets innocuous events as ridicule

    Unwillingness to enter into relationships unless given unusually strong guarantees of uncritical acceptance

    Social withdrawal, e.g., distances self from close personal attachments, engages in peripheral social and vocational roles

    Desire for affection and acceptance

    Low self-esteem, e.g., devalues self-achievements and is overly dismayed by personal shortcomings

3. Dependent Personality Disorder: 3 criteria

    Passively allows others to assume responsibility for major areas of life because of inability to function independently (e.g., lets spouse decide what kind of job he or she should have)

    Subordinates own needs to those of persons on whom he or she depends in order to avoid any possibility of having to rely on self, e.g., tolerates abusive spouse

    Lacks self-confidence, e.g., sees self as helpless, stupid

In regards to these three disorders in particular, and the entire spectrum of Axis

II disorders, the interpersonal domain is relevant to:

1. *Existing criteria*: Seven of the eleven personality disorder diagnoses contain criteria which explicitly refer to these types of relationships. Only histrionic, Narcissistic, Compulsive and Passive-Aggressive do not contain criteria referring explicitly to. Referring to Table 4.2, only *low self-esteem* for Avoidant and *lacks self-confidence* for Dependent are defined without reference to interpersonal relationships.

2. *Presenting complaints*. Impoverished or disturbed interpersonal relationships are frequently the presenting complaint of patients subsequently diagnosed as personality disordered; therefore these relationships are of particular value in organizing initial knowledge about an individual.

3. *Etiology*. "Emotionally significant bonds between individuals have basic survival functions and therefore a primary status" (Bowlby, 1988, p. 2). The important role that such bonds play in the development of personality and the maintenance of psychological well-being has been acknowledged across many fields, including, psychoanalytic theory (see, for example, Spence, 1982), life events research (see, for example, Henderson, 1977) and developmental psychology (see, for example, Sroufe & Waters, 1977) to name but a few.

As demonstrated in the first study, the general dimension of interpersonal relationships can be meaningfully decomposed into functionally distinct components: the attachment component, addressing the need for safety and security; and the affiliative component, addressing the need for exploration, social interaction and

supportive (as opposed to protective) relationships. Although interpersonal traits figure prominently in the diagnostic criteria for Schizoid, Avoidant and Dependent Personality Disorders, the separate components of attachment and affiliation are not distinguished. The following research study addresses the hypothesis that these three personality disorders are associated with particular patterns of dysfunctional attachment. The studies cited above suggest that Dependent Personality Disorder should be associated with the anxious styles of attachment, i.e., Compulsive Care-Seeking and Compulsive Care-Giving (Livesley et al., 1990; Trull et al., 1987; Reich, 1990a); Schizoid should be associated with the detached pattern of Compulsive Self-Reliance (Livesley et al., 1985; Trull et al., 1987; Blashfield & Haymaker, 1988), and Avoidant should be associated with the ambivalent pattern of Angry Withdrawal (Trull et al., 1987; Kass et al., 1985; Reich, 1990b).

4.5 THE MEASUREMENT OF PERSONALITY DISORDER. Measurement strategies include both structured interviews and self-report questionnaires (Reich, 1985; Standage, 1989; Widiger & Frances, 1987). Structured interviews are costly, in terms of time and personnel, and require substantial training, supervision and inter-rater reliability checks (Widiger & Frances, 1987; Reich, 1985; Stangl et al., 1985; Pfohl et al., 1986). These techniques are therefore impractical for a relatively large scale study in an active clinical setting.

Only two self-report instruments yield classifications that correspond to all DSM-III, Axis II disorders. The Personality Diagnostic Questionnaire (PDQ) is a

152-item true/false diagnostic instrument. (Reich, 1985). Its criteria are identical to DSM-III, Axis II, but the test/retest reliability is very poor (e.g., .04 for Dependent Disorder) and the rate of false-positives is high (Reich, 1985). The PDQ also has been cited as having an inadequate number of items per scale to achieve psychometric stability (Widiger & Frances, 1987).

The Millon Clinical Multiaxial Inventory (MCMI) is a 175-item true/false diagnostic instrument for personality disorders (Millon, 1983). Test/retest reliability at four to six weeks ranged from .77 to .85 for the personality disorder scales with a sample of psychiatric outpatients; there is a large literature reporting on validity and reliability studies (Millon, 1983). In comparison to other instruments for characterizing personality pathology, the MCMI has been characterized as "...a reliable instrument validated against clinical judgement and psychological tests" (Reich, 1985); and "..allowing a more direct and simpler assessment of personality styles..." (Frances & Widiger, 1989). The MCMI has two drawbacks: items may load on more than one scale, leading to built-in correlations among disorders; and the scales for some disorders include criteria that are not included in DSM-III diagnoses (Dana & Cantrell, 1988). The first problem is unavoidable in a diagnostic instrument designed to correspond to existing nosology: as was demonstrated earlier, the current classification of personality disorders includes overlapping criteria among the disorders. The second problem is minimal for Schizoid, Avoidant and Dependent disorders, the disorders of interest for this study. For these disorders,

the MCMI scales have been cited as corresponding particularly well to DSM-III

Axis II diagnostic criteria (Widiger & Frances, 1987).

5.0 RESEARCH STUDY 2: ATTACHMENT PATTERNS ASSOCIATED WITH

SPECIFIC PERSONALITY DISORDERS

5.1 INTRODUCTION. The central interest of this study is to investigate the association between attachment pathology and specific personality disorders. Using data collected from psychiatric outpatients on admission to treatment, this study investigates two general questions:

a. What is the association between dysfunctional patterns of attachment and Schizoid, Avoidant and Dependent personality disorders?

b. To what degree is the association between dysfunctional patterns of attachment and the designated personality disorders mediated by the underlying dimensions of adult attachment?

These questions are addressed using the statistical techniques of multivariate analysis of variance and multivariate analysis of covariance. The analysis was designed and interpreted following the work of several authors (Bailar & Mosteller, 1986; Hand & Taylor, 1987; Hinkle *et al.*, 1979; Matthews & Farewell, 1985; Rosenthal & Rosnow, 1985; Rosner, 1986); the analyses were carried out using the SPSSX statistical packgage (SPSS Inc, 1986),

5.2 ETHICAL APPROVAL FOR THE STUDY. The data for this study were collected under an Alberta Heritage Foundation for Medical Research Scholarship to the candidate. The study design and protocol, including all instruments used in the study and provisions for obtaining informed consent, were reviewed by, and received

the approval of the Joint Medical Ethics Committee, Faculty of Medicine, University of Calgary, and the Research and Development Committee, Calgary General Hospital.

5.3 DESIGN OF THE STUDY. The sample of 146 patients was drawn from a year's total consecutive admissions to treatment in the outpatient psychiatric clinic of Calgary General Hospital. These consecutive admissions were subject to various exclusion criteria for a variety of research, clinical and ethical reasons, most notably: (1) failure to obtain informed consent to participate, (2) presence of active psychosis (determined by clinical judgement), (3) therapist's judgement that completion of the survey instruments would be counter-productive to the therapeutic relationship and goals, (4) termination of an attachment relationship within the last year, and (5) a small number of patients who did not meet the age inclusion criterion of 20 to 65 years old. Because these reasons for exclusion were not mutually exclusive, the number excluded for each reason cannot be determined. The total number of outpatients admitted for treatment within the time-frame of this study is approximately 200. This sample therefore represents a consecutive survey of 73% of patients admitted for outpatient psychiatric treatment during the time of the study.

The data for this study is taken from information obtained upon admission to the outpatient psychiatric clinic. Referrals to the clinic are screened for appropriateness by the clinical team. Each person accepted for treatment is advised

to come half-hour early for the first appointment. During that time, the new patient

completes a variety of self-report measures, including the two measures of interest

for this study.

In the total sample of 146 patients, 115 had current attachment figures,

according to their self-report, based on criteria supplied by the investigator; that is,

a marital or intimate relationship, usually but not necessarily sexual, of at least six

months duration with an adult who is not a member of the family of origin or a

child of the subject. As the attachment questionnaire used in this study is only

appropriate for those with a current attachment figure, these 115 subjects constitute

the final sample for this study. The demographic characteristics of this sample are

presented in section 5.4.

The measures used to investigate the association between attachment

pathology and specific personality disorders are the *Reciprocal Attachment*

Questionnaire (RAQ) (West & *et al.*, 1987; West & Sheldon, 1988; West &

Sheldon-Keller, 1991) to assess the expression of the attachment system in adult

reciprocal relationships, and the *Millon Clinical Multiaxial Inventory* (MCMI)

(Millon, 1983) to establish DSM-III diagnoses.

Instruments: Millon Clinical Multiaxial Inventory (MCMI). The MCMI yields

summation scores on twenty diagnostic scales; eleven of these scales establish DSM-

III Axis 2 diagnoses (i.e., personality disorder diagnoses). The MCMI was developed

by Theodore Millon, who served on the task force to develop the DSM-III, explicitly

to coordinate with the official diagnostic system and its syndromal categories. According to the most recent Manual for the MCMI, "Few diagnostic instruments currently available are as fully consonant with the nosological format and conceptual terminology of this official system." (Millon, 1987, p. 3). No other diagnostic instrument provides equivalent concomitant features of breadth of diagnostic classification, systematic correspondence with DSM-III diagnostic criteria, careful psychometric development and frequency of use in published studies. The scales of interest for this study are the first three MCMI scales: *Schizoid-Asocial*, containing 37 items; *Avoidant*, containing 41 items; and *Dependent-Submissive*, containing 33 items.

MCMI raw scores on each scale are converted, via appropriate sex-race tables established through prevalence studies, to MCMI base rate (BR) scores. These standardized BR scores establish the "cut-off" for diagnostic determination; there are two cut-off levels:

> ...BR 74 indicated a cutting line in which the percentage of patients who score higher will equal the prevalence base rate for the presence of traits or clinical features that characterize each scale and optimize the diagnostic classification ratio of valid- to false-positives; BR 84 indicated a cutting line in which the percentage of patients who score higher will equal the prevalence base rate for clinically judged most prominent personality pattern or symptom disorder and optimize the diagnostic classification ratio of valid- to false-positives. (Millon, 1983, p. 12)

For this study, MCMI BR scores greater than 84 were used to establish diagnostic categories. The more conservative cut-off score was chosen for two reasons:

(1) Cross-sample reliability studies with the MCMI indicate higher diagnostic reliability for the higher cut-off score (Millon, 1983).

(2) Because the MCMI questions are based on DSM-III criteria (which are not unique to single disorders), many questions load on more than one diagnostic scale, although the total configuration of questions is unique for each scale. Thus, unavoidable diagnostic overlap is inherent in the design of the MCMI. This overlap is minimized by using the higher cut-off level for diagnostic determination.

MCMI: Diagnostic Overlap. Despite the use of the conservative cut-off score for the MCMI, there is almost complete overlap between Schizoid and Avoidant diagnoses in this sample. Forty-four patients scored above 84 on at least one of these two scales. The overlap between Schizoid and Avoidant among these 44 patients is recorded in Table 5.1:

TABLE 5.1: OVERLAP BETWEEN SCHIZOID AND AVOIDANT DIAGNOSES IN THIS SAMPLE, FOR MALES AND FEMALES

| | LESS THAN 85 ON SCHIZOID SCALE | | GREATER THAN 85 ON SCHIZOID SCALE | |
	FEMALE	MALE	FEMALE	MALE
LESS THAN 85 ON AVOIDANT SCALE	---	---	1 (2%)	1 (2%)
GREATER THAN 85 ON AVOIDANT SCALE	6 (14%)	2 (5%)	25 (57%)	9 (21%)

In addition to the overlap shown in Table 5.1, the following is true: every patient scoring above 84 on the Schizoid scale scored above 74 on the Avoidant scale, and vice versa. Given the extensive overlap of these diagnoses in this sample, it could not be expected that any set of variables could differentiate Schizoid and Avoidant disorders. Therefore, the research questions were operationalized in

reference to four diagnostic categories: *No Schizoid, Avoidant or Dependent Disorder* (NO SAD GROUP); *Schizoid and/or Avoidant Disorder* (SA GROUP); *Dependent Disorder* (D GROUP); and *Schizoid and/or Avoidant plus Dependent Disorders* (SAD GROUP). The first category, NO SAD, is a reference group for the categories with the personality disorders of interest.

Instruments: Reciprocal Attachment Questionnaire (RAQ). The RAQ yields summation scores on eleven separate scales: seven scales of five items each relate to the dimensions of reciprocal attachment; four scales of ten items each relate to patterns of dysfunctional reciprocal attachment. Following the work of Loevinger (1957) and Jackson (1971), The Reciprocal Attachment Questionnaire (RAQ) was developed by operationalizing theoretical constructs as self-report scales. The psychometric properties of the RAQ have been examined in both community survey and clinical population studies. The development and psychometric studies of the RAQ have been documented in publications by Dr. West and the candidate (West *et al.*, 1987; West & Sheldon, 1988; West & Sheldon-Keller, 1991).

The seven dimensional scales are Feared Loss (FRL), Secure Base (SEC), Proximity Seeking (PRX), Separation Protest (SEP), Reciprocity (REC), Available Responsiveness (AVL), and Use of the Attachment Figure (USE). Five of these scales (Feared Loss, Secure Base, Proximity Seeking, Separation Protest and Reciprocity) are identified as the *criteria* of adult attachment relationships and relate most closely to *attachment anxiety*; that is, the degree to which an individual

fails to experience present and predictable security within the relationship. The remaining two dimensional scales (Available Responsiveness and Use of the Attachment Figure) are identified as the *provisions* of adult attachment, and relate most closely to *responses to attachment anxiety*; that is, the type of defenses an individual mobilizes to contain anxiety.

The four patterns scales are Compulsive Self-Reliance (CSR), Compulsive Care-Giving (CCG), Compulsive Care-Seeking (CCS), and Angry Withdrawal (AW). The attachment pattern scales assess the four identified patterns of dysfunctional attachment relationships for adults (Bowlby, 1973 and 1977). Theoretically, the *dimensions* of attachment form substrata underlying all attachment *patterns*. This is reflected in the analytic strategy: the association between attachment patterns and specific personality disorders is tested, using attachment dimensions as covariates (see section 5.5).

5.4 DEMOGRAPHY OF THE SAMPLE. Demographic characteristics are summarized in four categorical variables: *sex (F=female, M=male)*; *age* (LO=20-35 years old, MD=36-50 years old, HI>50 years old); *education* (LO=high school or less, HI=some post-high school); and *marital status* S=never married; A=separated, widowed or divorced; C=married or living together). The demographic variables yield 2 x 3 x 2 x 3 = 36 cells. With 4 diagnostic categories, this yields a total of 144 cells -- with a sample size of 115 subjects! For this reason, the investigation of demographic effects could not be considered completely (i.e., consideration of a

saturated model is far beyond the power of this data). The following strategy was therefore used. Each demographic variable was considered separately, using visual inspection, for the proportional representation in each diagnostic category compared to representation in the entire population. The following table is necessarily complex as it presents numbers, row percentages and column percentages for each cell.

TABLE 5.2: SUMMARY OF DEMOGRAPHIC CHARACTERISTICS OF THIS
SAMPLE IN RELATIONSHIP TO DIAGNOSTIC CATEGORIES

Diagnos.	*SEX* F	M	*AGE* LO	MD	HI	*EDUCATION* LO	HI	*MARITAL STATE* S	A	C	*TOTAL*
NO SAD											
N	40	13	22	26	5	20	33	15	16	22	53
% ROW	76	24	42	49	9	38	62	28	30	22	100
% COL	46	46	46	43	71	50	44	54	50	40	46
SA											
N	10	8	9	9	0	4	14	5	6	7	18
% ROW	56	44	50	50	0	22	78	28	33	39	100
%COL	12	29	19	15	0	10	19	18	19	13	16
D											
N	15	3	7	9	2	7	11	3	5	10	18
% ROW	83	17	39	50	11	39	61	17	28	56	100
% COL	17	11	15	15	29	18	15	11	16	18	16
SAD											
N	22	4	10	16	0	9	17	5	5	16	26
% ROW	85	15	39	61	0	35	65	19	19	62	100
%COL	25	14	21	27	0	23	23	18	16	29	23
TOTAL											
N	87	28	48	60	7	40	75	28	32	55	115
% ROW	76	24	42	52	6	35	65	24	28	48	100
% COL	100	100	100	100	100	100	100	100	100	100	100

The following conclusions can be drawn from inspection of Table 5.2 (albeit a somewhat more than cursory inspection is needed):

1) Row Effects: Females are under-represented among the *SA Group* (56% of group compared to 76% of total sample) and males are over-represented among this group (44% of the group compared to 24% of the total sample). Patients of the lower educational level are under-represented among the *SA Group* (22% of the group compared to 35% of the sample) and patients of the higher educational level are over-represented among the *SA Group* (78% of the group compared to 65% of the sample). Patients who are married or living with a partner are over-represented among the *SAD Group* (62% of the group compared to 48% of the sample).

2) Column Effects: The *SA Group* is over-represented among males (29% of male patients versus 16% of the total sample). The *No SAD Group* and the *D Group* are over-represented among the older age patients (71% of older patients versus 46% of the total sample for the *No SAD Group*; 29% of older patients versus 16% of the total sample for the *D Group*). Conversely, there are no older patients in the *SAD Group*. But it must be noted that older patients only comprise 6% (n=7) of the total sample.

Only sex gave evidence of both a row and column effect. The number of older patients in the sample is too small to justify an analytic strategy to differentiate possible effects related to older age. The single effect visible for marital status affects only one of four diagnostic categories and only one of three marital

status categories, with only 14% of the sample and therefore does not justify inclusion of marital status as an additional factor in the analysis.

The result of these investigations can be stated very simply: only sex demonstrated a sufficiently strong possibility of influencing the association between diagnostic category and attachment status to warrant being included in the multivariate analyses. Table 5.3 presents the means on the attachment pattern scales for each level of each factor.

TABLE 5.3 MEANS ON ATTACHMENT PATTERN SCALES
FOR EACH LEVEL OF THE TWO FACTORS

FACTOR LEVEL	NO. IN CELL	MEANS OF ATTACHMENT PATTERN SCALES			
		CSR	*CCG*	*CCS*	*AW*
NO SAD Group	53	23.45	32.03	24.51	23.38
SA Group	18	17.15	31.61	24.50	28.08
D Group	18	23.00	32.06	27.67	24.00
SAD Group	26	25.00	34.27	29.77	28.27
Female	87	24.02	32.67	27.14	25.56
Male	28	26.29	31.86	23.25	24.54
Overall	115	24.57	32.47	26.19	25.31

5.5 MULTIVARIATE STATISTICAL ANALYSES: *Justification of the Analytic Strategy.* Multivariate analysis of variance, often abbreviated MANOVA, is a statistical technique designed to investigate the extent to which defined groups of subjects differ with respect to several response variables. The variables used to define the groups of subjects are usually called *factors*, and are categorical variables. The *response variables*, often also called the dependent variables, must be interval-level

continuous variables. Multivariate analysis of variance also allows the inclusion of *covariates* in the design. Covariates are also continuous variables, and are generally included because there is reason to believe that the association between the factors and the response variables is disguised somewhat (either hidden or over-inflated) due to the effect of the covariates.

Multivariate analysis of variance is closely related to univariate analysis of variance, often referred to as ANOVA. As the name implies, univariate analysis of variance tests the difference among defined groups on mean scores on one response variable. With several response variables, one could run several analyses of variance. But there are two disadvantages to this approach: first, the probability of a Type I error (incorrectly rejecting a null hypothesis) increases as more tests are run. This difficulty can be controlled to some extent by using a correction factor, like Bonferroni's adjustment (Grove & Andreasen, 1982). The second difficulty cannot be avoided: a sequence of single analysis of variance tests only tests the ability of each variable individually to discriminate among the defined groups; such a sequence of tests cannot discover if some combination of the variables may be more effective than any variable singly.

> ...manova should be used when interest lies in exploring between-groups patterns of differences on a set of variables *in toto*....It can happen that no one of a set of variables shows any distinction between groups, whereas a suitable *combination* of variables distinguishes well. Identifying that suitable combination is a multivariate task. (Hand & Taylor, 1987, p. 4)

Because multivariate analysis of variance uses the entire set of response variables simultaneously, rather than each variable singly, the *sum of squares* term

in analysis of variance is replaced by a *sum of products* matrix. Similarly, rather than testing for between-group differences on *mean scores* of a single variable, multivariate analysis of variance tests for between-group differences on *mean vectors* of a set of response variables. Multivariate analysis of variance generates derived variables, usually called *canonical variables*, which represent weighted combinations of the original response variables. The weighted combinations are determined so as to maximize the ratio of an attributable sum of products matrix to an error sum of products matrix.

The general technique of multivariate analysis of variance is well-suited to address the questions of interest for this study. The specific structure of the analysis was chosen to reflect the underlying theoretical relationships of the attachment scales. As noted earlier, the dimensions of attachment constitute a substrata underlying the patterns of attachment, which represent specific dysfunctional forms of relating to an attachment figure. The dimensions of attachment are therefore logically prior to the patterns of attachment. The patterns of attachment, on the other hand, are "more visible", as organized behaviors, and more congruent to usual diagnostic criteria of symptoms and syndromes. First, a multivariate analysis of variance tests the ability of attachment patterns to distinguish each category of disorder. Secondly, a multivariate analysis of covariance tests the degree to which attachment dimensions mediate the effects obtained in the first analysis. In each case, sex is used as a factor in addition to the diagnostic

factor.

Assumptions of Multivariate Analyses. Three primary assumptions about the observations drawn from a sample underlie the use of a multivariate analysis of variance to analyze a data set. The first assumption is that the observations are drawn independently, both within groups and between groups. This assumption is the easiest to justify as each set of observations represents a single patient. As noted earlier, each patient completed the questionnaire packet prior to his or her first clinical session, so the patients did not know each other, the treatment staff, or the expectations of the clinic at the time this data was collected.

The second assumption is that the observations are randomly derived from multivariate normal populations. As is usual in clinical samples, the numbers are small in each cell, and the sampling technique is necessarily non-random (since informed consent is needed from the patients). So reliance must be placed on the "robustness" of the statistical test, rather than a definitive test for multivariate normality.

The third assumption is that the groups formed by the factors have equal covariance matrices with respect to the response variables (i.e., that the underlying population covariance matrix is the same for all groups). Bartlett's Box test for homogeneity of variance was run for each response variable. Table 5.4 summarizes these results.

TABLE 5.4: UNIVARIATE HOMOGENEITY OF VARIANCE TEST FOR THE RESPONSE VARIABLES (ATTACHMENT PATTERN SCALES)

Attachment Pattern Scales	Bartlett-Box F	df	p-value
Compulsive Self-Reliance	0.295	7	0.96
Compulsive Care-Giving	1.24	7	0.28
Compulsive Care-Seeking	1.41	7	0.20
Angry Withdrawal	0.65	7	0.72

These results pertain to the individual response variables rather than to the covariance matrix, but they do suggest that there should be no serious problems with the covariance matrix.

There are three additional assumptions specific to multivariate analysis of covariance. First it is assumed that the measurement of the covariates is error-free. To the extent that this assumption is violated, there will be a downward bias in the estimates of the strength of the association between the response variables and the covariates. In this study, the response variables and the covariates are sets of scales derived from the same self-report questionnaire. So there is no reason to assume that the covariates are more susceptible to distortion than the response variables. Beyond this assertion, the assumption of the degree to which the response variables and the covariates are error free remains untested in this study.

Secondly, the covariates should not be highly inter-correlated. A high inter-correlation among the covariates (i.e., $r > 0.8$) decreases the stability of the analysis with respect to the covariates and makes interpretation of the strength of effect associated with individual covariates difficult. Table 5.5 presents the correlation

matrix, based on Pearson Product Moment correlation coefficients, for the

attachment dimension scales used as covariates. The seven scales are: SEP =

Separation Protest; USE = Use of Attachment Figure; AVL = Availability of

Attachment Figure; REC = Reciprocity with the Relationship; SEC = Secure Base;

FRL = Feared Loss of the Attachment Figure; PRX = Proximity-Seeking. To

facilitate interpretation of the correlation coefficients, each scale is scored such that

higher scores signify greater dysfunction. In other words high scores are interpreted

as follows: SEP = high separation protest; USE = low use of attachment figure;

AVL = low availability of attachment figure; REC = low reciprocity within the

relationship; SEC = low secure base; FRL = high feared loss; PRX = high

proximity seeking.

TABLE 5.5: CORRELATION MATRIX OF ATTACHMENT DIMENSION SCALES

		SEP	USE	AVL	REC	SEC	FRL	PRX
		ATTACHMENT DIMENSION SCALES
ATTACHMENT	SEP	1.0	.11	.35	.13	.75	.49	.34
DIMENSION	USE		1.0	.50	.48	-.08	.18	-.35
SCALES	AVL			1.0	.42	.21	.52	.08
	REC				1.0	-.02	.16	-.17
	SEC					1.0	.46	.59
	FRL						1.0	.34
	PRX							1.0

No correlations are above 0.8; only two are greater than 0.5, and one of these

two is 0.59. The scales of Separation Protest and Secure Base have the highest

correlation, 0.75. The extent of inter-correlation among the covariates, while

dictating care in the interpretation of the results, does not preclude performing

an analysis of covariance. (Hand & Taylor, 1987)

A related concern is the extent of correlation between the response

variables and the covariates. Table 5.6 presents Pearson product moment

coefficients of correlations for each pair of response variables with covariates

(i.e., attachment pattern scales with attachment dimension scales).

**TABLE 5.6: CORRELATION COEFFICIENTS FOR
ATTACHMENT DIMENSIONS VERSUS ATTACHMENT PATTERNS**

| | | ATTACHMENT PATTERN SCALES | | | |
		Compulsive Self-Reliance	Compulsive Care-Giving	Compulsive Care-Seeking	Angry Withdrawal
ATTACHMENT	SEP	.19	.29	.37	.46
DIMENSION	USE	.70	-.19	-.26	.42
SCALES	AVL	.55	.08	.02	.81
	REC	.52	-.40	-.02	.33
	SEC	.05	.35	.59	.32
	FRL	.37	.18	.36	.55
	PRX	-.19	.31	.65	.15

Although there are higher correlations here than in the previous table, the over-

all pattern does not indicate that the degree of correlation precludes analysis.

Of the 28 pairs of scales, 21 have correlations less than 0.5; 6 have correlations

greater than 0.5 but less than 0.8; and only 1 has a correlation greater than 0.8

(0.81 for Availability with Angry Withdrawal).

The final assumption that must be investigated is that the covariates exhibit homogeneity of regression with respect to the groups defined by the factors. In an analysis of covariance, the regressions of the covariates on the response variables are calculated separately for each cell of the between-subjects design. The results are then pooled to produce a single regression for each response variable. This approach assumes that the slope of the regression is homogeneous for all cells. This assumption can be tested as part of the multivariate procedure. A term is created representing the interaction between the factor variables and the covariates. A multivariate analysis of variance is performed to test if this term is significant. If this term is not significant, then the regression slopes are sufficiently homogeneous for the analysis to proceed. Table 5.7 summarizes the results for the relevant term of this preliminary multivariate analysis of variance. The interaction effect was tested controlling for all other effects (effect of the pooled covariates, sex effect, diagnostic effect, and the interaction of sex and diagnosis).

TABLE 5.7 TEST OF HOMOGENEITY OF REGRESSION FOR COVARIATES
(ATTACHMENT DIMENSION SCALES)

Source	Sum of Products				df	Wilk's statistic	Approx. F (sig.)
	CSR	CCG	CCS	AW			
Within cells	911.7						
E matrix	7.9	1103.1					
	170.4	159.2	963.7				
	286.1	144.3	44.8	1230.4			
Pooled Covariates	629.3				160,	0.118	1.02
by Sex by Diagnosis	58.6	690.8			223		(.448)
H matrix	-191.9	223.3	846.1				
	167.3	52.9	42.4	741.0			

The test for effect of the interaction term indicates that there is no reason to reject the null hypothesis of no interaction; which is to say that the hypothesis of homogeneous regression can be accepted.

Design of the Analysis. The between subjects design is a two-by-four factorial design: the first factor being sex and the second factor, diagnosis, with four levels: (1) No score greater than 84 on the MCMI scales for Schizoid, Avoidant and Dependent Personality Disorders [*NO SAD GROUP*, n=53]; (2) Scores greater than 84 on MCMI scales for Schizoid and/or Avoidant but not Dependent Personality Disorders [*SA GROUP*, n=18]; (3) Scores greater than 84 on the MCMI scale for Dependent, but not Schizoid or Avoidant Personality Disorders [*D GROUP*, n=18]; (4) Scores greater than 84 on Schizoid, Avoidant and Dependent Personality Disorder [*SAD GROUP*, n=26]. These categories cannot be ordered in relationship to predicted means on the response variables (i.e., attachment scales); that is, there is no a priori basis for postulating a

particular trend for the attachment scale means across the diagnostic groups.

Non-orthogonal "simple" contrasts are used to specify a complete comparison. The single degree of freedom tests are: (1) a main effect of sex; (2) three effects for the diagnostic factor,as determined by the contrasts; and (3) interaction effects between sex and the diagnostic factor effects. "Simple" contrasts compare each level of a factor to a specified reference level. In this case, the level designated *No SAD* is the reference level. These contrasts are summarized in Table 5.8, using the coefficients +1 and -1 for simplicity (these would be the true coefficients if all groups were of equal size).

TABLE 5.8: SCHEMATIC REPRESENTATION OF A COMPLETE COMPARISON FOR A TWO BY FOUR FACTORIAL MODEL

	MALES				*FEMALES*			
EFFECT	NO	SA	D	SAD	NO	SA	D	SAD
1. Sex: Male v. Female	-1	-1	-1	-1	1	1	1	1
2. Diagnosis: No SAD v. SA	-1	1	0	0	-1	1	0	0
3. Diagnosis: No SAD v. D	-1	0	1	0	-1	0	1	0
4. Diagnosis: No SAD v. SAD	-1	0	0	1	-1	0	0	1
5. Interaction Effect 1 x 2	1	-1	0	0	-1	1	0	0
6. Interaction Effect 1 x 3	1	0	-1	0	-1	0	1	0
7. Interaction Effect 1 x 4	1	0	0	-1	-1	0	0	1

The contrasts are tested from bottom to top; that is, the interaction effects are tested first. If the interaction effects are not significant, then the main effects are tested. The null hypotheses can be stated as follows:

1.   The mean vectors of the response variables do not differ for males and

       females.

2.   The mean vectors of the response variables do not differ for subjects with

       no diagnosis of Schizoid, Avoidant or Dependent disorder compared to

       subjects with diagnoses of Schizoid and/or Avoidant disorders.

3.   The mean vectors of the response variables do not differ for subjects with

       no diagnosis of Schizoid, Avoidant or Dependent disorder compared to

       subjects with diagnoses of Dependent disorder.

4.   The mean vectors of the response variables do not differ for subjects with

       no diagnosis of Schizoid, Avoidant or Dependent disorder compared to

       subjects with diagnoses of Schizoid and/or Avoidant disorder with

       Dependent disorder.

5.   Sex does not affect the comparison of mean vectors for subjects with no

       diagnosis of Schizoid, Avoidant or Dependent disorder compared to

       subjects with diagnoses of Schizoid and/or Avoidant disorders.

6.   Sex does not affect the comparison of mean vectors for subjects with no

       diagnosis of Schizoid, Avoidant or Dependent disorder compared to

       subjects with diagnoses of Dependent disorder.

7.   Sex does not affect the comparison of mean vectors for subjects with no

       diagnosis of Schizoid, Avoidant or Dependent disorder compared to

       subjects with diagnoses of Schizoid and/or Avoidant disorder with

Dependent disorder.

These statements of the null hypotheses help make it clear why the main effects

cannot be tested if the interaction effects are significant. If the test of the

interaction effect demonstrates that sex does affect the comparison, then it

makes no sense to proceed to the main effect test which ignores sex differences.

There are several test statistics which can be used, and some controversy

over which statistic is most appropriate under which conditions. Fortunately,

there is agreement that in one case the statistics are equivalent: the case of

single degree-of-freedom contrasts specifying a complete comparison (Hand &

Taylor, 1987). In all tests reported in this study, the three common statistics

(Pillais, Hotellings, Wilks) produced equivalent results; Wilk's lambda is the

statistic reported. The statistic follows an F-distribution; the alpha level set for

rejection of a null hypothesis is 0.05.

The multivariate analysis of variance was first run using the four

attachment pattern scales as the response variables, with no covariates. This

analysis addresses the general hypothesis that there is a difference in

predominate attachment patterns among the diagnostic groupings. Since this

analysis showed significant effects, a second multivariate analysis of variance was

run to investigate how these effects are mediated by attachment dimensions. In

this second analysis, the factor structure is the same (sex and diagnostic

categories), and the response variables are the same (attachment pattern scales),

but the seven attachment dimension scales are covariates.

This second analysis tests for differences in the mean vectors of the response variables (the attachment pattern scales) after allowing for any differences that may be due to the attachment dimension scales. If the attachment dimensions are complete mediators of the factors' effects upon the attachment patterns, no such systematic differences between the various groups should be found. Conversely, if differences in attachment patterns are associated with the factors independently of the attachment dimensions then significant effects will show through even after controlling for the attachment dimensions.

Results of the Analyses. As in most studies in the behavioral sciences, the description of the sample, the measures and the justification for the analytic approach is more complex and time-consuming than the presentation of the results. The results appear almost anti-climatic after such extensive preparation. Table 5.9 summarizes the multivariate analysis of variance investigating the association of diagnostic category and sex with the mean vectors of the attachment pattern scales.

TABLE 5.9 MULTIVARIATE ANALYSIS OF VARIANCE RESULTS:
ATTACHMENT PATTERN SCALES BY DIAGNOSTIC CATEGORY AND SEX

Source	Sums	of	products		d.f.	Wilk's statistic	Approx. F (Sig.)
	CSR	CCG	CCS	AW			
Within-cells	3382.42						
E matrix	-454.11	2664.08					
	-390.67	891.01	3924.90				
	2542.15	426.07	483.01	6339.72			
Constant	Not tested						
1. Sex	11.17				4, 104	0.938	1.72
H matrix	-25.69	59.09					(.152)
	-43.10	99.14	166.33				
	-29.01	66.73	111.96	75.36			
2. SA v. NO	295.04				4, 104	0.910	2.57
H matrix	-34.37	4.01					(.043)
	55.29	-6.44	10.36				
	307.52	-35.83	57.63	320.52			
3. D v. NO	44.40					***	
H matrix	59.67	80.19					
	-26.56	-35.69	15.89				
	35.63	47.89	-21.31	28.60			
4. SAD v. NO	44.31				4, 104	0.869	3.93
H matrix	31.21	21.99					(.005)
	146.15	102.95	482.05				
	94.01	66.22	310.07	199.44			
5. Sex by 2	0.44				4, 104	0.987	0.35
H matrix	-0.70	1.12					(.840)
	-2.19	3.50	10.93				
	-4.56	7.29	22.76	47.40			
6. Sex by 3	77.92				4, 104	0.899	2.92
H matrix	122.87	193.73					(.025)
	53.07	83.69	36.15				
	90.81	143.19	61.85	105.84			
7. Sex by 4	2.50				4, 104	0.961	1.05
H matrix	-6.25	15.66					(.383)
	14.77	-36.97	87.31				
	-2.46	6.15	-14.52	2.41			

***Not tested: Interaction term is significant.

On the basis of these results, three null hypotheses are rejected: the

hypothesis of no interaction between sex and the second diagnostic contrast (*D*

GROUP v. *NO SAD GROUP*) (p=0.025); the hypothesis of no effect for the

third diagnostic contrast (*SAD GROUP* v. *NO SAD GROUP*) (p=0.005); and the

hypothesis of no effect for the first diagnostic contrast (*SA GROUP* v. *NO SAD*

GROUP) (p=0.043). From this analysis, it appears that canonical variables exist

which relate the response variables as a group to the factors. Table 5.10 presents

the estimates of the effects for the canonical variables, and the correlations

between the response variables and the canonical variables, for each significant

effect.

TABLE 5.10 MULTIVARIATE ANALYSIS OF VARIANCE:
INTERPRETATION OF THE CANONICAL VARIABLES

Effect	Correlation between response and canonical variables			
	CSR	CCG	CCS	AW
6. Sex by [D v. NO SAD]	-.453	-.805	-.286	-.386
4. SAD v. NO SAD	-.294	-.234	-.902	-.456
2. SA v. NO SAD	-.940	.123	-.164	-.716

The correlations indicate a relatively simple pattern of association between the canonical variables and the response variables. The only significant interaction effect differentiating the *Dependent Disorder Group* from the *No Schizoid, Avoidant or Dependent Disorder Group*) is associated primarily with *Compulsive Care Giving*; the effect differentiating the *Schizoid, Avoidant and Dependent Disorders Group* from the *No Schizoid, Avoidant or Dependent Disorder Group* is associated primarily with *Compulsive Care Seeking*; and the effect differentiating the *Schizoid and/or Avoidant Disorder Group* from the *No Schizoid, Avoidant or Dependent Disorders Group* is associated primarily with *Compulsive Self-Reliance*. Consideration of the meaning of these results will follow the second analysis.

Having demonstrated that there is an association between attachment pattern variables and the factors of diagnostic category and sex, it now makes sense to ask the second question: To what extent are the observed effects mediated by the attachment dimension variables, which represent constructs underlying the attachment pattern constructs. The results from the multivariate analysis of covariance to address this question are presented in Table 5.11.

**TABLE 5.11 MULTIVARIATE ANALYSIS OF COVARIANCE RESULTS:
ATTACHMENT PATTERN SCALES BY DIAGNOSTIC CATEGORY AND SEX
WITH ATTACHMENT DIMENSION SCALES AS COVARIATES**

Source	Sums	of	products		d.f.	Wilk's statistic	Approx. F (Sig.)
	CSR	CCG	CCS	AW			
Adjusted	1541.00						
Within-cells	66.49	1793.90					
E matrix	-21.61	382.50	1809.73				
	453.40	197.23	87.13	1971.44			
Regression	1841.41				28,	.066	14.10
E matrix	-520.59	870.18			351		(<.001)
	-369.06	508.51	2115.17				
	2088.75	228.84	395.88	4368.28			
Constant	Not tested						
1. Sex	.15				4, 97	.997	0.07
H matrix	-.25	.43					(.991)
	-.77	1.31	3.99				
	-.39	.67	2.03	1.04			
2. SA v. NO	9.33				4, 97	.989	0.26
H matrix	-2.56	.70					(.905)
	7.10	-1.95	5.40				
	4.30	-1.18	3.27	1.98			
3. D v. NO	2.99					***	
H matrix	15.05	75.76					
	-12.60	-63.47	53.17				
	-3.89	-19.57	16.39	5.05			
4. SAD v. NO	3.35				4, 97	.818	5.38
H matrix	6.52	12.69					(.001)
	32.98	64.15	324.43				
	18.22	35.44	179.22	99.00			
5. Sex by 2	.12				4, 97	.974	0.64
H matrix	-.06	.03					(.635)
	-1.86	.95					
	-1.44	.74	29.68	17.89			
			23.04				
6. Sex by 3	11.73				4, 97	.902	2.63
H matrix	44.88	171.72					(.039)
	-.88	-3.36	.07				
	1.14	4.34	-.09	.11			
7. Sex by 4	.49				4, 97	.936	1.65
H matrix	-1.37	3.83					(.167)
	-7.49	20.90	114.14				
	-2.30	6.42	35.06	10.77			

***Not tested: Interaction term is significant.

The regression term is itself highly significant. With the attachment dimension

scales as covariates, the shape of the association between the attachment pattern

scales and the factors is changed somewhat. The interaction term which reached

significance in the analysis of variance is still significant (p=0.034) in this

analysis; the effect of third diagnostic main-effect term (*SAD Group* v. *NO SAD*

Group) is still significant (p=0.001); but the effect of the first diagnostic main-

effect term (*SA Group* v. *NO SAD Group*) is no longer significant (p=0.905). The

attachment dimensions therefore seem to influence most strongly the

discrimination of those patients with Schizoid and/or Avoidant Disorders. One

final table is necessary before summarizing these results: Table 5.12 presents the

standardized Beta coefficients of the regression of the covariates on the response

variables (that is, the attachment dimension scales on the attachment pattern

scales).

TABLE 5.12 BETA COEFFICIENTS FROM REGRESSION OF
ATTACHMENT DIMENSION SCALES ON ATTACHMENT PATTERN SCALES

Dimension Scales	Standardized Beta Coefficients			
	COMPULSIVE SELF-RELIANCE	COMPULSIVE CARE-GIVING	COMPULSIVE CARE-SEEKING	ANGRY WITHDRAWAL
SEPARATION PROTEST	-.05	.21	-.03	.18
USE OF ATTACHMENT	.46	-.11	-.13	.03
AVAILABILITY	.14	.22	-.17	.68
RECIPROCITY	.19	-.48	.21	.03
SECURE BASE	.06	.15	.36	-.01
FEARED LOSS	.19	-.05	.12	.09
PROXIMITY SEEKING	-.10	-.01	.38	-.02

5.6 DISCUSSION. The results of these investigations can be summarized in diagrammatic form:

FIGURE 5.1: DIAGRAMMATIC SUMMARY OF THE ASSOCIATIONS
AMONG FOUR CLASSES OF VARIABLES:
DEMOGRAPHIC, ATTACHMENT DIMENSIONS, ATTACHMENT PATTERNS AND
CATEGORIES OF PERSONALITY DISORDER
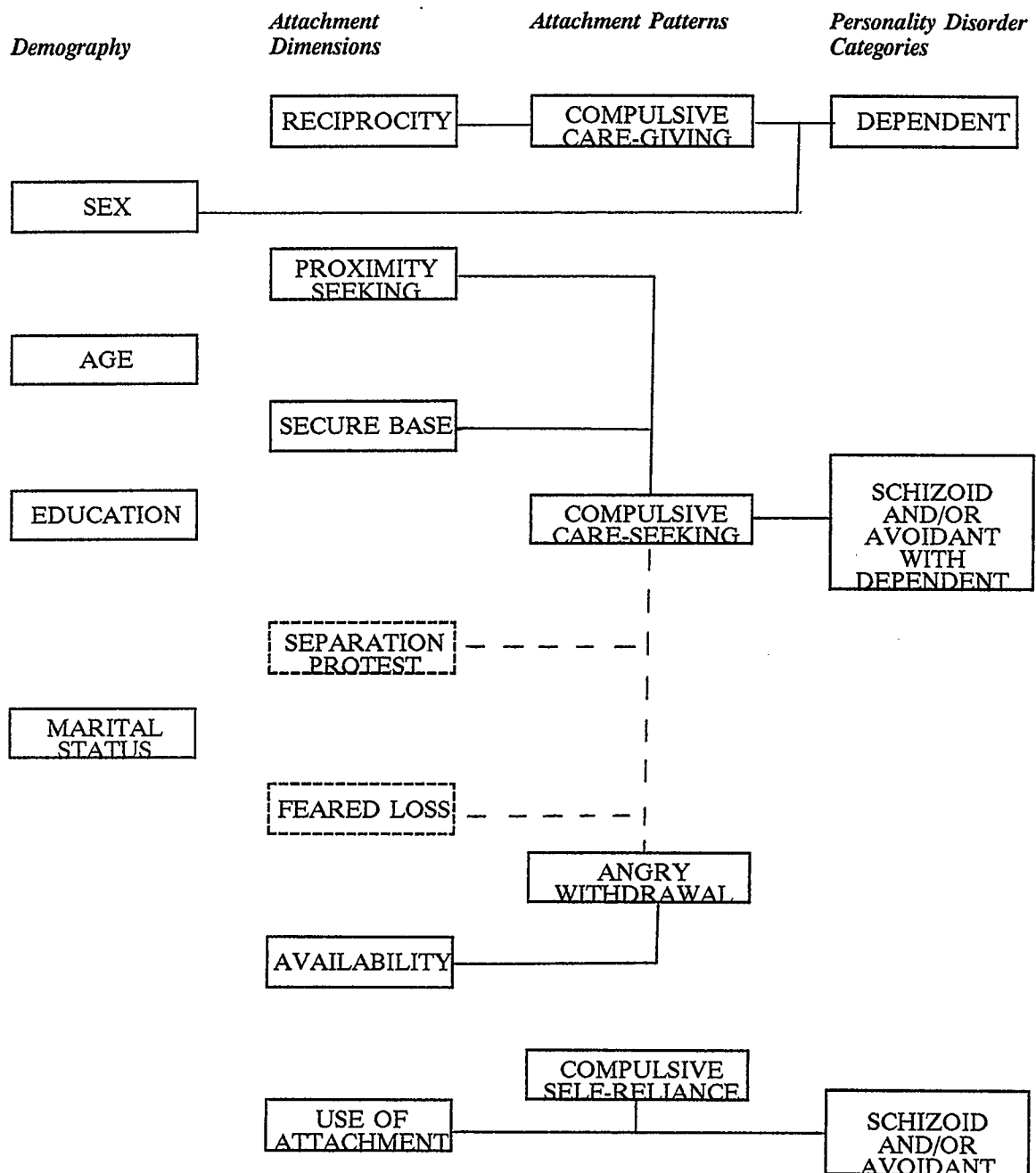
Of the demographic variables, only sex demonstrated a strong association with the variables of interest. Preliminary investigations revealed the possibility that sex influenced the association between the response variables and the factors. The final multivariate analyses indicated that sex did indeed influence the association, but in one particular case rather than generally. The best interpretation of the interaction between sex and diagnostic category is that *females* who are in the *Dependent Disorder Group* tend to have higher scores on *Compulsive Care-Giving* than the other subjects, while *males* who are in the *Dependent Disorder Group* tend to have lower scores on *Compulsive Care-Giving* than the other subjects. This result must be accepted with extreme caution, as there are only 3 males in the study in the Dependent Disorder Group. Low scores on the dimensional scale measuring *Reciprocity* are associated with high scores on the pattern scale measuring *Compulsive Care-Giving*.

High scores on the dimensional scale measuring *Proximity Seeking* and low scores on the dimensional scale measuring *Secure Base* are associated with high scores on the pattern scale measuring *Compulsive Care-Seeking*, which in turn is associated with the personality disorder category of mixed *Schizoid, Avoidant and Dependent Disorders*. This finding is worth highlighting, as it emphasizes the point that the personality disorder characterized as *Dependent* in DSM-III (and DSM-III-R: see APA, 1987) seems to be more properly construed as a particular style of dependence; a style that is more closely associated with construing one's life

as *taking care of others* rather than construing one's life as *needing to be taken care of*. Thus, the DSM-III Dependent Disorder does not seem to correspond closely to more intuitive constructs about dependency.

Low scores on the dimensional scale measuring *Use of the Attachment Figure* are associated both with high scores on the pattern scale measuring *Compulsive Self-Reliance* and with the personality disorder category of *Schizoid and/or Avoidant Disorder*. Although the pattern scale was significantly associated with the personality disorder category in the multivariate analysis of variance, this effect was no longer significant when the dimensional scales were used as covariates. *Use of the Attachment Figure* is the dimensional scale most strongly related to *Compulsive Self-Reliance*, and therefore has the strongest effect on the association between *Compulsive Self-Reliance* and the *Schizoid-Avoidant* category.

Low scores on the dimensional scale of *Availability* are strongly associated with high scores on the pattern scale of *Angry Withdrawal*. These scales seem to have the least association with the diagnostic categories.

Finally, the diagram also sketches in the association of high scores on the dimensional scales of *Separation Protest* and *Feared Loss* to high scores on the pattern scales of *Compulsive Care-Seeking* and *Angry Withdrawal*. These associations are based on the correlation matrix (see Table 5.6), as these dimensional scales were not strongly related to any of the pattern scales in the regression done as part of the multivariate analysis of covariance (see Table

5.11). As noted earlier, the extent of inter-correlations among the dimensional

scales means that judgements of relative importance must be made cautiously.

Therefore all dimensional scales are included in the summary diagram.

The conclusions from this study agree with the theoretical constructs

proposed for the association between adult attachment and specific personality

disorders. As is usual with clinical studies of this type, the results of the study

must be accepted with caution because of the relatively small, self-selected

sample. What can be said, however, is that the sample represents the majority of

patients seen over a typical year in the outpatient clinic of a large teaching

hospital. There is no reason to presume any particular bias in the study group

that would strongly affect the associations being studied. The variables conformed

to the assumptions necessary to multivariate analysis of variance and analysis of

covariance strategies. There are two particular problems in interpretation of the

results.

First, the sample size was not large enough to allow for a complete

analysis of the effects of the demographic variables. There were no first order

demographic effects apparent, except for the effect of sex, which was taken into

account in the analysis. But it cannot be said on the basis of this study that there

are no higher order effects.

Secondly, and perhaps more importantly, the degree of inter-correlation

among the attachment dimension scales makes interpretation of the association

of these scales with the pattern scales and the diagnostic categories difficult.

Despite these cautions, the analysis reveals clear patterns of association among the variables. These associations lend support to the theoretical propositions that disorders of attachment underpin several existing personality disorder diagnoses, and that these diagnoses can be more precisely and coherently defined by explicit reference to attachment dimensions and patterns as diagnostic criteria.

6.0 CONCLUSION

6.1 LIMITATIONS OF BOWLBY'S FORMULATIONS. John Bowlby's theoretical

formulations are a product of the predominant paradigms of post-World War II

British science: ethology and information processing. Within the field of child

psychiatry, Bowlby and his team shifted the focus from the exclusively internal to

the external: real events and relationships do play a deterministic role on

development and mental health. The leading psychoanalytic theorists of the time

emphasized the internal reality to the exclusion of influence from the external reality

(Blanck, 1986; Schafer, 1983). Bowlby used ethology and evolutionary requirements

as the foundation for his theory. It provided a firm foundation, but not a necessary

one: Winnicott, a pediatrician turned psychoanalyst, was reaching much the same

conclusions about the primacy and long-lasting effects of the infant-mother

relationship without recourse to ethological theories (Winnicott, 1953, 1957, 1964,

1965).

The general principles of ethology are based on careful observation and

detailed, precise record-keeping (Hinde, 1974, 1975). In ethology, the work of

pioneers such as Lorenz and Harlow (Hinde, 1974; Harlow, 1958) had much the

same effect as, in an earlier century, the work of Mendel. The findings that

captured the imagination of John Bowlby, renegade psychoanalyst, were that

complex and stable behavioral patterns, including behaviors that seemed to have a

high affective content, arose from evolutionary necessities. Bowlby came to

understand the first affectional bond of a human infant, not as the result of a

psychological drive nor as a result of the search for object constancy, but simply as

a result of natural selection: an important and necessary contribution to survival of

the species.

To explain the varieties of expression this eminently straight-forward system

can take by adulthood, Bowlby turned to the other popular paradigm: information-

processing. As a science, information-processing emerged full-grown, like Athena

from the head of Zeus, at the end of World War II (Campbell, 1989; Hofstadter,

1979). Bowlby used the mechanics of information-processing, particularly selective

exclusion of information from attention, to characterize the defensive processes that

shaped the expression of attachment behaviors in adulthood.

Unfortunately, these two approaches leave "man qua man" as the missing link

in the theories. The ethological approach rests on the primacy of the influence of

differential contributions to survival to reproductive age. Observations from other

species, particularly higher primates, were extrapolated to humans. The concepts

were modified as necessary to take into account the "self-awareness" of the human,

but the mechanisms were not theorized to be different because of this self-

awareness: man's behaviors was organized to promote survival of the species. This

is the study of man qua animal.

In contrast, the information-processing approach rested on the primacy of

symbolic logic and algorithmic approaches to problem-solving in the design of

"thinking machines." The key to artificial intelligence was thought to reside in increasing the sophistication of the logic systems underlying computer programming. Similarly, the key to understanding human intelligence was thought to reside in understanding the mechanisms used by humans to make decisions. Little attention was paid to "irrelevant" accomplishments of the human intellect such as perceptions, emotions and intuition (Campbell, 1989). This is the study of man qua machine.

Both approaches fall short of the study of man qua man. It is difficult to cross the boundary from non-human to human and still to know what and how to study humanness. It is easier -- and usually more fruitful and more defensible -- to study humans using the same paradigms and methods as have proven useful in the study of other phenomena, be that phenomena animal or machine. Valuable contributions can derive from such studies; but the value of the contributions is undermined when the limitations of application to human are not understood and acknowledged.

Two examples, one from each field, can illustrate the limitations of application. From ethology we can consider the implications for man of *neoteny*. Neoteny, that is, the persistence of the characteristics of childhood (e.g., curiosity, learning) beyond the age of sexual maturity, is not found in any other species to the extent that it is found in humans (Bateson, 1979). One might expect that in humans, because of the persistence of a childlike ability to learn, the influence of the early bond may be more susceptible to modification by later experiences than is true for

other species.

From the field of information-processing we must take into account the recent work on the nature of intelligence and the structure of the brain (Brown & Oaksford, 1990; Campbell, 1989). This work emphasizes the inappropriateness -- and lack of utility -- of modeling the brain as a machine rather than as a biological product of evolutionary constraints. The way we think cannot be divorced from the physical structure of the brain or the constraints of necessary biological adaptation. But Bowlby's model of defenses as a variety of information-processing is a direct progeny of attempts to model intelligence as the product of an efficient machine that functions according to general rules of logic and set algorithms. Since we now know that these concepts do not work well as models of how the brain works, we must question the utility of modeling defenses according to information-processing theory.

So we are left with two "more than" statements: Attachment for humans is more than attachment for other species and more than early infant-mother relationships. The varieties of expression of attachment for humans is more than the product of information-processing protocols of the brain.

One wonders what the basis for modern attachment research would be had Winnicott rather than Bowlby placed the ad that recruited Mary Ainsworth (Karen, 1990). It is Ainsworth's methodology for classifying patterns of attachment on which almost all subsequent empirical and theoretical work in attachment is based. And

Ainsworth's methodology is independent of the theory of attachment propounded by Bowlby. The patterns of attachment exist and can be measured. Why such patterns should exist is a matter for speculation; it does not make much difference to the existence and effects of the patterns if the answer to the question of origin is found in ethology, psychoanalytic theory or, for that matter, religion. The why is a matter for philosophy; the how and therefore is a matter for developmental psychology.

The Strange Situation Protocol has been typified as a "Rosetta stone" for developmental psychologists, allowing them to decipher the important aspects of infant-mother bonds (Karen, 1990). But later research on attachment patterns has tended to enshrine attachment as a philosopher's stone, turning to gold all research aimed at understanding how we come to be as we are. Some attachment researchers claim that just about any measure of functioning can be significantly related to attachment pattern: cognitive development, peer relationships, self-esteem, intellectual ability, school behavior, adult social functioning (see, for example, Bemporad, 1984; Bretherton, 1980; Dicks, 1953; Johnston *et al.*, 1989; Kobak & Sceery, 1988; Rutter, 1981; Wartner, 1987; Watkins, 1987). To suggest that one experience, even the primary and extended one of attachment to the mother, should explain most of our lives' patterns is offensive to reason and experience. And it overstates the position of most attachment researchers (see, for example, Ainsworth, 1985 and 1989; Hinde, 1987; Sroufe, 1986).

6.2 CONCLUSIONS AND FUTURE DIRECTIONS. This dissertation began with the description of reciprocal attachment for adults, focussing on its continuity with attachment in infancy, and the importance of distinguishing the unique *function* of attachment relationships. The function of attachment, the provision of safety and security, remains constant throughout the life span, although the mechanisms of achieving this function change and develop with maturation.

The first research study demonstrated that young adults organize their expectations of relationships in a manner congruent with a functionally distinct role for attachment. A small number of functions, of the type promoting general sociability, were common expectations of all relationships. A larger set of functions, including the provision of support and comfort, were common to only the two more personal relationships. And a specific set of functions, congruent with the theoretically defined function of attachment, were expected only of the most intimate relationship (Sheldon & West, 1989).

Given that the function of attachment is the maintenance of safety and security, attachment relationships should be especially crucial in times of life crises and in determining successful adaptation as adults. Bowlby has stated that "the extent to which [each individual] becomes resilient to stressful life events is determined to a very significant degree by the pattern of attachment he or she develops during the early years" (Bowlby, 1988, p. 9). This research study suggests that, in adults, these patterns of attachment are best investigated by attention to

functional rather than *structural* differences in relationships and, further, that the essential function of attachment relationships for adults is achievement and maintenance of a sense of present and future personal and interpersonal security.

The second research study investigated the usefulness of attachment theory in regards to the differentiation of three personality disorders: Avoidant, Schizoid and Dependent. The definition and differentiation of personality disorders remains a difficult problem in psychiatry. Vaillant and Perry (1980) stated that these disorders "continually demonstrate to mental health professionals the limits of their expertise, yet no group of emotional disorders is more often encountered in psychiatric practice" (p. 1563). The general hypothesis of the study presented here is that attachment theory contains information which is essential to understanding and classifying these disorders.

The patterns of dysfunctional attachment did relate in meaningful ways to the personality disorders. These results suggest that attachment can be used both to refine diagnostic criteria (Livesley & Jackson, 1986; Sheldon & West, 1988) and to direct treatment and intervention efforts (West *et al.*, 1989).

For all of these purposes, attachment as a buffer for life crises, attachment as diagnostic criteria and attachment as a therapeutic construct, the necessary prerequisite is the classification of adult attachment patterns, using techniques that are valid, reliable and accessible to the clinician. It is with this work that we are proceeding.

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