

INITIAL HETEROSEXUAL ATTRACTION AS A FUNCTION OF
INTERPERSONAL NEED COMPATIBILITY

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CHAPTER I

INTRODUCTION

Review of the Literature

Long before the advent of modern social sciences, poets, philosophers and other "examiners" of the human condition clearly recognized the fundamental importance of interpersonal relationships in enriching human life and maintaining emotional and even physical health. Despite millennial speculation, however, it has only been during approximately the last quarter century that behavioral and social scientists have begun to systematically explore the actual mechanisms underlying human relationships.

Recently, a rapidly proliferating body of experimental research has been devoted to an examination of such important interpersonal phenomena as love, liking, friendship, esteem, etc. Particularly intriguing has been the question of what variables or contingencies account for the attraction of one human being to another. Although traditionally relegated to the domain of poets and romance writers, interpersonal attraction has been receiving increased scientific attention over the period of the last 20 years. This new interest has spawned voluminous literature, numerous experimental studies, and several more-or-less well-integrated "theories" of attraction and love.

General Theories of Interpersonal Attraction

Interpersonal needs and their gratification are clearly pivotal to human self-esteem. Once physical and safety needs (Maslow, 1970) are satisfied to a minimal degree, people tend to be dominated by a concern with personal relationships. In fact, agonizing over whether one is liked, loved, or hated by others probably constitutes a substantial proportion of conscious mental activity. As a consequence much personal speculation about how to achieve the respect and esteem of others and trying out various instrumental strategies in an effort to attain this end characterizes much of both interpersonal behavior and conscious rumination. Surprisingly, however, the phenomena of interpersonal attraction has generated relatively little systematic scientific research until quite recently. Centers (1975) and Swensen (1973) have reviewed much of this recent work, and a synopsis is presented below.

Balance Theory. The first real effort to ascertain the critical mediating variables in interpersonal attraction occupied the attention of social psychologist Theodore Newcomb and his students at the University of Michigan in the early 1950s (Newcomb, 1953a, 1953b, 1956, 1961). Newcomb, in his theorizing about interpersonal attraction, was strongly influenced by the cognitive balance theory of Fritz Heider. Using gestalt principles growing out of the field theory of Lewin (1953), Heider (1958) suggested that discrete entities are perceived together in a unitary fashion as a function of their similarity or commonality (functional or otherwise) of elements. Heider maintained also that positive affect (sentiment) tends to be associated with positive unit relationships and the obverse. In other words, perceived

similarity to another person should induce feelings of attraction for that person, or if attraction is antecedent, then the person would be likely to be perceived as similar to oneself (Centers, 1975).

Extending these notions, Newcomb (1961) predicted that as strangers grew to know each other better the strongest attraction and liking would be found among those individuals who shared the greatest similarity in attitudes or beliefs and values. Newcomb tested these predictions in a rather elaborate experiment conducted at the University of Michigan. He rented a house and offered free room and board to male transfer students who were strangers to each other. Attitude and attraction measures were taken before and several times during a 16 week semester. In general, the experimental predictions were confirmed. It was found that as length of acquaintance increased, attitude and belief similarity became more and more highly correlated with liking and attraction. Similarity in person-perception was particularly associated with positive attraction for Newcomb's subjects. Attracted individuals exhibited a strong tendency to have similar attitudes and beliefs toward themselves and others within the group. In fact, as length of acquaintance increased this tendency became even more pronounced, accompanied by concomitant increase in liking between the members of the attracted pair.

A particularly interesting result of the Newcomb study was the finding that liking was strongly associated with congruence between self-perception and perception of oneself by others. Individuals tended to like those persons who had the same feelings and attitudes toward them that they had toward themselves. Subjects described themselves on adjective check lists and then on the same lists described

themselves as they thought others would describe them. Results indicated that an individual had a strong tendency to like another person who judges him the way he sees himself, including negative as well as positive attributes (Centers, 1975; Swensen, 1973).

Experimental confirmation of the results of Newcomb's classic experiment (1961) is extensive. Numerous studies have been reported showing that attraction is strongly influenced by real or believed similarity in attitudes (Backman & Secord, 1959, 1962; Broxton, 1963; Murstein, 1972; Tagiuri, 1958). Generally, the current conception of this relationship between attraction and similarity (Centers, 1975) suggests that the critical element is the belief that another person is similar to oneself rather than actual similarity (Broxton, 1963; Davitz, 1955; Newgarten, 1946; Snucker, 1960; Worchel, 1961).

Reinforcement Theories of Attraction. Although Newcomb interpreted the results of his 1961 study primarily within the context of cognitive balance formulations, other theorists (Byrne, 1961, 1964) have placed a somewhat different theoretical coloration on such results. Sullivan (1947) underscored the importance to the person of obtaining consensual validation of his attitudes, values and views of the world (and consequently his self-worth) by finding agreement on these matters with others (Center, 1975). Festinger (1954) also proposed that humans have a drive to obtain affirmation of their views of the world and of their abilities to function effectively within it (Centers, 1975). Implicit in this conception is that similarity, through consensual validation, provides powerful mutual rewards for individuals in a relationship, and thus leads to mutual attraction because of the reward and reinforcement value of the other. In fact, as

Newcomb himself has pointed out:

We acquire favorable or unfavorable attitudes toward persons as we are rewarded or punished by them, and the principles of contiguity or reciprocal reward and of complementarity have to do with the conditions under which rewards are most probable (1956, p. 557).

Byrne (1961) has made an extensive theoretical and research effort to demonstrate the functional relationship between interpersonal attraction and attitude similarity, and to work out the mathematical relationship between similarity and attraction. He concluded that the basic mechanisms underlying the relationship between agreement and attraction indeed can best be understood by using reinforcement principles.

In essence, because past experience has associated reward with agreement and punishment with disagreement, perceived attitude similarity tends to induce positive affective states which then generalize to the person expressing the convergent attitude. Furthermore, one is attracted to the agreeing other because he induces an expectancy or anticipation of rewards in the relationship (Swensen, 1973).

Thus, within the context of the above principles Byrne has proposed that attraction toward a given individual X is a quantitative function of the rewards and punishments associated with X . Mathematically, Byrne and Nelson (1965) have expressed this relationship by the formula $A = MPR + K$ (Centers, 1975). That is, "attraction toward X is a positive linear function of the proportion of positive reinforcements received from X " (Byrne & Nelson, 1965, p. 662).

In an experiment designed to empirically examine this "law of attraction" Byrne and Nelson (1965) varied both the number and proportion of similar attitudes in a questionnaire purportedly describing

another person. They found that liking for the hypothetical other person was indeed a linear function of the proportion of similar to dissimilar attitudes, but not the absolute number of similar attitudes. According to Centers (1975), Byrne reports additional studies which also tend to substantiate this result (Byrne & Clore, 1966; Bryne & Griffith, 1966).

Theory of Social Exchange. Reinforcement models of interpersonal attraction such as the one advanced by Byrne also interface nicely into the broad rubric of exchange theories of interpersonal relations. Exchange formulations (Blau, 1964; Homans, 1961, 1961; Thibaut & Kelley, 1959) utilize a quasi-economic analogue in attempting to describe the mechanics of interpersonal relations. Extensive discussions of exchange theory is available elsewhere (e.g., Swensen, 1973). Although exchange theorists generally speak in terms of exchange of behavior between persons, the critical element appears to be an underlying exchange of rewards or punishments associated with these behaviors. As a consequence, it extends reinforcement theory in such a way as to account for the vicissitudes of a relationship over time (Centers, 1975). For example, attraction to a certain individual at a given point in time could be construed as recognition of the potential for profits in excess of costs, in relation to the comparison level for alternative relationships.

Summary and Conclusions

Both balance theory and reinforcement theory models of attraction attempt to explain the mechanisms underlying the fact that people tend to be attracted to others who are similar to them. Both have generated

a substantial body of research (see Swensen, 1973) directed toward resolving the question of which model does the most adequate job. Unfortunately neither theory is sufficiently articulated to produce clear-cut empirical consequences or to enable a critical and definitive experimental test of one notion as opposed to the other. For example, does balance recur immediately following the rejection of a disagreeing stranger? Swensen (1973) cites an experiment conducted by Clore and Byrne (1966) which suggests that it does not. They found that attraction to an agreeing stranger is increased following this event. On the other hand, as Swensen (1973) aptly points out, Byrne's attraction formula as presented obviously fails to account for instances of terminated relationships and strong feelings of repulsion in situations where the proportion of similar attitudes and beliefs is much greater than dissimilar ones. An example of this situation might be the bitter arguments and schisms within political groups whose overall ideology is very similar, except for a few seemingly trivial points (Swensen, 1973).

The heuristic value of these contemporary models of attraction, however, has been considerable. Scientific attention has been focused on the fundamentally human questions of what makes people like each other. The consensus is that in general people like those with whom they agree. However, as implied earlier, there are a number of constraints on this generalization. Much of research (particularly the studies reported by Byrne) has dealt with potential relationships with hypothetical strangers. The variables which account for continuing attraction in an ongoing relationship have not been clearly specified. Similarity of attitude and belief systems may indeed play important

roles in the maintenance of liking in long-term relationships, but there is not unequivocal evidence that these are the necessary or even the primary factors. In fact, in long-term heterosexual relationships such as engagement and marriage it has been suggested that attitude and belief similarity may play a critical role in attraction only in the earlier stages of the friendship (Murstein, 1970). More intimate relationships of this type also introduce the question of the nature of the "love" relationship and how it may be differentiated from liking and attraction. In the interests of scientific clarity, it seems worthwhile to briefly examine these questions.

Liking, Loving, and Attraction: Some Conceptual Distinctions

Centers (1975) has suggested that a conceptual distinction between the often synonymously used terms attraction, liking, and loving is necessary. He advises that use of the terms liking and loving be reserved for describing "the experienced gratifyingness of persons or objects," while the word attraction be used within the context of the "perceived, subceived or imagined gratifyingness of others." In other words, attraction for Centers denotes a feeling for another person predicated on the perceived potential of that person for providing one with rewards and gratifications, while liking and loving are affective states associated with the actual gratifications received in an ongoing relationship (Centers, 1975).

Of course, these terms have often been used rather interchangeably and indiscriminantly by lay persons, as such phrases as "I liked him the first time I met him" and "it was love at first sight" aptly

illustrate. However, some of this conceptual and nomenclatural confusion has also crept into the interpretation of research findings. The experimental paradigm used by Byrne and his associates, for example, if viewed within the definitional system described above, has generally dealt with attraction rather than liking or loving. Therefore, sustained liking for another may operate through additional and perhaps even different mechanisms than those suggest by Byrne.

The distinction between the affective experiences of liking and loving, themselves, although almost universally apparent on a subjective level, is surprisingly difficult to make on an objective, empirical basis. Major efforts toward conceptual clarification of the term "love" began with the work of Hattis (1965). After an extensive review of a wide range of literature dealing with love he proposed six major components: (1) feelings of respect and pride in partner; (2) outgoing feelings toward partner; (3) erotic feeling toward partner; (4) desire, need for outgoing feelings from partner; (5) feelings of closeness and intimacy with partner; and (6) surprisingly, occasional feelings of hostility toward partner. Hattis (1965) constructed a series of "love scales" on the basis of these dimensions.

Pam (1970) used the Hattis scales (in a modified form) in a longitudinal study of romances among college students. He found that his scales did differentiate between the subjective intensity of the love relationship at different times, but he made no effort to assess the relative importance of the various scales.

In a recent study, however (Pam, Plutchik, & Conte, 1975), a new love scale was constructed in an effort to obtain separate measurements of five components of love based in part on the Hattis dimensions.

These components were described as: Respect, Congeniality, Altruism, Physical Attraction, and Attachment. Validation research indicated that the various scales differentiated significantly between love, dating and friendship groups. Attachment and Physical Attraction appeared to be most important for the love relationship, while Respect and Congeniality were shown to have the greatest potency for friendship.

Rubin (1970) attempted a social psychological analysis of romantic love. Like Pam, he constructed a "love scale," but, in addition, he created a separate but parallel "liking scale." In constructing these scales, Rubin also attempted to conceptually differentiate liking and loving. Liking he saw as consisting of two primary components: affection and respect. Romantic love, on the other hand, he defined as an interpersonal attitude consisting of three major components: affiliative and dependency needs, a predisposition to help and an orientation of exclusiveness and absorption. He subsequently (1973) used the terms attachment, caring, and intimacy to describe these components. Affectional liking was seen as that associated with the emotional experience of warmth and closeness in a relationship, while respect defined liking based on another individual's sterling qualities, admirable traits, and outstanding behavior, etc., independent of personal relations (Rubin, 1973).

Selecting items which he felt corresponded to the above components of liking and loving (face validity), Rubin constructed two 13-item scales and administered them to undergraduate couples who were either dating or engaged. As was expected, the two scales were found to be only moderately correlated with each other ($r = .39$ for women; $r = .60$

for men) and were successful in differentiating between same sex "friends" and opposite sex boyfriends and girlfriends (lovers) in terms of the expected liking and loving scores (i.e., highest liking scores for friends and highest loving scores for lovers).

It seems clear from the above discussion that objective determination of the differentiating components of the terms liking, loving, and attraction is an important initial consideration for researchers in human bond formation. Conceptual confusion regarding the nature of these dependent variables may well reduce the interpretability and generalizability of findings in the area. Unfortunately, present evidence bearing on the important empirical distinctions is rather limited. Rubin's data suggests that love tends to tap such components as attachment (e.g., "If I were lonely, my first thought would be to seek _____ out"); caring (e.g., "If _____ were feeling bad, my first duty would be to cheer him (her) up"), and intimacy (e.g., "I feel that I can confide in _____ about virtually everything") (Rubin, 1973, p. 217).

Pam et al. (1975) found that attachment, a concept very similar to Rubin's first component of the same name, was one of the two most important discriminators between love and friendship relationships. Items bearing on the other component, physical attraction, were not included in Rubin's scale, but evidence, to be reviewed in a later section of this study, suggests that this variable has powerful potency for romantic love.

One difficulty with present empirical definitions of love obtained from psychometric data arises from the fact that the validation samples have generally consisted exclusively of groups of romantically involved heterosexual couples. It seems possible that this procedure may have

produced a rather circumscribed definition of love in terms of its romantic variety, without tapping other existing types of love (e.g., altruistic, maternal, parental, idealistic, etc.). Ostensibly, there would appear to be no problem with this if romantic love, per se, was the variable of interest. However, even here, scrutiny of many of the items of both Rubin and Pam's love scales gives the subjective impression that they might also bear on aspects of love not strictly romantic or sexual. Since the differences between lovers and friends obtained on the love scales did not specify the type of friend or tap other close non-romantic relationships, the sentiments associated with the love scale may also apply to such relationships. Thus, the task of isolating the critical components in romantic or sexual love may still remain uncompleted, i.e., Rubin Love may refer to other types of love as well.

Liking also appears to be a rather multidimensional concept. The consensus of both the Rubin and Pam studies suggests two important components: respect and congeniality or affection. The latter, described by Rubin as, in part, "a feeling of warmth in a relationship," appears to have many communalities with Pam's concept of congeniality (Pam et al., 1975). The other common variable, respect, seems to suggest a somewhat different type of liking, one not necessarily predicated on or arising from an interpersonal relationship, but instead based on various personal characteristics of an individual. Such traits as adjustment, maturity, good judgment, and intelligence and others associated with the favorable evaluation of the other person constitute this dimension of liking (Rubin, 1973). Admiration, in fact, may well be the term most often associated with this component, but it appears

to be quite important in the formation and maintenance of friendship relationships.

Interestingly, items which tap similarity ("I think that _____ and I are quite similar") were found to be most strongly associated with liking rather than loving (Rubin, 1970). This may suggest that the general theories of attraction reviewed earlier which place strong emphasis on the relationship between similarity and attraction may be more useful for explaining liking than loving. Indeed, several alternative theories have been proposed to explain the bond formation in heterosexual relationships where "romantic love" is usually seen as a strong component. The specific phenomenon of heterosexual attraction and love, and the associated theoretical formulations will be reviewed next.

Before proceeding with this review, however, a final word about the conceptual distinctions surrounding attraction, liking and loving is indicated. Both subjective and psychometric data suggest that liking and living (at least in the romantic context) have certain identifiably separate components. It therefore appears worthwhile to pursue the possibility of separate theories of interpersonal liking and loving. As was noted earlier, however, most of the limited body of objective research on concepts of love have dealt with the romantic or heterosexual variety, so that distinctions between this form and non-romantic forms are, at present, ill-defined. Therefore, definitions of love for the research proposed below will be confined to the romantic or heterosexual variety. Furthermore, confining definitions of the term "attraction" to the perceived or anticipated potential for rewards and gratifications in a relationship appears to be useful. However,

it also may be worthwhile to make further distinction between what might be termed "liking attraction" and what could be called "love attraction." Within the social lore, an apparent distinction is made between liking (e.g., "I liked him the first time I met him") and the usually more intense initial love attraction (e.g., "I fell in love with him the moment we met"). One might be inclined to attribute this difference almost exclusively to immediate sexual attraction (i.e., "the mysterious right chemistry"), and indeed this may often be a strong component. However, the writer also feels that, given the right context, there may be a human capacity for rapid, almost immediate perception and recognition of certain potentials, manifest in the personality structure and dynamics of another person (based, of course, on behavioral inferences), for gratification of one's most vital and potent interpersonal needs through a relationship with that other person.

Centers (1975), in an important postulate of his "recently proposed theory of heterosexual attraction and love," introduced a somewhat similar process which he calls "need-resource resonance":

Every person is assumed to be consciously or unconsciously sensitized by his needs to the perception and subception of resources in others that have potentialities or actualities for gratifying them. In encounters with others he will respond to them with either feelings of attraction or repulsion in keeping his conscious or unconscious sensing of their actual or potential resources for his gratification or purification (Centers, 1975, p. 198).

Because cultural sanctions usually prohibit friendships of a level of intimacy necessary to satisfy these needs outside of heterosexual relationships, this process may form a vital component of initial romantic attraction. In fact, empirical tests of this assumption

constitute an important part of the present study. The question remains, of course, as to what type of people are attracted to each other and how individual personality structures and need patterns interact to produce mutual gratification in a heterosexual relationship. Several major theories have been proposed in an effort to interpret and explain the processes inherent in heterosexual attraction and love. These theories and relevant research in the area have been reviewed by Centers (1975), and Swensen (1973). The following discussion is based, in part, on these extensive reviews.

Theories of Heterosexual Attraction and Love

Attraction between the sexes has been the subject of endless speculation; at least since the emergence of literacy allowed recording of man's central preoccupations. Romantic attraction and love, although present in myth and legend from earliest times, has apparently only become a dominant cultural phenomenon across social classes in more recent times. Extensive reviews of modern conceptions of romantic love from social, psychological, literary, and philosophical perspectives are available elsewhere (e.g., Hattis, 1965; De Rougemont, 1956; Rubin, 1973).

Freud (1922, 1925) proposed two types of interpersonal mechanisms as underlying the phenomenon of "falling in love." One of these might be described as a type of completion principle: a person falls in love with another because he sees in that person certain attributes which he has not been able to attain in himself. The other emphasizes two different types of love which compliment each other in a relationship. That is, a person with a dependent type of love (submissiveness,

admiration, surrender) is attracted to a narcissistic, egotistical person who assumes the desired control over that person and, in doing so, has his own "ego-enhancement" needs (adulation, respect, affection, etc.) gratified (Centers, 1975).

These ideas have generated a substantial body of psychoanalytic theory regarding the dynamics of heterosexual attraction and love. Benedek (1946) suggested that romantic partners "exchange ego-ideals," the strong affect associated with love resulting from investment of excess libidinal energy in various attributes of the object, i.e., the loved one (Centers, 1975). Thus, it is the "image" which is loved.

Ohmann (1942) advanced a completion principle explanation based on the notion that lovers choose each other on the basis of mutually recognized capacities to fulfill each other's needs. He mentioned, "We fall in love with those whom we need to complete ourselves . . . whom we need to satisfy our feelings of ego deficiency" (1942, p. 15; cited in Centers, 1975, p. 116). Reik (1944) also emphasized the role of the love object in compensating for failure to achieve one's own "ego-ideal" (Centers, 1975).

Cattell and Nesselroade's Completion Theory. More recently, a somewhat less depth-oriented application of the completion principle has been proposed by Cattell and Nesselroade (1967). They suggested that there is a tendency to search for someone who possesses traits and personal attributes important to one's own self-image and which can be vicariously obtained and shared by forming a relationship with that other person. However, unlike the psychoanalytic conceptions which emphasize the mutual gratification of deep, intrapsychic and interpersonal needs, Cattell and Nesselroade are more expressly concerned with

such socially desirable traits and behavior as the prevailing cultural norms currently deem attractive. That is:

Every person tends to seek in a partner much the same set of desirables--good looks, intelligence, emotional stability, etc.--but more so to the extent that he or she lacks them" (Cattell & Nesselroad, 1967, p. 356; cited in Centers, 1975, p. 17).

Within this schema, an intelligent, successful, but rather homely man, for example, might be expected to establish a mutually gratifying relationship with a physically attractive, but less accomplished woman. Unfortunately, while the completion theory seems to have a great deal of logical and intuitive appeal, Cattell and Nesselroade's own data generally failed to support their formulation, at least for married couples (Centers, 1975). More recent studies using engaged couples (Centers, 1972) and dating dyads (Curran, 1973) also obtained results somewhat contrary to completion theory predictions. There is evidence, however, that completion theory principles might be useful in understanding intrasexual friendships. A number of studies in which subjects were asked to provide a personality description of their friends (Beier, Rossi, & Garfield, 1961; Reader & English, 1947; Thompson & Nishimura, 1952) have shown that perceived differences between the subjects and their friends tend to involve those characteristics that the subjects admire and esteem, but feel are possessed to a greater degree by their friends than themselves (Centers, 1975).

The Compensatory Dynamic. Centers (1972) has attempted to substitute for the completion principle a somewhat similar concept which he describes as "the compensatory dynamic." Formally stated, this proposition maintains:

Individuals who perceive themselves to rate below the average person in respect to a given ability or attribute consensually considered socially desirable will, in their choices of friends, lovers, and spouses, be instigated more strongly than those of average or better self-ratings to compensate for their level of excellence by establishing relations with those they perceive to be better endowed in such a respect than they themselves (Centers, 1972, p. 124).

Although seemingly in accord with the completion hypothesis, Centers actually places several additional constraints on this generalization. In particular, for heterosexual relationships such as engagement or marriage the deficit area compensated for must be congruent with sexual identity and sex role maintenance. That is, only if the desired attribute is culturally prescribed as being normally associated with the sexual role of the opposite sex partner will the compensatory dynamic be operative. For example, a strong, assertive man might well be attractive to a less aggressive woman who wishes to share his self-assurance and control, but not vice-versa because that would not be a sex-role congruent circumstance, i.e., aggressive women and passive, dependent men are generally not considered culturally desirable and therefore this situation would fail to satisfy strong needs for sexual identity and sex role maintenance and enhancement (Centers, 1975).

Furthermore, in contrast to the completion principle which maintains that people all seek the same socially desirable traits in others, but more so to the extent that they lack these traits, the compensatory dynamic holds that relationships are sought with those who are merely better endowed with the valued traits than one happens to be. That is, an individual will not be attracted to someone who

far outstrips him in possession of admired attributes because such a person would be highly threatening.

Clearly, the completion principle even when reformulated in the compensatory dynamic version appears to be inadequate, by itself, in accounting for heterosexual attraction. An understanding of the interaction of various need patterns operating in a relationship seems a necessary overall context for fathoming the mechanisms involved. Indeed a focus on the mechanisms of mutual need gratification has provided the major thrust of the most influential contemporary theories of intersexual attraction and love.

Need-Complementarity Theory. Although there is admittedly some overlap between completion concepts and explanations based on complementarity of needs, the latter is more specifically concerned with the mutual and reciprocal gratification of various different and often idiosyncratic needs as two persons interact in a relationship (Centers, 1975; Swensen, 1973). Here, also, psychoanalytic precursors have been prominent in providing the foundation for contemporary efforts to explain heterosexual attraction on the basis of need complementarity.

Much theorizing stems from Bergler's idea of complementary neuroses (Bergler, 1946). Bergler proposed that many persons, in the process of choosing marriage partners, select another individual whose neuroses complement their own neurotic pattern. In line with his basic psychoanalytic orientation, Bergler considers this selection process to be largely unconscious. For example, a masochistic woman often looks for a brutal sadistic man although she is unaware of her unconscious wish to be abused (Centers, 1975).

Neurotic Drift. The present writer has speculated about the overall socio-cultural implications of such a mechanism of mate selection in a quasi-genetic analogue which he terms "Neurotic Drift" (Freemon, 1969). The notion of "Neurotic Drift" refers to a hypothesized increase in the concentration of pathological and pathogenic families within the population of Western industrial societies (particularly America) over the last half-century: It is postulated that this trend, at least in part, is an indirect result of the decline in the custom of arranged marriages (based on economic and familial motives, etc.) and its substitution by a "democratized" mate selection and the rise of free-romantic choice. This pathological "drift" has occurred because young persons are allowed and even encouraged to select a mate on the basis of their romantic ideal ("that one person out of millions who is truly made for me," etc.). Unfortunately, all too often that "romantic" choice consists of a person who satisfies one's neurotic needs in the fashion suggested by Bergler's theory of complementary neurosis. As a consequence, marriage dyads have become increasingly homogenous in the sense that the pathologies of the partners complement each other, interacting in a synergistic manner to produce a much greater concentration of pathogenic impact on the various family members than could be produced by either partner alone. The mechanism of this pathogenic impact within such families is postulated to lie in various pathological communication processes such as double binds (Jackson, 1968; Haley, 1959), ambivalent messages, etc. The children of such families, therefore, often tend to recapitulate the pathology of their parental dyad, in turn searching for and finding a partner who satisfies their own neurotic needs. The basic thesis is, therefore, that through the

generations there has been an increase in overall pathology within the society.¹

On the assumption that the same fundamental principles of reciprocal need gratification which operate for pathological needs, and are thus responsible for "Neurotic Drift," also hold for more psychologically adaptive patterns of mutual need satisfaction, it seems particularly important to understand the general role such mechanisms play in heterosexual attraction and love. Indeed, it was in part through such motivations that the present study was initially conceived.

Winch's Complementarity Theory. Influenced by the psychoanalytic formulations described above, Winch, a student of marriage and family relations, has attempted to construct a broad-based general theory of heterosexual attraction and marriage (Winch, 1958). Winch proposed:

In mate selection each individual seeks within his or her field of eligibles for that person who gives the greatest promise of providing him or her with maximum need gratification (Winch, 1958, pp. 88-89; cited in Centers, 1975, p. 21).

In this statement Winch recognized the importance of demographic constraints on marriage choice. Such variables as age, socio-economic status, level of education, religion, residential propinquity, etc. have all been shown to be important in restricting the range of potential partners (Centers, 1975; Murstein, 1972; Swensen, 1973).

The central thesis of Winch's formulation is that the selection of marriage partners is predicated on complementarity of need patterns between potential spouses. He states:

¹It should be noted that despite the genetic analogies used, this conception is based on "environmentalistic" mechanisms.

In mate selection the need pattern of each spouse will be complimentary rather than similar to the need pattern of the other spouse (Winch, 1958, p. 96). What Winch means by complementarity is that: two needs (let us call them X and Y) in two different people (let's denote them respectively as A and B) are complimentary when A's behavior in acting out A's need X is gratifying to B's need Y and B's behavior in acting out B's need Y is gratifying to A's need X. . . .

These mutual gratifications should constitute . . . "reciprocal rewards" so that, if only A's need X and B's need Y are operative, A and B will seek each other's company to continue being rewarded. This is suggested, then, as a general principle of dyad formation. . . (1958, pp. 93-94; cited in Centers & Granville, 1971).

Within this conception, Winch proposes two separate types of complementarity. One variety, which he terms Type I, involves gratification of the same need in both individuals A and B, but at very different levels of intensity. Thus, a negative interpersonal correlation for this need is predicted. For example, for n (need) dominance, one partner should have a high need for dominance and the other a low need for dominance. For Type II complementarity, different needs are gratified in persons A and B. The interspousal correlation in this circumstance can be expected to be either positive or negative depending upon the pair of needs involved. For example, if A and B have strong deference and recognition needs, respectively, then the correlation should be positive. On the other hand, the correlation should be negative for such pairs of needs as autonomy and succorance. In general, the measures of two mutually gratifying needs are related by a linear correlation, according to Winch (Centers, 1975; Swensen, 1973).

Clearly, although Winch's conception contains elements of earlier psychoanalytic formulations such as those of Bergler, many features also appear to fit nicely into more contemporary social exchange and

reinforcement models of interpersonal attraction, particularly the notion of the mutual exchange of need gratifying behavior as a source of reciprocal rewards instrumental in maintaining a relationship. Winch and his associates (e.g., Ktsanes, 1955), however, utilized psychoanalytic concepts as their primary explanatory mechanism. They suggested that such processes as vicarious gratification of abandoned childhood ego-models or ideals were the bases of gratification in complementary relationships (Winch, 1958). In essence, Winch's theorizing seems to be an effort to integrate the Freudian notions of perfection or self-completion with those of complementarity of needs (Centers, 1975).

Winch addressed himself to the question of what needs must be complementary for heterosexual attraction to occur. After examining the long list of needs described by Murray (1938), he selected 12 that he felt might be relevant to mate selection: (1) abasement; (2) achievement; (3) approach; (4) autonomy; (5) deference; (6) dominance; (7) hostility; (8) nurturance; (9) recognition; (10) status aspiration; (11) status striving; and (12) succorance. To these, he added three more general personality traits--anxiety, emotionality, and vicariousness. With this set of needs specified, Winch then attempted to confirm his theory in a rather large-scale research project (Winch, 1958).

A sample of 25 married couples at Northwestern University were administered an eight-card Thematic Apperception Test (TAT), and also responded to extensive "depth" interviews involving some 45 open-ended questions, and lasting two to three hours. This "need interview" was then independently content-analyzed to ascertain what needs were

overtly or covertly expressed in the relationship. The TAT stories were also evaluated using Murray's (1938) method of need measurement. The results, however, were far from clear-cut. The correlations of ratings obtained from the TAT protocols were significantly in the opposite direction from Winch's predictions, and only approximately half of the correlations derived from the interview material were in the hypothesized direction. However, when Winch made what he called a "global" clinical or projective analysis involving the assignment of a final "holistic" rating to each of the variables at a staff conference (1958, p. 110), a substantial number of correlations in the expected direction were found. Out of 44 Type I correlations, 35 or approximately 80% were in the predicted direction, although only 8 (18%) were significant. For the Type II correlations, 221 out of 344 were in the anticipated direction (64%), but again only 71 (app. 18%) were significant (Centers, 1975).

Winch also factor analyzed his data and derived four main types of mates. These were: (1) yielding dependency; (2) hostile dominance; (3) mature nurturance; (4) neurotic self-deprecation (Swensen, 1973). He concluded that complementariness can be conceptualized to a large extent along the lines of achievement--passivity, nurturance-dependence, and dominance-deference (1958, p. 130).

Winch concluded that he had provided major support for his theory of need complementarity in marriage selection and proceeded to describe what he termed a taxonomy of marriages (i.e., Mothers and Sons, Ibsenian, Masters and Servant Girls, and Thurberian).

Subsequent research, however, has generally failed to substantiate Winch's findings. Bowerman and Day (1956) investigated the need

patterns of dating and engaged couples. They used the Edwards Personal Preference Schedule (EPPS) as a measure of the strength of various needs in their subjects. For Type I complementarity, their results provided no support for Winch's predictions. In fact, the obtained correlations actually provided some support for need similarity (four significant positive correlations on the same needs were found). For Type II complementarity, the number of observed correlations that were in the predicted direction was less than chance (Centers, 1975; Swensen, 1973).

Winch (1958) has denied that the Bowerman and Day study is a critical test of his theory. He criticized the experiment on four points: (1) Bowerman and Day used dating couples rather than married couples; (2) many of the needs that they correlated were not the same ones that he studied, (3) different measurement techniques were used; (4) complementarity was calculated for every need studied, which is contrary to his hypotheses (Swensen, 1973). Some of Winch's criticisms, however, do not appear as particularly cogent to the present writer. In the first place, to restrict the theory to married couples considerably reduces its explanatory power and generalizability. It certainly loses potency as a predictor of heterosexual attraction and dyad formation (e.g., how do the couples find each other in the first place?). Furthermore, several other investigators who did utilize married couples (Katz, Gluchsberg & Krauss, 1960; Murstein, 1961; Schellenberg & Bee, 1960) have also failed to substantiate Winch's predictions, finding instead a slight tendency toward need similarity between married couples.

With regard to Winch's second criticism, subsequent research (Schellenberg & Bee, 1960) specifically following Winch's suggestion as to which need patterns should show the greatest amount of complementarity calculated the correlations between married partners on these need combinations, and also failed to obtain significant results.

Several studies using courting couples have, like the Bowerman and Day investigation, failed to verify Winch's notion of complementarity in heterosexual attraction. Day (1961) compared the need patterns of dating couples and their same-sex friends and found no systematic trends supportive of need complementarity in either type of pairings (Centers, 1975).

Schellenberg and Bee (1960) included a sample of unmarried couples in their study and again found tendencies toward similarity rather than complementarity in the correlation of needs between their subjects. Banta and Hetherington (1963) studied both romantic and friendship relationships among the same subjects. They found no evidence for complementarity in romantic dyads, but engaged couples were found to be alike on eight of 15 needs, again supporting need-similarity interpretation.

Swensen (1973) reports several pointed criticisms of Winch's model of need-complementarity by Tharp (1958). Tharp found considerable fault with Winch's original study (1958). For example, he questioned the representativeness of Winch's original sample, suggested the possibility of rater bias, questioned the statistical independence of the various measures that were correlated, and strongly suggested the possibility of Type I error (i.e., given the large number of correlations computed, some were bound, simply by chance, to be in the

predicted direction). He also cited several of the studies reviewed above which produced negative evidence for Winch's theory.

On the other side of the ledger, acknowledging the cogency of several of the above criticisms of Winch, Swensen (1973) has called into question some of the characteristics of the research that failed to support him. He points out, as indeed Winch had elsewhere (1958), that virtually all the studies obtaining results contradictory to Winch have used the Edwards scale (EPPS). Several investigators have seriously questioned the validity of the EPPS as a measure of needs (e.g., Fishe, 1966; Katzell & Katzell, 1959; Winch, 1958). Fishe (1966) found that a considerable percentage of the variation between scores on the Edwards consists of error variance, raising serious question of its adequacy as a measurement technique. Furthermore, most of the studies producing negative evidence have correlated the relationships between dyad members on all of the Edwards scales, rather than just the ones hypothesized to be integral to Winch's theory, a point first proposed by Winch to criticize the Bowerman and Day study (Swensen, 1973). Finally, several studies have been published which seem to support need-complementarity theory.

Interestingly, several of the studies which tend to support Winch have utilized need measurement techniques other than the Edwards scale. Shutz (1960), in developing his Fundamental Interpersonal Orientation Theory, proposed that all persons have preferred modes of behavior in interpersonal relationships, and that interactions tend to be directed toward satisfying social needs in three broad areas: affection, inclusion, and control. Individuals differ, however, in terms of how much they wish to express or receive of the social commodity represented by

each of the three need domains. In an effort to measure this dimension for each of the three need areas, Schutz (1960) constructed the Fundamental Interpersonal Relations Orientation--Behavior (FIRO-B). This scale allows measurement not only of an individual's interpersonal orientation, but also allows calculation of several types of potential compatibility with another person for each of the three interpersonal need domains (Schutz, 1966). In a study conducted with small groups in the Navy, Schutz (1966) found that men tended to choose as friends other men who are opposite (complementary) to them on affection and control. Although this investigation focused on friendship groups rather than heterosexual relationships, Schutz's findings seem interesting in the sense that the affection and control measures he used appear to be conceptually similar to the nurturance-receptance and dominance-submission dimensions hypothesized by Winch to be central to complementary (Swensen, 1973).

Of additional interest is the fact that the major published study providing confirmation for Winch's view also used Schutz's FIRO-B as a measure of need compatibility. Kerckhoff and Davis (1962) administered the FIRO-B scales and Farbers' index of value consensus to college couples seriously considering marriage. They found that value consensus was significantly related to courtship progress only for short-term couples, while need complementarity was significant only for the long-term couples. In interpreting these findings, these authors suggested a type of serial filtering mechanism, whereby social status and demographic variables have greatest selective potency early in a relationship, value consensus somewhat later on, and need complementarity in final stages of mate selection. Such an interpretation would

appear consistent with the findings of Winch's early study where all couples were married.

Centers and Granville (1971) administered FIRO-B questionnaires to a sample of 251 married and unmarried college couples at several levels of heterosexual intimacy. Although their results provided no support for Winch's Type I complementarity, they found modest evidence for the Type II variety. They pointed out that this result was not surprising in view of the fact that Type complementarity seems illogical both conceptually and empirically in terms of motivational theory. To illustrate, they suggest the hypothetical example of two persons, A and B who are interacting in relation to n dominance. A is high in n dominance, while B is somewhat lower in this need. A therefore begins to clearly dominate B, who puts up some resistance but soon concedes. A therefore gains strong gratification of his dominance needs, but B, whose dominance needs are less but still existent, is completely ungratified. Thus, the relationship should be punitive for B (Centers & Granville, 1971). As a result, Centers and Granville insist that predicting compatibility and attraction for negatively correlated needs (i.e., Winch's Type I complementarity) is fallacious if considered independently of other sources of gratification outside the relationship, and of the overall compatibility on a number of needs.

Centers and Granville also found evidence in their study for Kerckhoff and Davis's notion of "filtering factors." They obtained no significant correlations indicating complementarity prior to marriage relationships. For the engaged and dating couples no relationship was found between complementarity and level of intimacy. They suggest, like Kerckhoff and Davis, that mutual need-gratification may be the

final selective filter in the process of mate selection (Centers & Granville, 1971). (Note: It should be noted that for Schutz's FIRO-B inclusion dimension, however, complementarity seemed to hold across all intimacy levels. There was, on the other hand, some tendency for degree of inclusion compatibility to be inversely related to intimacy. Centers and Granville suggest, therefore, that compatibility in this need domain may be important in early stages of a relationship and may become somewhat less important as the relationship proceeds.)

It seems clear from the above review that the available empirical evidence regarding Winch's hypotheses is far from clear-cut: need complementarity is acknowledged by most theorists to probably play some part in heterosexual attraction and mate selection, but its role in, and relationship to other sources of need gratification (i.e., other types of need compatibility) in intersexual pairings is seemingly more complex than Winch's model allows.

The controversy surrounding Winch's theory has generated several alternative interpretations of the role of need satisfaction in heterosexual relationships. Swensen (1973) has detailed a number of these alternative explanations. He points out that Winch, for example, has suggested that, in a certain sense, needs may operate at both overt and covert levels. That is, a person may present a strong, independent appearance to the world at large, but in his intimate relationships be quite dependent and need a great deal of emotional support. He also admits that some strong needs might be satisfied outside the marriage relationship (Swensen, 1973; Winch, 1958).

Rosow (1957) has suggested a model of complementariness within married couples that is considerably more complicated than that

proposed by Winch. In addition to the Winch conception, he postulates three types of additional complementariness. One additional variety is that which exists when the strengths of one member of a dyad compensate for the weaknesses of the other. This is a sort of "unit" completion hypothesis. The marriage partners thus form an efficient, working team. Another type of complementariness involves need patternings which allow the needs of a couple to complement each other in their relations with other people. A third variety suggests that the relationship may allow need gratification unavailable elsewhere. Thus, needs satisfied within the relationship are complementary to those satisfied outside the relationship (Swensen, 1973).

Wright (1965) has suggested that some needs may be more attractive than others for all people. As a consequence, persons who possess these needs will be attracted to similar others, while those who lack such needs will be attracted to complementary others through some type of "compensatory dynamic" (Swensen, 1973).

Rosow (1957) has also pointed out that a distinction should be made between the need itself and its overt behavioral expression. While a need may represent a potential and desire to act in a certain way, appropriate circumstances may be necessary for its actual expression in behavior (Swensen, 1973). Rosow has hypothesized that what he terms "self-acceptance" might serve to mediate between the need pattern and the overt behavior. In other words, given a person with strong needs for affection (nurturance) from others, self-acceptance will allow the expression of this need to appropriate others and result in gratification. However, if he is not self-accepting he may be fearful of expressing this need because of the threat of

embarrassment and rejection, and therefore may pretend to be self-sufficient and autonomous. The results of such long-term denial may not only be deception of others (e.g., Joe doesn't need anyone) but eventually self-deception (e.g., I don't need anyone). Consequently, through a "self-fulfilling prophesy" Joe receives very little affection from others (Swensen, 1973).

Centers (1971, 1975) has advanced what he terms the "Postulate of Genderic Congruency" as another possible mediating variable between needs and their expression in a heterosexual relationship. Basically, this postulate maintains that male-female need complementarity is a gratifying and attractive arrangement only to the extent that the needs involved are congruent in terms of culturally acceptable sexual roles.

Male dominance has high attractive value for females, but female dominance has less attractiveness value for males. Again, female nurturance has high attractiveness value for males, but male's nurturance has less attractiveness value for females (Centers, 1975, p. 75).

Thus, for Centers, expression of needs is constrained by the culturally determined gender appropriateness of such expression.

Murstein's Stimulus-Value-Role Theory of Marital Choice. Influenced by Kerckhoff and Davis's "filter" theory ideas, Murstein (1970) has proposed a three-stage theory of marital choice which he terms the Stimulus-Value-Role (SVR) conception. A more comprehensive formulation than that of Winch, SVR incorporates not only the idea of a series of filters in mate selection, but also included several notions not dissimilar to those proposed by Rosow (1957) and Centers (1971). He also incorporates many of the exchange theory ideas. Therefore, although Murstein's theory is actually more concerned with the specifics of

marital choices than with heterosexual attraction and love in general, selected portions of his formulation will be described.

(a) Stimulus Stage: This stage, the first in Murstein's system, focuses on what he considers as the critical factors in initial heterosexual selection. These include an individual's perception of the various physical, social, mental, and status attribute of a potential opposite sex partner and his perception of his own qualities that might be attractive to the other person. It is important to note that this process is not dependent upon interaction with the other person and the various discriminatory cues are therefore simply termed "stimulus" variables (Murstein, 1970). This stage is critical, however, because if a person is eliminated (filtered out) as a potential heterosexual partner on the basis of the above stimulus cues, regardless of the potential compatibility in terms of values and mutual need gratification, the two people will never get together (i.e., have a chance to interact and find this out). In this culture, the crucial selective stimuli appear to include age, race, education, social and financial status, propinquity and, perhaps most importantly, physical attractiveness.

Murstein explains selection at this first stage of courtship by proposing the mediating function of self-perception, and by utilizing a mechanism which he calls premarital bargaining. In regard to the first, Murstein emphasizes the importance of one's perception of his attractiveness to the opposite sex. Self-doubts, whether realistic or not, inhibit approaches to the opposite sex. Fear of failure also may or may not inhibit subsequent approach behavior. Premarital bargaining is a concept borrowed from the exchange theorists (e.g., Blau,

1964; Homans, 1961; Thibaut & Kelley, 1959). Murstein's model of premarital bargaining utilizes the familiar ideas of "profit" in a relationship as a function of "inherent rewards" and "costs." The total of the various assets and liabilities of each potential partner are balanced against one's own perceived assets and liabilities, and against those of alternative partners. Murstein maintains that: "The weighted pool of perceived stimulus attractions that each partner possess for the other will be approximately equal if individuals are to progress into the second stage of courtship" (1970, p. 471).

(b) Value Stage: The value comparison phase, comprising the second stage of courtship, is, unlike the first stage, predicated on the opportunity for verbal interaction. Here: "The couple compares their attitudes toward life, politics, religion, sex, and the role of men and women in society and marriage" (Murstein, 1970, p. 472). If the couple finds that they hold similar value-orientations and styles of viewing the world, then increased attraction and mutual positive feelings develop. Murstein explains this phenomena on the basis of the rewarding value of consensual validation of one's primary perceptions and attitudes toward important issues of life in a manner similar to that hypothesized by Sullivan (1947) and Byrne (1961). Furthermore, he points out, perceived similarity of values has been shown to lead to the impression that others like us (Bercheid & Walster, 1969; Newcomb, 1961). Finally, people who have similar values are likely to enjoy the same kind of activities and thus reward each other's commitment to these activities (Murstein, 1970). They should thus enjoy being together. However, Murstein points out:

The overall decision of whether to continue to view the relationship as possibly leading to marriage will probably depend upon the averaged effects of value congruence with

respect to the stimulus values leading to the encounter and values encountered in verbal interaction. A beautiful woman, for example, may be desirable even if her values depart somewhat from those of the man. Conversely, an unusually strong satisfaction derived from similarly held values may offset the fact that the physical appearance of the partner is only minimally satisfying (Murstein, 1970, p. 472).

(c) Role Stage: Stimulus attraction and value similarity are necessary, but not sufficient conditions for marriage or long-term heterosexual involvement according to Murstein. The final selective filter requires what he refers to as "role compatibility."² In the premarital stages, he feels, a partner's capacity to function in a desired role is not as easy to ascertain as are his stimulus attraction and value orientation. Thus, the role stage occurs last in the time sequence leading to marital choice.

Murstein sees the evolution of the relationship during this stage as entailing three basic tasks: (1) determining mutual role fit; (2) establishing the status of one's own personal adequacy and emotional adjustment and that of one's potential partner; and finally (3) attaining some workable form of sexual compatibility.

(d) Role Fit: Murstein, as has been seen, endorses a general similarity principle as being instrumental to attraction for the first two stages of courtship. For the role stage, however, he maintains that complementarity may sometimes produce the greatest compatibility

²Role is defined as "the behavior that is characteristic and expected of the occupant of a defined position in (a) group (English & English, 1958, p. 468; cited in Murstein, 1970, p. 471). "A role is thus a norm for a particular relationship and for particular situations" (Murstein, 1970, p. 471). "Role" is thus used by Murstein in somewhat the same sense as the term need-instigated behavior is used by Winch and Centers.

and mutual satisfaction. The critical differentiating variable, he feels, is the self-ideal-self discrepancy, or what might be termed the self-acceptance of the perceiver. Since idealized expectations in marriage are basically similar in a given culture, Murstein expects ideal-self-ideal-spouse correlations to be high. Therefore, he proposes that if a person is highly satisfied with himself (high correlation between self and ideal-self), then it follows that he will attempt to marry someone who is perceived as highly similar. On the other hand, if an individual is highly dissatisfied with himself (low self-ideal-self correlation), he will still desire to marry someone as close as possible to his ideal-spouse (who, of course, will be similar to his ideal self). Therefore, he will try to marry someone whom he perceives as less similar to himself than would the high self-accepting person. Thus, predictions of attraction as a function of homogamy or complementarity must be qualified in terms of the position of the self in reference to the ideal-self, the ideal-spouse and perceived partner (Murstein, 1970).

(e) Personal Adequacy: Murstein holds that an individual's basic self-acceptance and overall emotional health are important determinants of his heterosexual attractiveness. This is because there is considerably less cost, in exchange theory terms, in relating to a non-neurotic; fewer unrealistic demands are made and those needs that are expressed are easier to satisfy. Furthermore, a better adjusted, self-accepting person is closer to the cultural ideal for a spouse or heterosexual partner, and has higher social stimulus value for others (Murstein, 1972). Therefore, Murstein predicts that better adjusted, higher self-esteem persons would tend to be attracted to each other,

and, in exchange terms, be better able to maintain a mutually profitable relationship. Low self-esteem individuals, because of fewer assets would be forced to form relationships with heterosexual partners who also are less self-accepting (Murstein, 1970).

(f) Sex Drive: Murstein makes an interesting prediction in relation to sexual compatibility. He maintains that sexual drive is a homogenous selective variable in heterosexual affinity. Successful courtship couples should therefore exhibit a similarity of sex needs in terms of frequency and desire (Murstein, 1970). However, he also cites evidence suggesting that the sex drive of men is, as a general rule, stronger than that of women. Thus, he hypothesizes that differences between male and female sex drives might pose a problem for heterosexual relationships in which the man experiences high needs for sex. As a consequence, he predicts greater role compatibility and more satisfying relationships for courtship couples in which the man possesses a relatively low sex drive (Murstein, 1970).

Using 197 heterosexually involved college couples, Murstein (1970) tested 19 hypotheses derived from SVR theory. Among the hypotheses for which he reported substantial confirmation were one predicting more successful passage through the "stimulus" and "value" stages of courtship as a function of similarity of physical attractiveness and basic values. Also as predicted, high self-accepting individuals perceived their partners as similar significantly more often than did low self-accepting persons.

Evaluations of the emotional adjustment of the experimental couples, revealed, as anticipated, a statistically reliable tendency for high self-accepting persons to be paired together and "neurotics"

with "neurotics." In line with exchange theory notions, high self-accepting individuals, through the possession of greater marital assets were able to establish successful relationships with partners closer to their expectations than were low self-accepting persons.

In terms of sexual compatibility, it was found, as predicted, that the sex drive of successful courtship pairs was relatively similar. It was also hypothesized that men with high sex drives would be involved in less satisfactory relationships than would men with low sex drives. This was essentially confirmed. Men with high sex drives generally experienced less successful courtship progress (Murstein, 1970).

The chronological sequence (serial) effects inherent in the three-stage conception of SVR theory were also tested. As was predicted, physical attraction, considered a potent stimulus variable, and value similarity, a value stage variable were positively correlated to courtship progress during the hypothetical "role stage" (Murstein, 1970).

On the basis of the above results, Murstein concluded that he had mustered considerable support for his theory of mate-selection.

For the present author, one of the attractive features of Murstein's approach is his recognition of the temporal constraint on the various proposed mechanisms of heterosexual attraction. His SVR sequence constitutes an appealing synthesis of several major theoretical ideas, the temporal stage of courtship being the integrating element. As Murstein points out, however, SVR notions of initial heterosexual attraction are predicted on the assumption of an "open field." That is, the field is assumed to be open in the sense that a male and female are free to begin a relationship or not, as they see fit. Here,

stimulus variables are assumed to be pre-potent in determining whether or not they do. Many situations, however, actually constitute a "closed field" where both men and women are forced to interact by environmental circumstances. Many employment situations, ethnically segregated neighborhoods, college seminars, etc. establish such a closed field. Here, couples are forced by the situation to become acquainted with the non-stereotyped behavior of each other. Thus, second-stage "value" assets are given an opportunity to outweigh the first-stage stimulus variables, so that the serial sequence effect may be short-circuited.

Although Murstein confines himself to potential overlap between the first two stages, it is possible that this could actually be true also of the third stage "role (need) variables." The present writer has hypothesized that individuals may be able to recognize, after only a very brief, non-stereotyped interaction, the potential need and role resources of others, and consequently be attracted to them on that basis. This notion has, at present, no empirical validation, but as has been previously stated, the experimental verification of such a notion was an important goal of the present study.

Centers' Instrumental Theory of Intersexual Attraction and Love.

Another formulation which seeks to understand heterosexual attraction in exchange terms has recently been proposed by Centers (1975). Although incorporating many concepts from exchange and reinforcement theories, Centers has attempted in his "Instrumental Theory of Intersexual Attraction" to go beyond these conceptions in an effort to understand the processes by which need determined behaviors of one

partner become instrumental to the satisfaction of various needs in the other (Centers, 1975).

Centers began by acknowledging that all humans have certain interpersonal needs which are dependent on other people for their gratification. Furthermore, the overall capacity of gratification of these needs by others is directly associated with the experience of attraction or repulsion toward them.

Social interaction and interpersonal behavior may be conceived of as a process wherein we seek to and do use each other for the gratification of our needs. When there is mutually gratifying use of each other it results in attraction and love. When there is mutual or one-sided gratification of needs the result is repulsion and hate. Where no exchange of gratifications or gratifications results from our encounters and interactions we experience merely disinterest and apathy (Centers, 1975, p. 306).

The central thesis of instrumental theory is that:

Each person seeks among his circle of acquaintances within the compass of his self-acknowledged compeers to form a relationship with that person or those persons whose behavioral and other resources (are perceived or expected to provide) maximum gratification for his needs (Centers, 1975, p. 307).

Recognizing that the above statement was sufficient, by itself, as an explanatory or predictive proposition, Centers also proposed a more specific hierarchy of needs considered critical to heterosexual relationships. These needs, arranged in decreasing order of potency, include sex needs, needs for affectional intimacy, the need for maintenance and enhancement of sexual identity and role, the need for interpersonal security, and self-esteem needs (Centers, 1975).

As was noted earlier, many of the studies which have attempted to validate Winch's complementarity hypotheses have actually obtained results suggesting similarity rather than differences among the need

patternings of engaged couples. Centers remains convinced, however, that men and women do indeed differ in degree and kind of needs. In an attempt to resolve this apparent contradiction, he has generated a set of several mechanisms subsumed under that he termed "the theory of intermotivational mechanics." Among these mechanisms are included:

(a) Reciprocity: Some needs are indeed similar. For needs like sex and affection, expression of behavior impelled by these needs is not only directly gratifying to the expressor but also directly gratifying to the receiver. Therefore, two persons, both with high needs to express and receive affection and sex, for example, should be reciprocally gratifying to each other, and thus be strongly attracted on the basis of need similarity.

(b) Adjuvance: On the other hand, for certain needs, such as dominance and aggression, behavioral expression would appear to be punishing to the reciprocants of such expressions. However, previous studies (e.g., Banta & Hetherington, see above) have shown positive correlations on such needs between members of attracted dyads. Centers attempts to explain this discrepancy by postulating the mechanism of adjuvance. Essentially, adjuvance refers to the fact that in some interactions that have a great deal of conflict and potential punishment associated with them for one or both parties, the overall balance can remain gratifying because the behavior expressed also gratifies other needs simultaneously operating in the interaction. For example, in a battle for dominance one person generally loses. However, the dominated person may also gratify needs for excitement and competition, leading to an overall profit for the exchange despite frustration of dominance needs.

(c) Vicariousness: Another mechanism of potential gratification in this type of interaction is referred to as vicariousness. It implies that by identifying with the successful aggressor, for example, one's own aggression needs might be vicariously satisfied. Thus, two persons, both with high aggression, might find a relationship rewarding and be attracted to each other through the operation of co-vicariousness.

(d) Agentiality: This mechanism serves an explanatory function in those circumstances where the needs of one partner in a dyad instigate behavior, the consequences of which are gratifying both to him and his partner. For example, an achieving partner may, by his accomplishments, benefit the other member of the dyad, who, although he or she rarely acts upon them, also has high achievement needs. The non-achieving partner therefore may enjoy both the material rewards of having an achieving partner and also through other mechanisms gain vicarious satisfaction.

(e) Complementarity: Centers completely rejects Winch's notion of Type I complementarity (complementarity based on a negative correlation on the same need, see above). However, he does maintain that a mechanism like Winch's Type II complementary (attraction based on two different but complementary needs) is of considerable importance in heterosexual attraction and love. Furthermore, according to Centers, the positive correlations on the same needs found by Winch and others were actually an artifact of the simultaneous, but unrecognized operation of different needs which are functionally associated with the first. This state of affairs is referred to as reciprocal complementarity or co-complementarity. For example, two persons, both high in

n exhibition may take turns showing off and entertaining each other, thus gratifying both exhibition needs and needs to be amused and entertained.

Intermotivational Dynamics. Centers also proposes a corollary set of "intermotivational dynamics," which, if used in combination with the above intermotivational "mechanics," he feels should allow prediction of virtually every interpair need correlation. Selecting the 15 Edwards needs proposed by Winch, he extracted what he considered were the four most salient properties or dimensions. These were, in order of pre-potency: (1) strength-weakness; (2) beneficence-suppliance; (3) affection-hostility; and (4) excitement-sameness. Each of these four sets of opposites were assumed to have exchange value with each other. They interact through the mediation of the several motivational mechanisms to produce various circumstances associated with either attraction or repulsion. For example, either strength-strength repulsion or attraction might be possible depending on whether the mechanism of adjuvance or co-adjuvance (reciprocal adjuvance) is also operating in the relationship. In the latter case, of course, the gratifications due to adjuvance might outweigh the punifications associated with the aggressive behavior involved, leading to attraction.

Other examples might be strength-weakness attraction mediated by complementarity, or strength-weakness repulsion due to lack of rewards associated with affectional need gratifications (i.e., "she is just a mousy person"; "nothing really to her"; etc.). In other words, strength-weakness attraction might occur through the process of complementary gratification of dominance and nurturance needs in the strong partner and succorance and dependency needs in the weaker. However,

if certain other basically reciprocal needs such as affection remain ungratified (the weak member is also emotional unresponsive) in the relationship the overall balance may lead to strength-weakness repulsion. Such potential interactions between various intermotivational mechanisms and dynamics were utilized in an effort to produce an explanatory synthesis for the seemingly contradictory results of studies of heterosexual attraction and mate selection previously published.

All of the above interactions, however, were seen as constrained by, and qualified through, the operation of cardinal postulate. This motivational force, already referred to in the context of completion theory notions, is the postulate of sexual identity and sexual role maintenance drive (Centers, 1972, 1975). According to Centers, this postulate maintains that:

Individuals of the respective sexes are strongly motivated to behave in ways congruent with the cultural definitions of their sexual identities and roles, as these, together with the needs which are generative of behaviors expressive of them, have been embodied in their personalities. And, ceteris paribus, in intersexual dyad formation each will seek a relationship with that partner whose own needs instigate behaviors most facilitative of and promotive to the gratification of this motive (Centers, 1975, p. 309).

Therefore, he predicted that:

In intersexual attraction the behaviors instigated by those most distinctly sex-linked needs will have high attraction value if found in a person of the sex they associated with most strongly in the social-cultural definition of sex type, but less attraction value if found in a person of the sex with which they are popularly regarded as less congruent or incongruent (Centers, 1975, pp. 309-310).

Centers places great emphasis on the integrative capacities of this postulate in predicting and explaining attraction associated with

various patternings of needs in intersexual couples.

Two final postulates were considered necessary, however, in order to make his theory predictively effective. The first, the postulate of isomorphism of motive and behavior, holds that the needs of a person, as measured by test scores such as the EPPS, instigate behaviors congruent with these measured needs.

The second postulate, that of need-resource resonance, has, of course, already been described (see page 14) and tests of its empirical validity constitute a major goal of the present investigation.

Centers (1975) tested his overall theory by comparing the correlations of 71 engaged college couples on all possible combinations of 15 Edwards needs, including same as well as different need pairings (a matrix of 225 correlations thus resulted). Before computing the correlation coefficients, Centers made predictions based on his theoretical system for all 225 possible permutations (225 total predictions).³ The results indicated that he had correctly predicted the direction of 208 out of 225 correlations (92%). However, only 62 of these correctly predicted correlations were significant at or beyond the .05 level (30%). None of the correlations which were contrary to prediction, however, were significant at or beyond the .10 level. Centers concluded that for a theory of the complexity of his Instrumental formulation, the results demonstrated very respectable predictive power (Centers, 1975).

Out of 225 predictions 210 were derived exclusively from his

³It should be mentioned that these predictions were made only for the direction of the correlation coefficient without any further precision attempted.

theory of intermotivational dynamics. All of the mispredictions were found in this set of hypotheses. However, the percentage of hits still remained high (91.9%), although only 28% were significant at the .05 level. Centers, therefore, also concluded that substantial predictive power for intermotivational dynamics had been established.

Predictions were also generated in accordance with Winch's theory for all appropriate correlations of needs, so that a comparison could be made between the two formulations. The results, in terms of predicted direction of correlation, indicated that Winch's predictions produced a 63% hit rate, as compared to 91% for instrumental theory. Centers therefore concluded that his approach was demonstrably superior to that of Winch.

Some General Comments on the Theories of Centers and Murstein.

The above summary of the formulations of Centers and Murstein has been presented in fairly detailed form because, in the writer's opinion, they represent perhaps the best of recent efforts to provide a comprehensive theoretical rationale for understanding the dynamics of heterosexual relationships. The two attempts were made at somewhat different levels of analysis, however. Centers undertook the rather monumental task of developing a system of postulates and mechanisms which would generate specific empirical predictions about virtually every possible patterning of needs in established, and hence presumably compatible, heterosexual relationships.

Murstein, on the other hand, attempted a much broader level of analysis. He assayed to generate a relatively small number of synthesizing principles which would tie together and integrate the entire sequence of initial attraction, courtship, mate selection, and

finally marriage. Although the result, in the present writer's view, was quite satisfying, it does lack the specific empirical predictability for a particular romantic dyad at a given point in the courtship sequence (i.e., for an already established intimate relationship) that Centers assumes for his system. However, at this stage in the development of behavioral science, attempts such as Centers' instrumental theory may be somewhat premature. The lack of broad integrating principles makes his system conceptually somewhat cumbersome, and the large number of postulates and mechanisms thus required to explain and predict the dynamics of heterosexual relationships makes his theory appear rather unwieldy. He has, however, apparently been somewhat successful in demonstrating that his formulation can predict and explain in a fairly systematic fashion at least certain trends in the need patterning of compatible heterosexual couples. At the present stage of theory construction in heterosexual relationships, this seems a rather impressive accomplishment.

Of the two theorists, Murstein addresses himself most directly to the phenomena of initial heterosexual attraction. The stimulus stage of SVR theory is, in fact, specifically concerned with this process. Centers, on the other hand, generally limited his interest to already established intimate relationships, making relatively little effort to directly explain and predict initial attraction. However, he did formulate several mechanisms and postulates that, in an empirical sense, might be extrapolated to such a process. These issues will be considered in the next section.

Initial Heterosexual Attraction

Unlike the fairly substantial literature on courtship, mate selection, marriage, etc., specific theoretical formulations in the area of initial heterosexual attraction are rather limited in number. Many theorists tend to invoke the now somewhat conventional explanations based on general interpersonal attraction theories of Byrne, Newcomb, and others. These "social psychological" formulations emphasize the reinforcing value of consensual validation of one's values and attitudes (attitude similarity) by others as instrumental to attraction. Although the current evidence provides strong support for such a mechanism in non-romantic attraction and friend selection, it appears to play a somewhat less important role in initial heterosexual attraction. The most impressive clue to this fact first became apparent with the recognition of the crucial importance of physical attractiveness in initial heterosexual impressions.

Physical Attractiveness and Initial Impressions. The importance of physical appearance in heterosexual relations has been implicitly recognized by lay persons for some time. However, surprisingly little theoretical and research emphasis was placed on the study of this relationship prior to the studies of Walster and her associates in the mid-1960s. Walster, Aronson, Abrahams, and Rottman (1966) predicted, on the basis of "level of aspiration" theory, that an individual would attempt to date and would most like a partner of approximately his own level of social desirability. To test this idea, a field study was conducted at the University of Minnesota in which males and females were randomly paired with one another for a "computer dating" dance.

Before the dance took place all subjects were rated for physical attractiveness, and administered a wide range of personality and intellectual measures. During the dance the subjects were asked to complete questionnaires indicating how much they like their partner and how strongly they desired to date their partner again. At the end of the semester a determination was also made of the actual number of subsequent dates.

None of the level of aspiration hypotheses were confirmed. The only important determinant of a subject's liking for his date was found to be physical attractiveness. Regardless of a subject's own attractiveness, the greatest predictor of how much a partner was liked, how much the partner was considered desirable for further dates, and how much the partner was subsequently asked out was the partner's attractiveness. Furthermore, similarity of partners on such personality measures as the MMPI, the Minnesota Counseling Inventory, Berger's scale of self-acceptance, etc., failed to predict liking, a result somewhat contrary to interpersonal attraction theory.

The results of the Walster, et al., study generated considerable interest in the relative contributions of physical attractiveness versus various attitudinal and personality variables in determining initial heterosexual attraction. Brislin and Lewis (1968), for example, used the computer dance paradigm to evaluate the relative importance of a number of such variables. They found that a date's physical attractiveness, sociability, and perceived similar interest were all positively correlated with "desire to date again." However, the correlation with physical attractiveness was significantly higher than the other two (i.e., .89 versus .60 and .64, respectively). Similar

results were obtained by Tesser and Brodie (1971) using the computer dance model, and by Curren (1973) using advertisement for a computer dating service.

Several studies have looked at the simultaneous effect of attitude similarity and physical attractiveness on initial heterosexual attraction. Byrne, Ervin, and Lamberth (1971) conducted a computer dating field study in an effort to extend the generalizability of the findings of Byrne's laboratory attraction research. Forty-four male-female pairs were selected on the basis of responses to an attitude and personality questionnaire and in such a way that similarity of responses was either minimized or maximized. Couples were then introduced and sent out on a 30-minute coke date. When they returned they were assessed on a number of measures. The results indicated that attraction was significantly related to similarity and also to physical attractiveness. Physical attractiveness, alone, however, was significantly related to ratings of date desirability, desirability as a spouse, and to sexual attractiveness. Both similarity and physical attractiveness were significantly related to physical proximity of the two individuals while they were talking after the date. In a follow-up study at the end of the semester, similarity and physical attractiveness were found to predict memory of date's name, incidence of talking to each other during the interim period, and desire for another date in the future.

Stroebe, Insko, Thompson and Layton (1971) investigated the effects of physical attractiveness, attitude similarity, and sex on attraction in a sample of 100 male and 100 female undergraduates. Attraction was dichotomized into desire to work with versus desire to

date or marry. The results indicated that the subject's overall attraction was greater to physically attractive and similar others. Physical attractiveness, however, had a relatively greater effect on desire to date for all subjects.

Black (1974) manipulated physical attractiveness and similarity of attitude in a study in which 48 male undergraduates rated their desire to make friends with and date a female. Both physical attractiveness and attitude similarity had significant effects on desired friendship and desire to date, suggesting that physical attractiveness may be important for friendship attraction as well as dating.

Kleck and Rubenstein (1975) also studied the effects of physical appearance and perceived attitude similarity on self-report and non-verbal measures of interpersonal attraction. They found that the physical attractiveness of female confederates, but not their perceived degree of similarity to male undergraduate subjects, produced significantly greater liking. Self-report measures taken several weeks after the laboratory interaction session revealed that the subjects had thought more about their partner, and remembered more details of her appearance if she had been attractive rather than unattractive. No such effects were found for attitude similarity.

With the exception of the last study, the available evidence suggested that both physical attractiveness and attitude (value) similarity play important roles in initial heterosexual attraction. The finding of particular interest seems to be the relatively greater potency of physical appearance. However, the studies described above generally used situations where the social context explicitly defined the interpersonal roles of the couple in terms of potential romantic

involvement and courtship, i.e., computer dances, coke dates, etc. At least for initial contacts, these circumstances may have contributed to the apparently greater salience for physical attractiveness attributes. This may well be due to certain ritual courtship norms which tend to operate in such situations. For example, in initial contacts which are explicitly of a romantic or sexual focus, such as blind dates, where the potential interpersonal relationship gratifications are unknown or unsure, stimulus variables such as physical attractiveness generally assume high potency. High status is also associated with physically attractive partners. Therefore, in the absence of other discriminant cues about the person, the first question asked is generally "what does he or she look like?" It is this writer's "hunch" that because of the implicit threat of rejection due to something over which the person has no control, very few long-term involvements grow out of such initial acquaintances. Most successful initial heterosexual contacts are probably not of such a circumscribed nature. Furthermore, given the experimental paradigm used in most of the physical attractiveness studies cited above, compliance with the experimenters may have been as important a source of motivation to the subject as any possible ego-investment in a potential relationship. That is, gratification of one's heterosexual needs may not have been the primary criterion of initial impression formation, so that the subject focused on the most readily ascertainable discriminant stimuli (i.e., physical appearance) in making their judgments of the other person. The relative importance of appearance versus some type of interpersonal compatibility in impression formation might have been

considerably different if the dates and dates and first contacts had not had such a specific sexual focus, or if they had resulted from the subjects' actual desire to establish need-gratifying relationships. This question remains an empirical one, however.

Some Concluding Remarks

In summary, several potentially salient variables in initial heterosexual attraction have emerged from previous studies. The importance of physical appearance has been clearly established. Attitude and value similarity also appear to be instrumental to initial attraction. Various social status variables also seem to play a role in initial attractiveness. Several studies (e.g., Bercheid, Dion, Walster, and Walster, 1971) have shown that while the most attractive members of the opposite sex are most desirable, persons will generally settle for someone similar to themselves in attractiveness.

To the writer's knowledge no studies, however, made investigated initial heterosexual attraction as a function of need compatibility. This circumstance is somewhat surprising in light of the extensive body of literature devoted to examining the patterning of need gratifications within more intimate heterosexual dyads. The dearth of research is apparently the result of the implicit or explicit assumption that recognition of the fundamental need structure of another person and therefore his available resources for gratifying one's own needs in a relationship requires extensive interaction over a considerable length of time. As has been stated previously, the present writer questions this basic assumption. The central hypothesis of the present study is indeed that:

Given the right context, there exists a human capacity for rapid, almost immediate recognition of certain potentials manifest in the personality structure and dynamics of another person for gratification on one's most vital and potent interpersonal needs through a relationship with that other person.

The present writer maintains that such capabilities are important mediators of initial attraction. Centers has stated essentially the same proposition in his postulate of need-resource resonance:

Every person is assumed to be consciously and unconsciously sensitized by his needs to the perception and subception of resources in others that have potentialities or actualities for gratifying these needs. In encounters with others he will repond to them with either feelings of attraction or repulsion in keeping with his conscious or unconscious "sensing" of their actual or potential resources for his gratification or punification (Centers, 1975, p. 198).

The only theory of initial heterosexual attraction that deals explicitly with this "issue" is Murstein's SVR formulation. His conceptions, however, appear to be in direct opposition to those proposed here. Murstein holds that the selective factors in initial heterosexual attraction are almost exclusively noninteractional variables (physical attractiveness, social class, education, etc.) at least in an "open-field" situation. Even in a closed field situation, he allows only for the possible operation of a few second stage (values, attitudes, etc.) variables duirng the initial acquaintance phase. Recognition of the fundamental need and role resources of the opposite sex partner is not assumed to occur until a much later stage of the relationship, i.e., the "role" stage.

Murstein's "chronological filter" concept has considerable logical and intuitive appeal to the present writer. However, it is reiterated that if need and role resources of these are indeed very rapidly perceived, immediate attraction on that basis may occur. Such

need resources, if unusually attractive to one, may, in fact, actually outweigh some less attractive stimulus and value characteristics. Need and role resources, on the other hand, no doubt also follow a graduated continuum of attractiveness. Assuming that Murstein's notion of their increasing importance as the relationship becomes more intimate is valid (and it seems reasonable), need and role resources would indeed suddenly appear to be the critical determinants of the continuance or termination of the relationship during late stages. Take the example of the couple who decide to terminate their engagement because they "discover" that they are really not compatible after all. The actual recognition of the fairly limited potential of the other person to satisfy one's needs may have occurred early in the acquaintance process, but was ignored or denied in light of other particularly attractive stimulus and value features (e.g., a very physically attractive person who agrees with you politically). Thus, it is proposed that all factors may operate simultaneously throughout the courtship process, but that the relative pragmatic salience of a given set of factors at a given time is what appears to follow a chronological sequence.

CHAPTER II

PROBLEM AND EXPERIMENTAL DESIGN

The present investigation had as its immediate goal empirical confirmation of the existence and operation of need-resource resonance during very early stages of the heterosexual acquaintance process. Of additional interest was the possible role of this need-resource resonance in mediating between the level of dyadic compatibility and initial heterosexual attraction within a given dyad. It was also hoped to ascertain the differential effects on initial attraction, if any, of dyadic compatibility within the three separate interpersonal need domains of the FIRO-B. Finally, an evaluation of the type of need compatibility (similarity or complementarity) most efficacious in producing attraction within a dyad was contemplated.

It was also anticipated that several additional questions of a more theoretical nature might be addressed by the present study. One set of questions involved comparisons of differential predictions derived from the theories of Winch and Centers regarding the type of compatibility patterning likely to be most strongly associated with attraction following a brief encounter. Another involved the same issues as above, but dealt with possible predictions stemming from Murstein's formulation.

The FIRO-B

Following Kerckhoff and Davis (1962) and Centers and Granville

(1971), and in light of the criticisms of other types of need measurement described in the previous chapter, the present investigation utilized the FIRO-B instrument as a measure of need orientation and strength. A brief description of, and rationale for, use of the FIRO-B method is therefore required.

According to Schutz (1966), the interpersonal needs of Inclusion (I), Affection (A), and Control (C) exhaust all necessary areas of interpersonal behavior required for the understanding and prediction of interpersonal phenomena. He defines these needs as follows:

Inclusion: the need to establish and maintain a satisfactory relation with respect to interaction and association (Schutz, 1966, p. 18).

Affection: the need to establish and maintain a satisfactory relationship with people with respect to love and affection (1966, p. 20).

Control: the need to establish and maintain a satisfactory relationship with people with respect to control and power (1966, p. 18).

Schutz designed the FIRO-B to measure how an individual typically behaves in interpersonal situations and to allow predictions of such behavior. The FIRO-B questionnaire contains six scales consisting of nine items each. Separate scores are available for each scale. These scores describe what behavior an individual typically expresses (e) toward others, and how he typically wants (w) others to behave toward him in regard to each of the three broad areas of interpersonal needs (i.e., I, C, and A).

These scores, expressed inclusion (e I), wanted inclusion (w I), expressed control (e C), wanted control (w C), expressed affection (e A), and wanted affection (w A), can be compared in such a way that compatibility indexes between two persons can be calculated. Schutz defines

compatibility as "a property of a relation between two persons that leads to mutual satisfaction and harmonious coexistence" (1960, p. 105). He makes no specific predictions regarding need compatibility in heterosexual dyads, but does hypothesize that certain patterns of relations between the expressed and wanted behaviors of two individuals should maximize their mutual need-gratification.

Dyadic compatibility or incompatibility may be present within any interpersonal need domain (I, C or A) separately, or in any combination. For example, within a given dyad, strong mutual gratification of affectional (a) needs might exist, while relatively little mutual satisfaction of C and I needs occurs. Complete understanding of the nature of the compatibility between two persons thus requires independent assessments of the compatibility functions in each need area (Close, 1975).

Schutz (1960) has described three separate types of compatibility which can be extracted from FIRO-B scores: Originator (ok), interchange (xk), and reciprocal (rk) compatibility. Each type reflects a different aspect of need satisfaction. The precise meaning of each of these varieties of compatibility has been described elsewhere (Schutz, 1960). Of direct relevance to the present investigation, however, is rk, and this type of compatibility is described below:

Reciprocal compatibility can be understood by examining individual A's description of how he likes to be acted toward (i.e., wanted inclusion by A, w_{IA}) in relation to individual B's description of how he likes to act toward people (i.e., expressed inclusion by B, e_{IB}) and vice versa. If B exhibits the behavior that A desires, then they possess reciprocal compatibility. This compatibility type is expressed quantitatively by $rk = |e_i - w_j| + |e_j - w_i|$ (Close, 1976, p. 17).

The above description of rk is very close to Winch's conception of complementarity, particularly his type II variety. As he puts it, two

people are complementary "when A's behavior in acting out A's need X is gratifying to B's need Y and B's behavior in acting out B's need Y is gratifying to A's need X" (Winch, 1958, p. 93). This definition indeed corresponds to Schutz's description of r_k . Furthermore, Winch's Type II complementarity proposes the existence of a positive correlation between the need of one member of a dyad and the complementary need of the other, a circumstance directly parallel to a highly compatible r_k score. Therefore, the FIRO-B index r_k was used as one measure of need compatibility in the present study. In fact, following Close (1975) it was renamed complementary compatibility (ck). In light of the conceptual difficulties inherent in Winch's Type I variety, only complementarity in the Type II sense was explored in the present investigation.

In recognition of the fact that numerous studies (e.g., Banta & Hetherington, 1963), in contradiction to Winch's predictions, have obtained results favoring need similarity (homogamy) in intimate heterosexual dyads, plus the fact that Centers (1975) has suggested that both similarity and complementarity may be sources of need gratification in the same relationship, the present investigation also examined compatibility as a function of need similarity. Although Schutz, himself, describes no compatibility measures based on need similarity, such an index is available elsewhere. Close (1975) has proposed three new FIRO-B compatibility indexes which, with the addition of the three already described by Schutz (i.e., r_k , ok , and xk), exhaust the mathematical possibilities for comparison of two subjects' FIRO-B raw scores, expressed or wanted, in a given FIRO-B area. Close has labeled his three new compatibility types as: anxiety (ak), intrachange (zk), and similarity (sk). Figure 1, adapted from Close (1975), presents the

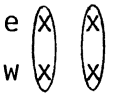
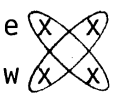
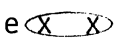
i j			
e		$xK = (e_i + w_i) - (e_j + w_j) $	Interchange compatibility
w		$aK = (e_i - w_i) + (e_j - w_j) $	Anxiety compatibility
i j			
e		$zK = (e_i + w_j) - (e_j + w_i) $	Intrachange compatibility
w		$rK = (e_i - w_j) + (e_j - w_i) $	Reciprocal compatibility
		$cK = (e_i - w_j) + (e_j - w_i) $	Complementarity compatibility
i j			
e		$oK = (e_i + e_j) - (w_i + w_j) $	Originator compatibility
w		$sK = (e_i - e_j) + (w_i - w_j) $	Similarity compatibility

Figure 1. Mathematical Definitions and Graphic Representation of the Six Types of Compatibility (From Close, 1975)

mathematical expressions for all six of the FIRO-B compatibility measures.

Of relevance to the present problem is Close's description of similarity compatibility (s_k) which follows:

Similarity compatibility refers to the extent that the expressed behaviors of individuals A and B are similar (i.e., $eI_A - eI_B$) and the extent that the wanted behaviors of individuals A and B are similar (i.e., $wI_A - wI_B$). If the expressed behaviors of A and B are equal in magnitude, and the wanted behaviors of A and B are equal in magnitude, they possess similarity compatibility. This index is a clear measure of how similar the scores of two individuals are, compared first for expressed behaviors, and is quantitatively expressed by:

$$s_k = |e_i - e_j| + |w_i - w_j|.$$

Since it is calculated separately for each FIRO-B need area, compatibility on this index would appear to correspond to the circumstance of a positive correlation on the same need. This is precisely the finding that, in a number of the studies reviewed above, cast doubt on Winch's complementarity theory and instigated the controversy regarding similarity versus complementarity of needs. Therefore, s_k seemed a highly appropriate form of compatibility to include, along with c_k , in the present study.

The three need areas on the FIRO-B (Inclusion, Control, and Affection) seem to correspond well to several needs hypothesized by Winch to be important for heterosexual relationships. N (need) affiliation, for example, appears to incorporate many elements included in the FIRO-B Inclusion and Affection dimensions. The FIRO-B Control domain also appears to be heavily loaded on nurturance-dependence and dominance-deference factors which Winch proposed as two of the three critical dimensions in complementarity. Centers (1975) described what he considered were the most critical properties of need-exchange in

heterosexual relationships. These were, in order of importance: strength-weakness, beneficence-suppliance, affection-hostility, and excitement-sameness. The first three of these appear to be clearly present in the FIRO-B Control and Affection dimensions, while the Inclusion dimension might well include components of the fourth. The FIRO-B therefore appears to be an appropriate and useful tool for investigation of the relationship between need-compatibility and initial heterosexual attraction.

Hypotheses and Basic Design

The research questions proposed at the beginning of this chapter constituted the central focus of the present investigation. They will now be examined in more detail, and when appropriate, experimental predictions will be presented.

The first issue of consideration involves Centers' postulate of need-resource resonance. If mutual need gratification plays any selective role at all in heterosexual relationships, some sensitivity to the potential sources of interpersonal satisfaction resulting from the need-instigated behaviors of another person must occur at some point in a relationship. The question remains, however, as to how rapidly need-resource resonance manifests itself and whether the process is a conscious one. It is hypothesized here that it is activated almost immediately and indeed plays an important role in initial heterosexual impression formation. Therefore, the following prediction was made for the present study:

1. Through the activation of need-resource resonance, subjects, after a 15-minute free-interaction session with an opposite

sex stranger, will be able to predict the FIRO-B responses of that stranger at a level significantly greater than chance.

The second question is also necessarily founded on the assumption of need-resource resonance. Basically, the issue here deals with the possible systematic effects of FIRO-B compatibility on initial attraction after only a brief interaction session. The need-resource resonance hypothesis holds that:

In encounters with others (an individual will) respond to them with either feelings of attraction or repulsion in keeping with his conscious or unconscious sensing of their actual or potential resources for his gratification or punishment (Centers, 1975, p. 198).

If this part of the resonance hypothesis is valid, then some systematic relationship should be found between attraction and measured compatibility on the FIRO-B. Therefore, the following prediction was made:

2. A systematic functional relationship will be found between compatibility as measured in the FIRO-B interpersonal need areas of Inclusion, Control and Affection and heterosexual attraction following a 15-minute free-interaction session with an opposite sex stranger. Specifically, it is predicted that compatible dyads will demonstrate significantly higher attraction scores than incompatible dyads.

The multi-dimensional nature of compatibility scores computed from FIRO-B profiles theoretically allows the selection of dyads that represent all possible combinations of ck and sk (i.e., high sk, low ck; high ck, low sk; high sk, high ck; low sk, low ck). This fact seems to provide the opportunity to evaluate certain hypotheses proposed by Centers in his instrumental theory of intersexual attraction and love.

Basically, Centers maintains that reciprocal need gratification in a heterosexual relationship occurs through the simultaneous mediation of both similarity and complementarity as a function of how well each separately and the two together maximize gratification and minimize punishment. He proposes several mechanisms (e.g., adjuvance, vivaciousness, etc.) by which the gratification of both similar and complementary needs may occur at the same time. Since the FIRO-B needs domains of Inclusion, Control, and Affection constitute an amalgam of many different interpersonal needs, it seems reasonable to conclude that if Centers' view is correct, then maximum need gratification and consequently the greatest attraction should occur for those dyads whose FIRO-B compatibility scores represent high levels of both ck and sk.

On the other hand, since ck has been shown to directly parallel Winch's definition of complementarity (Type II), if his formulation is valid, then couples with a combination of high ck and low sk compatibility should be the ones most highly attracted to each other. This would seemingly allow a differential test of opposing predictions drawn from the theories of Centers and Winch as they might apply to initial heterosexual impression formation. It was originally hoped that the present experiment would provide an opportunity for such a test. Unfortunately, however, initial pilot work clearly demonstrated that the creation of experimental dyads characterized by large differences between ck and sk was empirically quite difficult to achieve. Relatively large numbers of dyads whose ck and sk scores were either both high or both low were readily generated, but very few pairings produced couples represented by low-high or high-low compatibility combinations. In fact, the correlation of ck and sk for each FIRO-B need domain over all possible

cross-sex pairings within a sample of 40 males and 40 females was found to be:

	Inclusion <u>sk</u>	Control <u>sk</u>	Affection <u>sk</u>
<u>ck</u>	.81	.36	.84
			N = 1600

The source of this dependency lies in the mathematical structure of the compatibility formulae themselves (see Figure 1). In order for a large discrepancy to occur between ck and sk for a given dyad, a correspondingly large difference between individual expressed and wanted scores must also be present for each member of the dyad. Since normative and validation studies (Schutz, 1966) have indicated that the correlation between expressed and wanted scores is relatively large, especially for Inclusion and Affection (Inclusion, $r = .62$; Affection, $r = .70$), dyadic pairings which result in large sk-ck discrepancies would indeed be expected to occur infrequently.

Certain personality correlates also appear to have a bearing on the issue of ck-sk discrepancies. Ryan (1970) has interpreted relatively large differences between a person's expressed and wanted scores as being indicative of what he termed "interpersonal anxiety," at least in reference to the Inclusion and Affection domains. Ryan assumed that this interpersonal anxiety arose because persons who want certain need-related behaviors to be expressed toward them by others, but do not, themselves, express these behaviors toward other persons, are unlikely to find their needs satisfied in interpersonal relationships. For example, the person who wants a great deal of social inclusion, but rarely initiates it himself, is not likely to be included often. On the

other hand, persons who initiate such behaviors but obviously do not desire reciprocation from others may be seen as manipulators and reacted to negatively (Fromme & Close, 1976). In either case, some degree of interpersonal maladjustment might be expected to exist.

Because high-low combinations of ck and sk scores for a given dyad are directly influenced by expressed-wanted discrepancies within the individual FIRO-B scores of the man and woman constituting that dyad, such patternings of dyadic compatibility would be expected to occur infrequently. Furthermore, when such combinations did occur, they might well be viewed as representing rather deviant individuals uncharacteristic of the general population. In fact, it appears possible that heterosexual attraction within such dyads might be a complex function of the confounding of compatibility with interpersonal anxiety. The results of Murstein's (1970) research cited above suggest that among dating and engaged couples a tendency exists for psychologically maladjusted or neurotic persons to have less overall attractiveness value. Although they may eventually have to settle for partners similar to themselves, such individuals may have less attractiveness value for each other independent of the overall level of dyadic need compatibility.

In light of these difficulties and objections, it was impossible both methodologically and conceptually to attempt to include dyads with bi-polar ck-sk compatibility patterns within the present experimental design. Consequently, dyadic compatibility referred to compatibility across both ck and sk dimensions, while incompatible dyads were incompatible for both. The dyads thus chosen were, according to Ryan's

definition, composed of persons with relatively low levels of interpersonal anxiety.¹

Compatibility Effects for the Three Separate

FIRO-B Need Domains

The question of which type or types of need compatibility is most crucial to initial heterosexual attraction was also addressed by the present investigation. Although this issue remained essentially an empirical question, some rather tentative hypotheses were proposed:

3. The greatest amount of heterosexual attraction will be found within dyads compatible for FIRO-B Inclusion.
4. A lesser but significant amount of heterosexual attraction will be found in association with dyads compatible for FIRO-B Affection.

The rationale upon which these predictions were based will now be briefly considered. Hypothesis 3 is based on some general assumptions about the content of self-presentation during the initial acquaintance process. Altman and Haythorne (1965) have suggested that self-disclosure is generally characterized more by "breadth" than "depth" when two persons are initially getting acquainted. Consequently, a wide range of personal information of a relatively superficial nature is usually exchanged (Schneider, 1976). In the experience of the present writer much of this information consists of inclusion-related material, e.g., common friends and acquaintances, mutually appealing social activities,

¹Arguments that this may not be the case for members of dyads whose compatibility lies in the FIRO-B Control domain are presented below.

etc. In fact, Schutz (1966) has proposed that the formation and development of interpersonal relationships between two or more people tends to follow a serial sequence in terms of the type of interpersonal need gratification most emphasized at a given point in the relationship. He maintains that, initially, most interpersonal behavior is focused upon inclusion. Later, control behavior becomes the center of interpersonal activity in the relationship. Finally, expression of affection becomes the dominant orientation of the interaction.

It seems reasonable, therefore, to speculate that after a very short interaction session, a preponderance of the information obtained about one's partner would be inclusion-related. This should enable subjects to better appraise their compatibility with their partner in relation to inclusion needs, and be attracted to them accordingly. Empirical support for this expectation can be seen in the results of the Centers and Granville (1971) study cited above. They found inclusion compatibility to be present for heterosexual couples at all stages of intimacy, but the relative significance of this type of compatibility was greater for couples early in their relationship.

Fromme and Close (1976) found that inclusion compatibility had little appreciable effect on therapeutically appropriate verbalizations in small rather highly structured experiential (encounter-type) groups. However, they suggested that inclusion compatibility might have considerable importance for less structured groups in the early stages of acquaintance. Although a dyad, of course, is only a two-person group, their prediction seems to apply to the present study.

Hypothesis 4 is based on the assumption that affection needs may be somewhat more difficult to clearly delineate during the very early

phases of acquaintance. However, if need-resource resonance is operative in the earliest stage of getting to know another person, then some evidence of this process should be manifested in differential attraction levels between dyads compatible and incompatible for affection. Rubin (1973) has suggested that qualities of warmth in a relationship are strongly associated with liking, while Solomon and Asch (1946) found that the attribution of warmth to a stranger was strongly correlated with positive initial impressions of that stranger. Since warmth has been related to affectional nurturance (Rubin, 1973), persons who possess compelling needs to express affection should be particularly attractive to individuals of the opposite sex who want a great deal of affection in a relationship and vice-versa (complimentarity compatibility). Furthermore, if members of a dyad have roughly equal needs to express affection and equal needs to receive it (similarity compatibility), then the relative significance of affectional exchange in the relationship should be satisfying to both persons, a circumstance which might be expected to lead to high levels of attraction. Therefore, affection compatibility should also lead to greater dyadic attraction though perhaps to a lesser degree than for inclusion compatibility because of the relative absence of direct affectional exchanges during the early stages of a relationship (Schutz, 1966).

For the FIRO-B Control domain, predictions regarding the effects of compatibility, as defined in the present study, are considerably less straightforward. Carson (1969) has presented arguments which by extension to the present study appear to suggest that the most compatible dyads should be those characterized by similarity of needs in the Inclusion and Affection domains but by complementarity of needs within

the Control dimension. Although similarity and complementarity are not mutually exclusive as defined in the present study, utilizing jointly high or low levels as definitions of compatibility or incompatibility does appear to present some problems of interpretation for the Control domain. Ryan (1970) has suggested that, unlike the case for inclusion and affection, smaller discrepancies between expressed and wanted scores may actually indicate problems when found for the control dimension. For example, such a small discrepancy might occur if an individual neither wants nor expresses dominance and control in his relations with others. Ryan describes such a person as a "rebel" who is likely to experience authority/responsibility conflicts in his interpersonal relationships. On the other hand, a person with nearly identical expressed and wanted control scores might possess strong, simultaneous needs to both control and be controlled in a relationship. Such a circumstance might betray the presence of dependency/autonomy conflicts which could also lead to considerable ambivalence and conflict in interpersonal relationships. Thus, when focusing on control needs, a moderate discrepancy between expressed and wanted scores may actually be associated with better interpersonal adjustment (Fromme & Close, 1976).

As was indicated previously discrepancies between the two compatibility indexes used in the present study (ck and sk) directly co-vary with the magnitude of differences between the expressed and wanted scores of members of the dyad. Consequently, both compatible and incompatible dyads are composed of individuals with small discrepancies between expressed and wanted scores when compatibility is defined in terms of joint levels of ck and sk. Although this seems to imply relatively stable interpersonal adjustment for members of dyads where

compatibility or incompatibility is focused in the inclusion or affection domains, in light of the above discussion members of dyads compatible or incompatible for control may not possess such stability. In fact, their control relations with others may be generally unsatisfactory. Fromme and Close (1976) have presented a convincing logical argument that persons homogeneous in terms of expressed-wanted differences for the control scales are actually incompatible. Their argument is that if neither member of a dyad would express or accept control, then the initial interaction would tend to be fragmentary and aimless. Conversely, if both members simultaneously expressed and wanted control, then double messages, confusion, and a possible power struggle might ensue. It might be anticipated, therefore, that members of such dyads would not be strongly attracted to each other following the interaction session.

The above discussion implies that better individual interpersonal adjustment and higher overall dyadic compatibility should be found for dyads characterized by high-low combinations of ck and sk scores within the FIRO-B Control domain. More specifically, it seems reasonable to anticipate that members of dyads compatible for complementarity but incompatible for similarity should exhibit the greatest attraction to each other. Such dyads appear to satisfy the requirement of expressed/wanted heterogeneity proposed by Fromme and Close, in addition to being complementarity compatible as required by Carson's formulation. Therefore, despite the methodological problems involved, an attempt was made to generate sufficient dyads with bi-polar ck-sk scores to test the following hypothesis:

5. Members of dyads whose FIRO-B compatibility scores represent

high levels of complementary compatibility (ck) and low levels of similarity compatibility (sk) within the control domain will be significantly more attracted to each other than members of those dyads whose compatibility scores represent high levels of similarity compatibility and low levels of complementary compatibility or low or high levels of both.

This prediction constitutes a simultaneous test of Carson's theory and certain implications of the arguments of Ryan and Fromme and Close about the nature of dyadic compatibility within the FIRO-B Control domain. Since the correlation between sk and ck was smaller in magnitude for control than for inclusion or affection, it was hoped enough dyads could be obtained to evaluate the hypothesis.

Physical Attractiveness

Murstein (1970) holds that the most salient factors in initial heterosexual attraction are stimulus variables. He does concede that in a "closed-field" situation (of which the present experiment is an example) some value characteristics may influence overall attraction, but need variables are expected by him to have virtually no selective impact. Thus, predictions derived from Murstein's perspective would anticipate no effects of need compatibility at all in the present experiment. One of the most potent stimulus variables mentioned by Murstein is physical appearance. This variable is clearly an important influence on the valence of initial heterosexual impression (see Walster et al. above). Thus, the following prediction, based on Murstein's SVR theory, is made for the present study:

6. A significant positive correlation will be found between experimenter-rated physical attractiveness and heterosexual attraction for all subjects.

Dependent Variables

The present experiment basically followed Center's (1975) definition of attraction as the perceived, subceived, or imagined gratifyingness of others. It was assumed that an interaction of only 15 minutes duration is probably too short to experience extensive interpersonal gratifications from another person. However, through the operation of need-resource resonance it was anticipated that sufficient experience of the potential of that person to satisfy one's needs in a relationship would occur so that the independent variables would have an effect on initial attraction.

Two different classes of dependent measures of attraction were utilized. The first groups consisted of paper and pencil attitude/attraction measures completed by the subjects immediately following the 15-minute interaction session. The second class consisted of measurements of ocular behavior occurring during the interaction session itself.

The paper and pencil attraction measures consisted of modified versions of the short form of Rubin's Liking and Loving Scales (Rubin, 1973), and the Attraction and Esteem Scales of Byrne's Interpersonal Judgment Scale (Byrne, 1969). The Rubin scales have already been described in Chapter I. The Interpersonal Judgment Scale (IJS), in the form used in the present investigation, consisted of two basic scales, attraction and esteem, respectively. The attraction scale includes only two questions, i.e., how much another person is liked by the responder

and how much the responder would enjoy participating in another experiment with that person. The esteem scale, a separate but parallel measure of attraction developed by Tedeschi, Schlenker, and Bonoma (1975), also involves only two basic queries, one requesting a rating of the other's intelligence, and the second asking for an indication of general respect for the other person. Each of these four questions is presented to subjects in the form of seven graduated statements representing a low-high continuum (see Appendix C).

Through the use of four separate scales it was hoped to gain some understanding of the relative importance of compatibility for various types of initial heterosexual attraction. That is, does interpersonal need compatibility lead to greater liking attraction, love attraction, esteem, etc., after only 15 minutes acquaintance? If the essential nature of initial heterosexual attraction is romantic, then does need compatibility play any role in this attraction? It was hoped that the latter question might be answered by analyzing the Rubin Love Scale scores as a function of dyadic compatibility. If liking alone is the product of interpersonal need compatibility, then the Rubin Liking and IJS Attraction Scales should be sensitive to this effect. If the initial effects of need compatibility are increased respect and esteem for one's partner, then the IJS Esteem scores should be different for compatible and incompatible dyads. If all of the above varieties of attraction are influenced by interpersonal need compatibility, then all four scales should be sensitive to its effect. Finally, any possible interactions of different types of need compatibility with different varieties of attraction should also be demonstrated.

Evidence suggests that paper and pencil measures such as those described above are, unfortunately, subject to considerable measurement error. In addition to inherent problems in attitude measurement (Dawes, 1972), and the presence of demand characteristics (Orne, 1962) in laboratory experiments such as the present study, much error arises from the fact that experimental subjects generally do not like to report dislike for another person (Schneider, 1976). Therefore, an effort was made to obtain a more indirect, and consequently less obtrusive measure of attraction within the dyad.

Research over the past decade has suggested that a variety of non-verbal behaviors provide meaningful clues to the nature and status of interpersonal relationships. Eye-gaze, in particular, has been determined to be an important medium of nonverbal communication. Exline and Winter (1965), for example, found that the more a person was liked, the more that person was the object of gaze during an interaction session. Rubin (1970) found that the greater the amount of love between members of heterosexually involved couples (as measured by his love scale) the more mutual eye-contact occurred during a free interaction session. A number of studies (Cook & Smith, 1975; Kleinke, Staneski, & Berger, 1975; Mehrabian, 1968, 1971; Scherwitz & Helmreich, 1973) have found positive attitudes to be associated with high levels of eye-contact during dyadic interaction with a stranger. Fromme and Beam (1974) obtained similar results except for low-dominant males where an opposite trend was noted. Therefore, on the basis of the established relationship between gaze and positive affect in interpersonal relationships, several measures of eye-gaze behavior were adopted for use in the present investigation and constituted a second class of dependent variables.

One potential difficulty with defining heterosexual attraction in terms of eye-gaze behavior does stand out. The problem lies in the possibility that attraction might be confounded with dominance behavior. Strongman and Champness (1968), for example, found that eye-contact and averting of gaze was systematically related to dominance. Fromme and Beam (1974) found that subjects responded differently to direct gaze as a function of their measured dominance scores. Other evidence, (Exline, 1963; Exline, Grey, & Schuette, 1965; Fromme & Beam, 1974) suggests that an interaction may occur between mutual eye-contact and sex. In general, women tend to maintain more eye-contact than men, at least in non-threatening situations. Fromme and Beam (1974), however, utilizing an experimental paradigm where gaze might be interpreted as threat, also found an interaction between sex and dominance. When an experimental cohort increased his level of eye-contact (staring) with subjects, females showed a decrease and males an increase in reciprocal eye-contact. When subjects were separated by means of their dominance scores, however, it was found that high dominant males and, in particular, high dominant females actually showed an increase in reciprocal eye-contact. Fromme and Beam interpreted this to mean that high dominant females may primarily exercise their dominance through increased eye-contact, while males may also communicate their dominance through other types of non-verbal behavior.

The above seems to suggest that eye-gaze probably does not constitute a pure measure of attraction or liking. For the present investigation, compatibility effects on eye-gaze behavior must be interpreted in light of the possible dominance communication involved, and qualified by noting the sex of the gazer. Furthermore, it might be anticipated that

because of the possible confounding of dominance and attraction, compatibility effects for the Control domain might be particularly difficult to interpret. Consequently, beyond anticipating some form of systematic effect of compatibility on eye-gaze, no specific predictions were made for the Control domain.

Summary of Experimental Predictions

1. Through the activation of need-resource resonance, subjects, after a 15 minute free-interaction session with an opposite sex stranger, will be able to predict the FIRO-B responses of that stranger at a level significantly greater than chance.
2. A systematic functional relationship will be found between compatibility as measured in the FIRO-B interpersonal need areas of Inclusion, Control and Affection and heterosexual attraction following a 15 minute free interaction session with an opposite sex stranger. Specifically, it is predicted that compatible dyads will demonstrate significantly higher attraction scores than incompatible dyads.
3. The greatest amount of heterosexual attraction will be found within dyads compatible for FIRO-B inclusion.
4. A lesser but significant amount of heterosexual attraction will be found in association with dyads compatible for FIRO-B affection.
5. Members of dyads whose FIRO-B compatibility scores represent high levels of complementarity compatibility (ck) and low levels of similarity compatibility (sk) within the FIRO-B Control domain will be significantly more attracted to each other than members of those dyads whose compatibility scores represent high levels of similarity compatibility and low levels of complementarity compatibility or low or high levels of both.
6. A significant positive correlation will be found between rated physical attractiveness and heterosexual attraction for all subjects.

CHAPTER III

METHOD

Subjects

Subjects were drawn from an initial pool of 450 males and females enrolled in undergraduate psychology and sociology classes at Oklahoma State University. All subjects within this sample were administered the FIRO-B scale (Schutz, 1960) in class. The subjects were not informed that their FIRO-B scores were necessary for participation in the laboratory phase of the experiment until after they had completed the form. Following completion of the FIRO-B, all subjects were given an opportunity to participate in further stages of the experiment by listing their names, age, sex, marital status, ethnic background, class section, and telephone number on the FIRO-B form and returning it to the experimenter. The subjects were then informed that all persons selected for further participation would be personally contacted later.

Subject Selection Procedure

Only those potential subjects who were single, Caucasian, and under 25 years of age were included in the next phase of subject selection. The FIRO-B forms of all subjects who satisfied the above criteria, and who had indicated a willingness to participate in the experiment, were hand scored and the six overall FIRO-B scale scores were registered on

IBM computer cards. This group included approximately 180 males and 200 females.

Generation of potential experimental dyads followed a modified version of procedures developed by Close (1975). First, complementarity (ck) and similarity (sk) compatibility scores were computer calculated for all possible dyadic pairings of males with females for each of the FIRO-B need domains. Next, grand mean scores for sk and ck were determined for each need domain. Selection criteria were chosen so that ck and sk compatibility or incompatibility would be maximized for a given need domain, while being held near the grand mean for the two remaining domains. The following constraint values were adopted: compatible--sk and ck scores less than or equal to 2 (low scores indicate greater compatibility); incompatible--sk and ck scores greater than or equal to 10; intermediate levels--sk and ck scores 4 - 8, inclusively. Using the above selection rules, incompatible and compatible dyads were generated for each of the FIRO-B need domains. Actual dyads included within the basic experimental design of the study were sampled from these six general groupings.

Two additional groupings were generated for the control domain. This was done so that comparisons could be made between high-low; low-high sk-ck compatibility combinations as proposed in Chapter II. The procedure here was to maximize ck compatibility for the control domain while holding ck near the grand mean on the other two need domains. Simultaneously, sk compatibility was minimized while also being held near the grand mean on the other two need domains. Dyads which satisfied the above selection criteria constituted the ck compatible-sk incompatible grouping for control. The procedure was then reversed;

ck incompatibility was maximized. The dyads generated by this procedure represented the ck incompatible-sk compatible grouping.

Figure 2 illustrates the two basic experimental designs constituting the present study. Six dyads were sampled from each of the eight groupings described above, and efforts were made to induce them to participate in the laboratory phase of the study. The ck compatible-sk compatible and ck incompatible-sk incompatible cells shown in Design 2 were borrowed from Design 1. Many potential subjects appeared in more than one dyad either within a given cell or in different cells. Therefore, all such multiple pairings but one were randomly deleted.

Materials and Apparatus

A laboratory room (see Figure 3) approximately 8 feet by 23 feet with one-way mirrors located along the shorter north and longer east walls, adjoining at the northeast corner, was used for the experiment proper. Located in the northeast corner of the room was a square table 30 inches by 30 inches by 26 inches in dimensions. Two 17-inch high plastic hard-backed chairs situated along the south and west sides of the table (facing each other and rigidly attached to the floor) served as seating arrangements for each heterosexual dyad. Located above the table, but hidden from view behind open curtains framing the mirror on the east wall, was a microphone for audio recording.

The experimental room was decorated in such a way as to diminish the laboratory effect that would otherwise be present. A large throw-rug was placed directly in front of the table which, itself, was covered with a bright red tablecloth. A smaller table and lamp combination was positioned in the northwest corner of the room near the large table.

Design 1

		FIRO-B Need Domain		
		Inclusion	Control	Affection
Compatibility Level (ck-sk)	High	N = 6 (dyads)	N = 6 (dyads)	N = 6 (dyads)
	Low	N = 6 (dyads)	N = 6 (dyads)	N = 6 (dyads)

Design 2

		FIRO-B Control Domain	
		ck Compatible	ck Incompatible
sk	compatible	n = 6 (dyads)	n = 6 (dyads)
	Incompatible	n = 6 (dyads)	n = 6 (dyads)

Figure 2. Experimental Designs of the Study

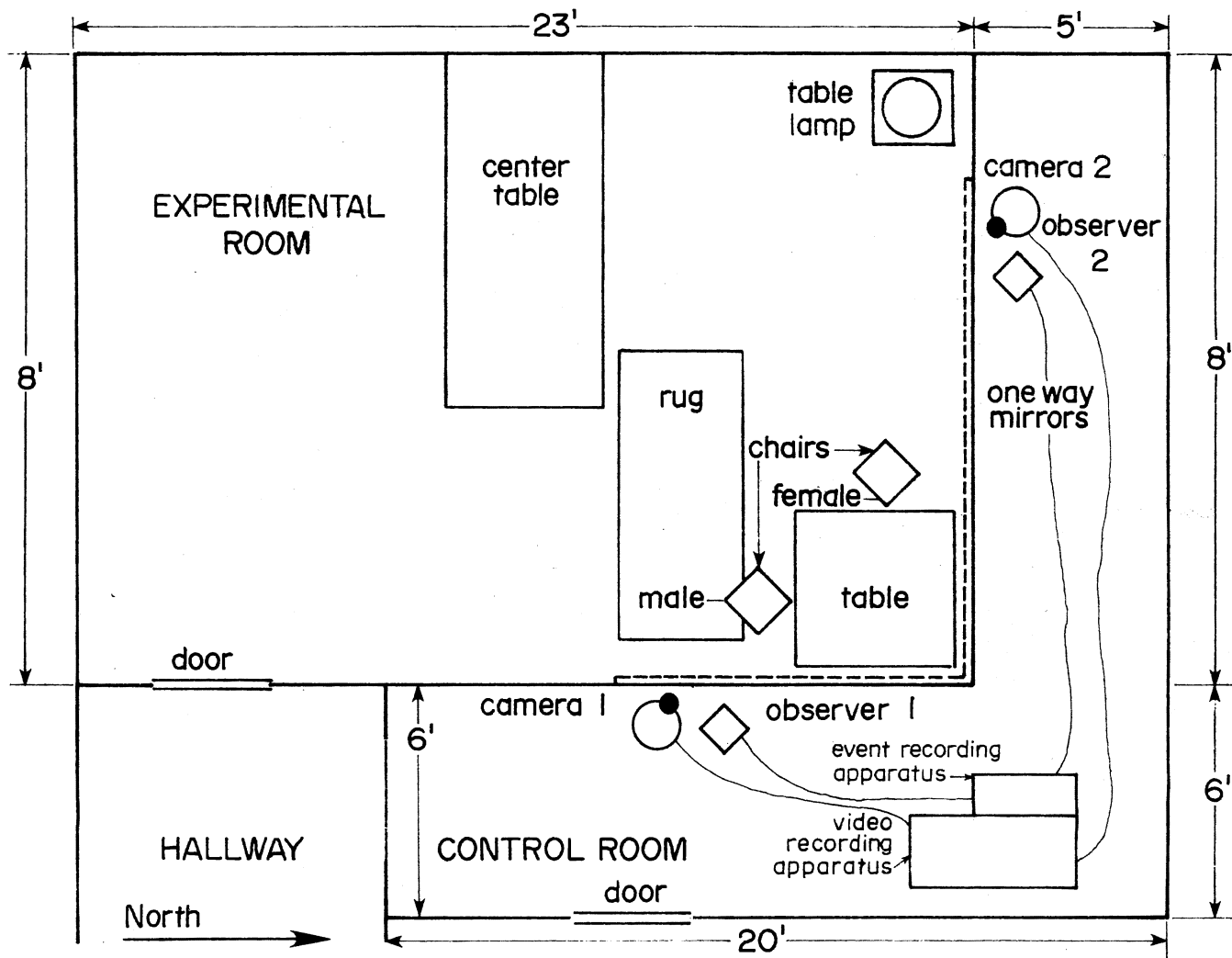


Figure 3. Dimensions of Experimental and Control Rooms

Several paintings and posters were hung along the walls at the north end of the room. Near the center of the room, a large bench-like wooden table was placed in such a way that it tended to break up the rather long, narrow room into two separate sections. Several books and a driftwood sculpture were placed on this table in an effort to produce a more casual atmosphere.

Behind each one-way mirror along the north and east sides of the experimental room was an adjacent, but separate control room. The dimensions of this L shaped room were approximately 20 feet by 6 feet along the east (longer) side and 8 feet by 5 feet along the shorter (north) side. Audio and video recording equipment, experimental observers and event recorders were situated in this room. Two tripod-mounted Sony AUC 3260 Video Cameras equipped with Sony 1:1:18, f 12.5 - 75 Zoom Lenses were placed behind, and at approximately 45 degree angles to, the one-way mirrors, facing each other in roughly a straight line. This placement allowed the cameras to be focused on the face and upper torso of the subjects. A Sony SE6-IA special effects generator was utilized so that a vertical split-screen image including the face and torso of both subjects could be simultaneously recorded. Two experimental observers, one positioned next to each camera, separately recorded the time each subject spent gazing into the face of his partner during the interaction session. This was accomplished by depressing a remote key attached to a Lafayette 56042 Six Channel Mini-Pen Event Recorder. By having the observers monitor the interaction simultaneously with their observations being registered on the same tape, a measure of mutual eye-contact was also obtained.

Procedure

Dyads from the various cells in the experimental design were scheduled for participation on a completely random basis. Difficulties in scheduling, however, necessitated contacting a large number of potential subjects in an effort to obtain sufficient dyads to fill all cells in the proposed designs. This difficulty was further compounded by the failure of large numbers of subjects to show up at the times arranged. Because of the dyadic nature of the study, both members of a couple were required to be present at the scheduled time if experimental procedures were to be completed. Furthermore, the previous level of acquaintance of subjects constituting a dyad was required to be minimal. These difficulties, combined with the rarity of high-low, sk-ck compatibility combinations, resulted in it proving impossible to obtain enough acceptable couples to fill both cells in Design 2. Therefore, this part of the experiment was abandoned, and, in general, Design 1 alone was utilized.

All potential subjects were contacted by phone. The experiment was described as an interpersonal relations study in which they would be asked to talk and visit with a person of the opposite sex. No other details about the experiment or any information about their partner was provided, however. A small amount of extra credit from their psychology instructor was promised for participating. Usually, several calls to each subject were required before a mutually satisfactory time to participate was arranged for both members of a dyad. Most subjects who agreed to participate were telephoned and reminded of their appointment the night before they were scheduled to be run.

When members of an experimental dyad appeared at the laboratory

they were ushered into separate rooms where they waited until both members of the couple had arrived. If a subject's partner had not shown up by 15 minutes after the scheduled time, he or she was assured of the extra course credit and dismissed with thanks. Another couple with the same compatibility characteristics was then scheduled. If both members of a dyad arrived on schedule, they were each asked to complete a form (Appendix B) indicating their level of acquaintance with their prospective partner. All subjects who were acquainted with their dyadic partner at a level beyond category 3 ("Have spoken to him or her in class a few times, but don't really know them") were given an alternative task (filling out a dating questionnaire), promised course credit, and dismissed.¹

If the level of acquaintance was established as not exceeding the constraint defined above, then the two subjects were escorted from their separate rooms and taken across the hall to the main laboratory. Two experimental assistants, one male and one female were positioned in the hall leading to the experimental room. As the two subjects passed, tentative impressions of physical attractiveness were formed. Once the subjects had entered the experimental room, the two attractiveness raters repaired to the control room and observed the subjects for one additional minute through the one-way mirrors. Each experimental observer then rated the general physical attractiveness of each subject on a nine-point scale (Appendix F). All ratings were thus based on a full view of each subject, front and back, sitting and standing. The

¹Actually, only three couples out of the 42 dyads run in the experiment indicated a level of acquaintance higher than category 1 (complete strangers) and these were scattered over three different cells.

male judge, a 26-year-old graduate student, rated every subject in the experiment. Because of scheduling complexities, however, it was necessary to utilize two different female raters; one, a 20-year-old undergraduate, and the other a 24-year-old graduate student. All raters were single and Caucasian.

Upon entering the experimental room, the two subjects were introduced and seated around the table at the north end. The male was always seated on the south side of the table, and the female on the west side. The chairs were positioned directly facing each other separated by the southwest corner of the table (see Figure 3). A distance of approximately 46 inches separated the subjects.

The principal experimenter, a 32-year-old male graduate student, instructed and debriefed all subjects who participated in the study. Once the subjects had settled comfortably into their chairs, he presented the following instructions:

"First, I would like to assure you that this experiment involves no deception or trickery. Both of you are real subjects. All that you will be asked to do is talk and visit with each other for a few minutes. One of the most important things that we're interested in for this study is how two people who are not very well acquainted go about getting to know each other. People have all sorts of ways of trying to really get to know someone else as a person, i.e., really finding out what they are like as a human being. That's what we would like the two of you to do today. Just do what you normally do when you're really trying to get to know someone. However, please remain seated throughout." (Questions?)

"Now, to help us better understand what happens in the process of getting acquainted we will be observing and videotaping your interaction. This is done so that later, when we have time, we can look at your interaction more closely. There are a few things which happen so fast that they'd be missed if we didn't record them. After we've had a chance to look at these things all the tapes will be erased." (Questions?)

"O.K., after you have visited for a while and each of you has found out some things about the other's personality and character, I'll be back in to have you fill out some forms and questionnaires about your impressions of your partner. If at any time during the procedure you decide that you would like to withdraw from the experiment, feel free to let me know and you may do so." (Any final questions?)

Occasionally, subjects would ask how long the interaction session would last. Whenever this question arose, the experimenter apologized, but told the subjects he could not reveal the precise length until the session was over. After responding to all questions and putting the subjects as much at ease as possible, the experimenter left the room and the free interaction session began. At this point, all cameras were activated and the timing devices were started. The entire 15-minute session was videotaped by technicians located in the control room. Simultaneously, the two observers began recording eye gaze-time and continued to do so throughout the session.

Four different eye-gaze observers were used during the experiment. Consequently, reliability estimates were obtained before the experiment began for all possible combinations of the four recorders for each of the two positions around the table. This was accomplished by erecting a barrier between two observers, both seated behind the same one-way mirror and observing the same subject during simulated practice session with actual heterosexual dyads. To avoid possible auditory cues produced by the click of the remote key, the two observers wore heavy stereo headphones. Table I, below, presents the reliability quotients between the four observers based on the average percent of time of agreement over two full 15-minute practice sessions. Because of highly respectable level of agreement with relatively little variation between

different observer combinations, it was assumed that this procedure would provide reliable measures of eye-gaze.

TABLE I
AVERAGE PERCENT OF TIME OF AGREEMENT
BETWEEN FOUR EVENT RECORDERS OVER
PRACTICE RELIABILITY SESSIONS

	Pam	Roger	Diane
Keith	96	93	94
Pam	--	96	92
Roger	--	--	96
Overall average percent agreement = 94			

At the end of 15 minutes all observation procedures were terminated, and the principal experimenter re-entered the main experimental room and escorted the subjects to separate chambers. All post-interaction attitude and attraction scales were administered by a different experimenter, a 27-year-old male graduate student. The administration of all scales conformed to the following procedure: a printed copy of the instructions was given to the subject, and, while the experimenter read these instructions aloud, the subject followed the text on his copy. The experimenter then made sure that the subject fully understood by having him or her repeat back, in paraphrase, what the

instructions required. After correcting, clarifying, or answering any questions about the instructions, the experimenter left that subject and repeated the procedure for his or her partner. After each subject completed a particular scale, it was removed, the next form was presented, and the instructions for that scale were presented in the same manner as that described above. All post-experimental scales were administered in the same order to all subjects. This order consisted of:

1. PREDICTED FIRO-B FOR PARTNER (Appendix C)
2. INTERPERSONAL JUDGMENT SCALE (Appendix D)
3. PROJECTED AFFECTIVE IMPRESSIONS SCALE (Appendix E)
4. MODIFIED SEMANTIC DIFFERENTIAL
5. PARTNER'S PHYSICAL ATTRACTIVENESS (Appendix F).

The fourth scale (above) was administered in relation to another study being conducted concurrent with, but not directly bearing upon, the present investigation.

The Rubin scales were renamed the PROJECTED AFFECTIVE IMPRESSIONS SCALE (third in order, above) because of significant modification in the instructions that were required for the use of these scales in the present investigation. It will be recalled that these scales were originally constructed for measuring the extent of liking and loving in existing and ongoing relationships. It was therefore necessary to considerably alter the original instructions in order to attempt to measure liking and loving attraction at the very beginning of a new relationship. The modified instructions are shown in Appendix E. Although these instructions represent somewhat of a departure from the

originally intended use of the Rubin scales, it was hoped that this modified version would provide additional data about initial heterosexual attraction, leading to a more multidimensional picture than that provided by only the IJS measure of attraction.

After completing all the scales described above, the two members of the dyad were brought together, debriefed regarding the purposes and goals of the investigation, cautioned against revealing any of this to other potential subjects and dismissed with thanks. The entire experimental procedure required approximately one hour. With the exception of the principal experimenter, none of the experimental assistants were aware of the compatibility characteristics of a given dyad at the time the couple was run.

CHAPTER IV

RESULTS

Partner-Predicted FIRO-B Scores

Hypothesis 1 involved predictions regarding the possible operation of need-resource resonance as demonstrated by the level of accuracy of partner-predicted FIRO-B scale scores. It was hypothesized that members of experimental dyads would be able to predict their partner's FIRO-B scores at a level of accuracy greater than chance after only 15 minutes acquaintance. Table II below compares the mean of the actual and partner-predicted scores for each of the six FIRO-B scales over all subjects in the experiment.

Inspection of Table II reveals no significant differences in central tendency between the actual and predicted scores. Differences between the two sets of scores might be attributed to chance error with a high level of confidence, however, only for the affection scale scores. Interpretation of statistical statements of this type are, nevertheless, difficult and quite controversial (Warde, 1976). Therefore, another index of predictive accuracy was sought.

In an effort to examine the extent to which an individual subject's perception of his own interpersonal need system corresponds (co-varies with) his partner's perception of that need system after 15 minutes acquaintance, Pearson correlation coefficients were computed

TABLE II
 CENTRAL TENDENCY, t TESTS, AND PROBABILITY LEVELS FOR
 ACTUAL AND PREDICTED FIRO-B SCALE SCORES FOR
 ALL EXPERIMENTAL SUBJECTS

FIRO-B Scale	Central Tendency	Predicted	Actual	t	Probability $\bar{d} = 0$
I_e	Mean	5.46	5.37		
	S.D.	(2.06)	(2.13)	$t = -.47$	$> .62$
I_w	Mean	5.82	5.24		
	S.D.	(3.04)	(3.04)	$t = -.92$	$> .35$
C_e	Mean	2.90	3.07		
	S.D.	(2.54)	(2.38)	$t = .70$	$> .48$
C_w	Mean	4.21	3.71		
	S.D.	(2.69)	(2.21)	$t = 1.54$	$> .12$
A_e	Mean	3.79	3.66		
	S.D.	(2.32)	(2.22)	$t = -.03$	$> .96$
A_w	Mean	4.75	4.86		
	S.D.	(2.45)	(2.53)	$t = .13$	$> .88$

$N = 72.$

between actual and predicted scores for each of the six FIRO-B scales. These coefficients are included in Table III below.

TABLE III
CORRELATION OF ACTUAL AND PARTNER-PREDICTED FIRO-B
SCORES FOR EACH SCALE AND FOR A COMPOSITE
OF ALL SCALES

FIRO-B Scale	r	Probability ($p = 0$)
I_e	-.06	< .60
I_w	.24	< .05
C_e	.41	< .005
C_w	.12	< .30
A_e	.20	< .10
A_w	.48	< .001
All*	.25	< .05
N = 72		

*Computed by converting all r 's to z 's by means of Fisher's r to z transformation, calculating the average z and converting this average z back to r .

Inspection of Table III reveals moderate but significant correlations for I_w , C_e , A_w , and for the composite of all scales. A trend toward significance was also noted for A_e . Thus, it appears that, in

general, members of experimental dyads were able, as predicted, to estimate their partner's scores at a level of accuracy greater than chance. Hypothesis 1 was supported.

It might be contended that this systematic level of accuracy could arise from sources other than the operation of need-resource resonance. For example, general stereotypes about the typical interpersonal need system of college students might allow prediction of their FIRO-B scores at a level of accuracy found in the present experiment without needing to postulate the existence of need-resource resonance at all. To explore this possibility, a control group consisting of 24 male and 24 female undergraduates enrolled in introductory psychology classes at the University of Tulsa was obtained. This group was matched with the experimental subjects in terms of age, ethnic background, and marital status (single). The control subjects were also asked to fill out a FIRO-B form in class. However, these students were instructed to respond to each FIRO-B statement as they imagined that the average college student of the opposite sex would probably answer. By this procedure, it was hoped that information about the general stereotypes held by college students about the interpersonal need system of other college students would be obtained.

Table IV provided comparisons of the central tendency of experimental (dyadic partner) and control group (average opposite sex college student) predictions for each of the six FIRO-B scale scores. As can be seen, the computed t values suggest that the two groups were not predicting the same parameters. Mean predictions were significantly different beyond conventional levels for three of the six FIRO-B scales. For two of the other scales, a clear trend in the direction

TABLE IV
 CENTRAL TENDENCY MEASURES, t TESTS AND PROBABILITY LEVELS
 FOR FIRO-B SCALE SCORE PREDICTIONS BY EXPERIMENTAL
 AND CONTROL GROUPS

FIRO-B Scale	Central Tendency	Experimental (Dyadic Partner)	Control (Ave. College Student)	t	Probability $M_1 = M_2$
I_e	Mean	5.46	5.81	- .97	< .34
	S.D.	(2.06)	(1.70)		
I_w	Mean	5.82	6.64	-1.61	< .12
	S.D.	(3.04)	(2.11)		
C_e	Mean	2.90	3.64	-1.64	< .11
	S.D.	(2.54)	(2.53)		
C_w	Mean	4.21	5.22	-2.04	< .04
	S.D.	(2.69)	(2.58)		
A_e	Mean	3.79	4.68	-2.18	< .03
	S.D.	(2.32)	(2.01)		
A_w	Mean	4.75	5.81	-2.48	< .02
	S.D.	(2.45)	(2.03)		
		N = 72	N = 48		

of reliable differences was evidenced. Only I_e failed to show a moderately large difference between the mean predictions of the two groups. Of further interest is the fact that mean differences were in the same direction across all FIRO-B scales. This might will be interpreted to suggest that any stereotype that might exist tends to attribute higher overall FIRO-B scale scores to opposite sex college students than those predicted by experimental subjects for their opposite sex dyadic partners.

One additional alternative explanation should perhaps be considered, however. Hastorf and Bender (1952) have suggested that when persons make judgments of others they may tend to merely project their own characteristics onto those others (Schneider, 1976). Consequently, it might be proposed that subjects in the present study may have simply attributed their own interpersonal need characteristics to their dyadic partners. If this were so, partner-predicted and actual FIRO-B scale scores might indeed be expected to be positively correlated, but only for compatible dyads. This circumstance arises from the fact that similarity compatibility (sk) is defined by small differences between the FIRO-B scores of the two persons making up a dyad. Conversely, however, large differences define similarity incompatible dyads; the correlations here should be negative under the projection hypothesis. Furthermore, because of the factorial design used, these positive and negative correlations should occur primarily for the FIRO-B need domain in which these compatibility extremes exist. Because of the relatively large range of possible scores within the constrained FIRO-B domains, correlations here might be expected to be of a rather low order of magnitude. Over all FIRO-B domains for a given scale, however,

incompatible dyads might be expected to show a negative correlation and compatible dyads a positive correlation. Therefore, the ultimate implication of the projection hypothesis for the present study would appear to be that over all dyads the two opposing tendencies would cancel each other, resulting in roughly a zero correlation. This, of course, is not consistent with the findings reported above.

It did appear worthwhile, however, to examine the correlations of actual and partner-predicted FIRO-B scale scores within each cell of the experimental design as a function of compatibility. Table V presents such a breakdown. The results do not appear to support predictions made on the basis of the projection hypothesis as presented above. All correlations which approached significance were positive in sign, irrespective of compatibility group. A compatibility effect of sorts, however, did appear. The overall correlation for compatible dyads was moderate in size and highly reliable, while that for incompatible dyads was also positive, but small and not significantly different from zero. Compatible dyads demonstrated reliable tendencies toward accurate prediction for four out of six scales. Only I_e failed to show at least a trend toward predictive accuracy for compatible dyads. Members of incompatible dyads, on the other hand, reliably predicted their partner's score only for expressed control and wanted affection. However, as will be argued in the next chapter, a modified version of the projection hypothesis might well account for the above findings.

In summary, the finding that subjects were able to accurately predict their partner's FIRO-B scale scores after 15 minutes acquaintance provides support for hypothesis 1. Some degree of need-resource

TABLE V
 CORRELATION OF ACTUAL AND PARTNER-PREDICTED FIRO-B
 SCALE SCORES AS A FUNCTION OF FIRO-B
 NEED DOMAIN AND COMPATIBILITY

FIRO-B Scale	Inclusion	Control	Affection	Overall
	<u>Incompatible</u>			
I _e	-.37	.06	-.12	-.15
I _w	-.08	.45	.12	.17
C _e	-.07	.75**	.18	.35*
C _w	-.15	-.44	.49 [†]	-.03
A _e	.32	-.03	-.10	.07
A _w	.45 [†]	.47 [†]	.26	.39*
All				.15
	<u>Compatible</u>			
I _e	.39	-.05	-.05	.10
I _w	.55 ^{††}	-.08	.79**	.52**
C _e	.20	.67*	.42 [†]	.45**
C _w	.32	.05	.50 ^{††}	.30 [†]
A _e	.59*	.16	.40 [†]	.40*
A _w	.64*	.50 [†]	.77**	.66**
All				.42**
	N=12	N=12	N=12	N=36

[†]p < .20; ^{††}p < .10; *p < .05; **p < .01.

$$\frac{\text{Compatible vs. Incompatible}}{\sigma_1 - \sigma_2} = \frac{Z_1 - Z_2}{\sigma_1 - \sigma_2} = 1.18^{\dagger}$$

resonance does appear to exist during the earliest phase of heterosexual acquaintance. The evidence indicates, however, that the extent of this resonance depends, in part, on the interpersonal need involved, and on the overall interpersonal need compatibility of the heterosexual couple.

Post-Experimental Attitude/Attraction Scales

Review of Experimental Predictions

Hypothesis 2 predicted a systematic effect of compatibility on initial heterosexual attraction. It was anticipated that, through the operation of need-resource resonance, members of compatible dyads would recognize, consciously or unconsciously, the greater potential of their dyadic partner to satisfy their interpersonal need and be more attracted to them accordingly. Members of incompatible dyads, on the other hand, were expected to be less attracted to each other because of the recognition of the low potential of their partner to satisfy their needs. Hypotheses 3 and 4 anticipated that the greater compatibility effects would be found in the Inclusion domain than in the Affection domain. Hypothesis 5 suggested that joint effects of sk and ck compatibility would not produce as much attraction within control compatible dyads as would be found in high ck-low sk dyads. This prediction, of course, could not be tested because of the failure to fill all cells in Design 2.

The basic unit of analysis of compatibility effects across the three FIRO-B need domains was attraction within the dyad. However, in order to evaluate possible gender interactions with the other

independent variables, the dyad was treated as a "plot" with sex representing a "split" of the plot. Thus, all post-experimental attraction scales were initially subjected to a $2 \times 3 \times (2)$ split-plot factorial analysis of variance (Kirk, 1968). In order to examine hypotheses 2, 3, and 4, planned comparisons were also performed for overall compatibility effects and for simple compatibility effects within the Inclusion and Affection domains. Because the failure of Design 2 made it impossible to evaluate hypothesis 5, compatibility effects within the Control domain were examined by means of a posteriori tests. Tukey's HSD test (Kirk, 1968) was used for all such comparisons.

Modified Rubin Liking Scale

Table VI summarizes the results of analysis of variance of Rubin Liking scores as a function of compatibility, need domain, and sex. As can be seen, no main effects or interactions reached conventional levels of significance. However, planned comparisons revealed a trend in the direction predicted by hypothesis 2 for compatibility, $t(30) = 1.39$, $p < .10$, one-tailed. Furthermore, effects of compatibility within the Inclusion domain were significant, $t(30) = 2.06$, $p < .025$, one tailed, and in the direction predicted by hypothesis 3. Effects of compatibility within the Affection domain, although in the predicted direction, were not reliable, $t(30) = .95$, $p < .20$, one-tailed. Inspection of Figure 4 provides graphic illustration of these effects. Somewhat surprisingly, Figure 4 also reveals that members of incompatible dyads were slightly more attracted to each other than were members of compatible dyads when compatibility extremes were focused in the Control domain. This tendency was not reliable, however. Therefore,

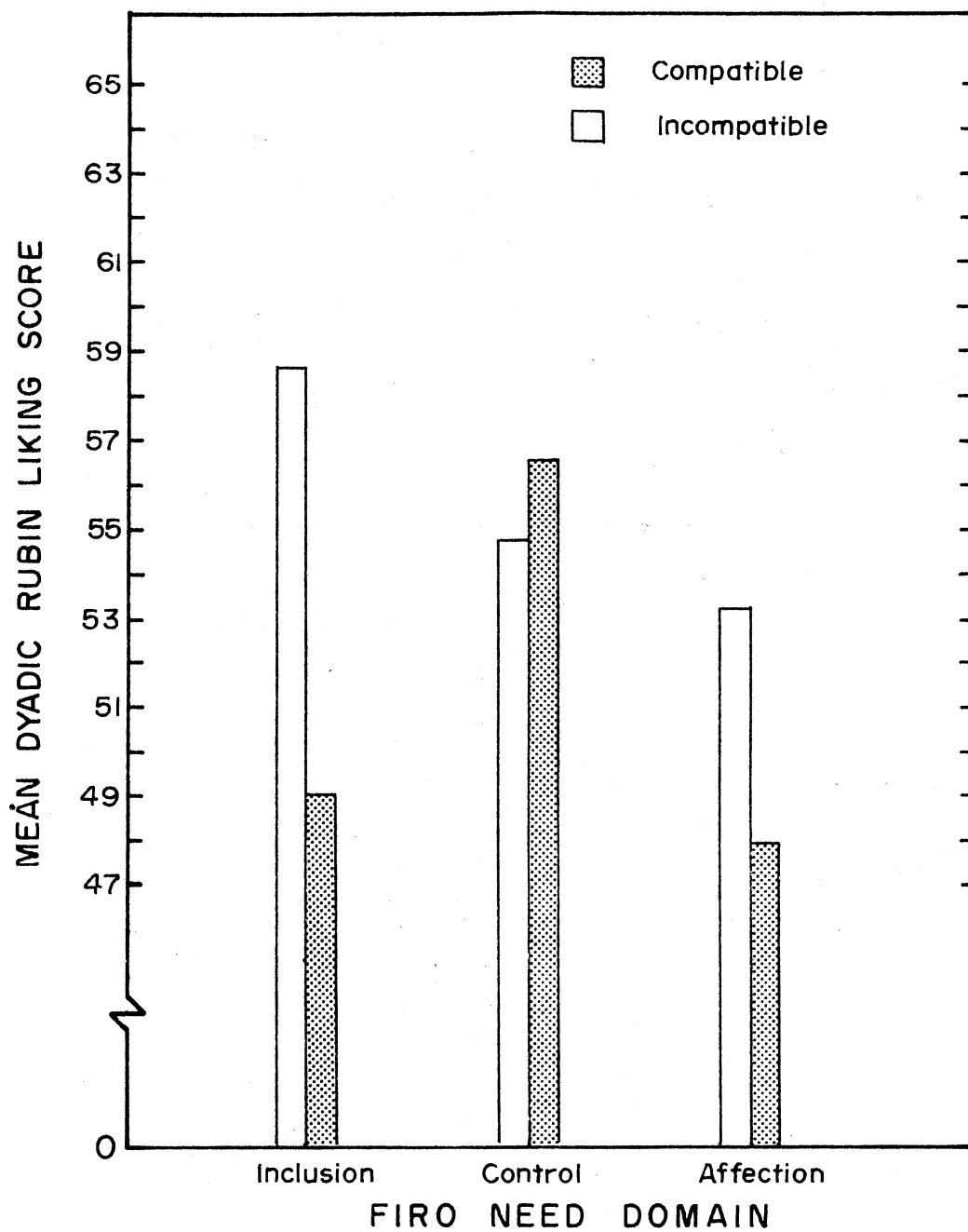


Figure 4. Mean Dyadic Rubin Liking Scores as a Function of Compatibility Level and FIRO-B Need Domain

hypothesis 2 received qualified support for Rubin Liking scores, hypothesis 3 was supported, and hypothesis 4 was not supported. Figure 5 illustrates the above effects as a function of sex. It may be noted that the effects of Inclusion compatibility were considerably more pronounced for females liking attraction to males than vice-versa.

TABLE VI
SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF RUBIN
LIKING SCORES AS A FUNCTION OF COMPATIBILITY,
FIRO-B NEED DOMAIN, AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	242.00	1	242.00	1.93
FIRO-B	326.08	2	163.04	1.30
Compatibility x FIRO-B	448.08	2	224.04	1.80
Dyads w. Groups	3756.33	30	125.21	
<u>Within Dyads</u>				
Sex	37.56	1	37.56	.49
Sex x FIRO-B	103.36	2	51.68	.67
Sex x Compatibility	53.39	1	53.39	.69
Sex x FIRO-B x Compatibility	181.03	2	90.51	1.18
Sex x Dyads w. Groups	2293.67	30	76.46	

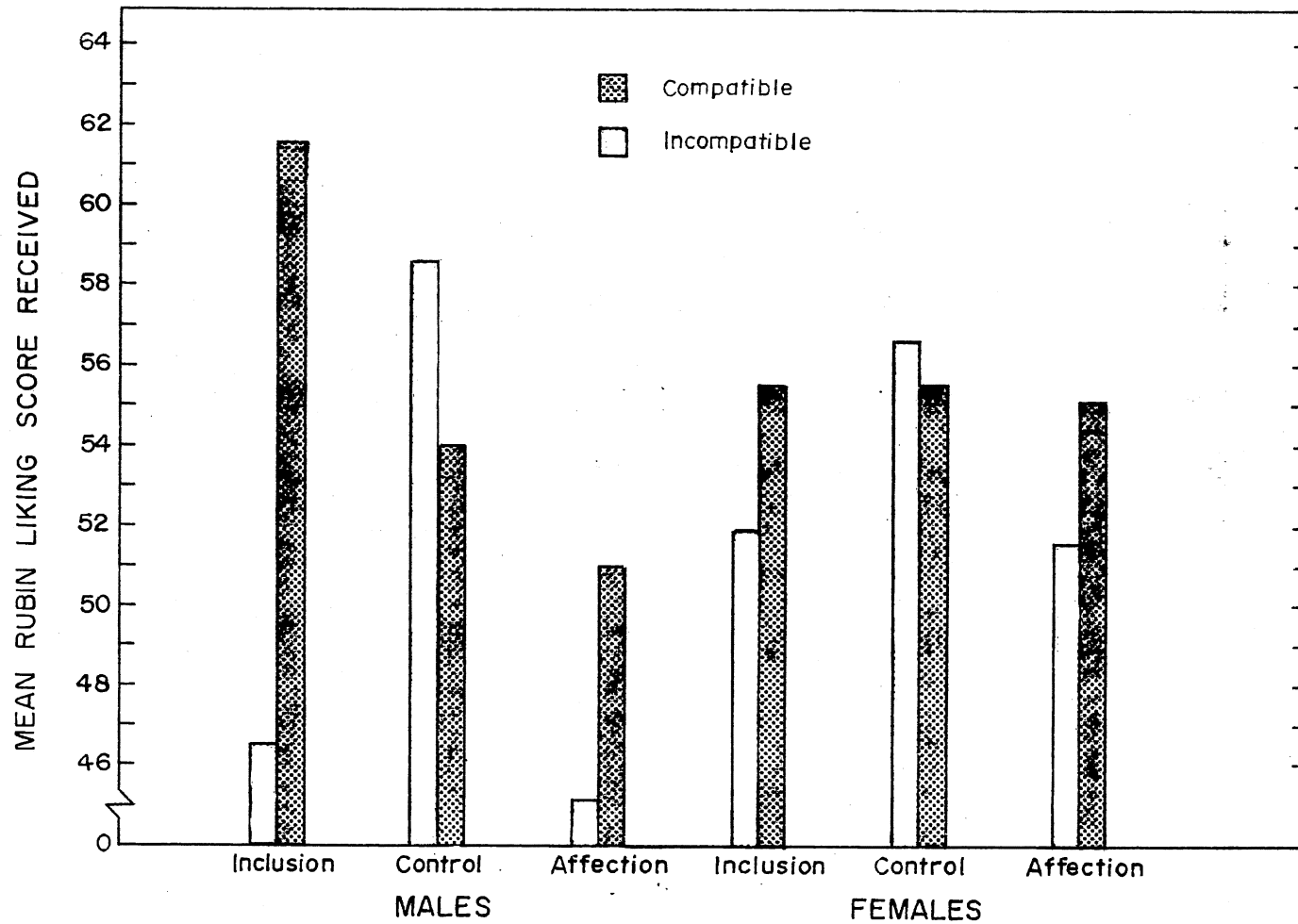


Figure 5. Mean Dyadic Rubin Love Score as a Function of Compatibility Level and FIRO-B Need Domain

Modified Rubin Love Scale

Analysis of variance of Rubin Love Scores (Table VII) produced no significant main effects for any independent variable. Significant interactions emerged, however, for compatibility x FIRO-B, $F(1, 30) = 4.44$, $p < .02$, and for compatibility x FIRO-B x Sex, $F(2, 30) = 3.92$, $p < .04$. Figure 6 provides graphic illustration of the nature of these interactions, while Table XXIV (Appendix G) summarizes the significance tests for simple effects of interest.

TABLE VII
SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF RUBIN
LOVE SCORES AS A FUNCTION OF COMPATIBILITY,
FIRO-B NEED DOMAIN, AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	16.06	1	16.06	.15
FIRO-B	379.75	2	189.88	1.80
Compatibility x FIRO-B	936.69	2	468.35	4.44*
Dyads w. Groups	3166.50	30	105.55	
<u>Within Dyads</u>				
Sex	43.56	1	43.56	.39
Sex x FIRO-B	110.19	2	55.10	.50
Sex x Compatibility	264.50	1	264.50	2.38
Sex x FIRO-B x Compatibility	871.58	2	435.79	3.92*
Sex x Dyads w. Groups	3333.17	30	111.11	

* $p < .05$.

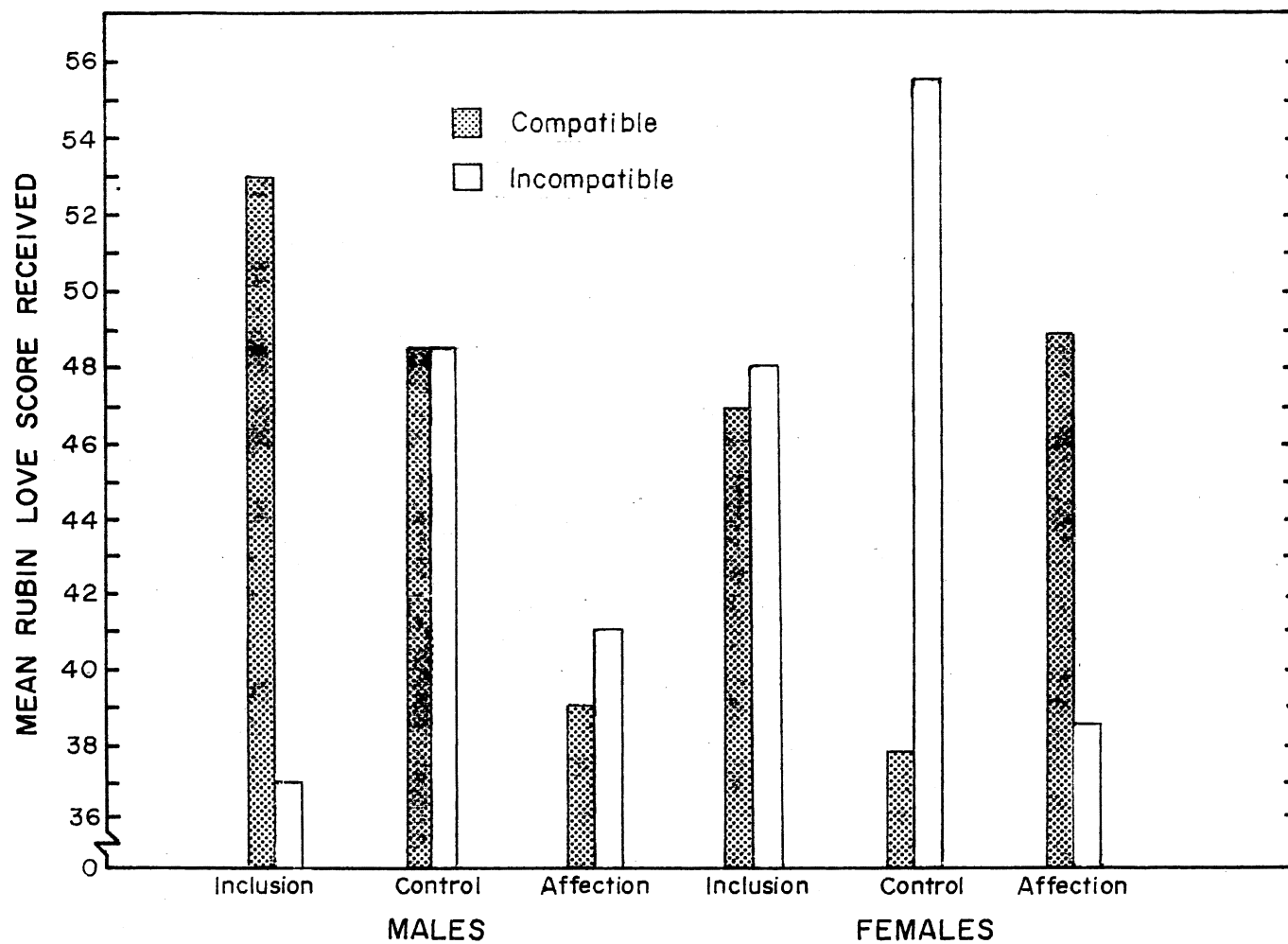


Figure 6. Mean Rubin Love Score Assigned to Subjects by Dyadic Partners as a Function of Dyadic Compatibility, FIRO-B Need Domain, and Sex

Planned comparisons confirmed the prediction (hypothesis 3) of higher love attraction scores within dyads compatible for inclusion, $t(30) = 1.81$, $p < .05$, one-tailed. Similar predictions for the affection domain (hypothesis 4), however, were not reliably supported, although the mean difference was in the predicted direction, $t(30) = 1.16$, $p < .16$, one-tailed.

Inspection of Figure 6 reveals the nature of the interaction between compatibility and FIRO-B need domain. Members of control incompatible dyads were significantly more attracted to each other than were members of control compatible dyads, $F(1, 30) = 4.50$, $p < .05$, while this pattern was reversed for the Inclusion and Affection domains. Further insight into this rather unexpected finding is made available by the breakdown of the significant triple interaction. Reference to Table XXIV (Appendix G) reveals, within the Control domain, a significant simple interaction between sex and compatibility, $F(1, 30) = 4.63$, $p < .05$ (see Figure 6). While attractiveness scores assigned males by females remained moderately high and constant across both compatibility conditions within the Control domain (the means were, in fact, equal), the attractiveness scores given to females by their male dyadic partners were very high within incompatible dyads, but quite low within compatible dyads, $F(1, 30) = 9.14$, $p < .01$.

A posteriori tests were performed for compatibility effects on love attractiveness scores received by males in the Inclusion domain, and for compatibility effects on attractiveness scores received by women in the Affection domain. The results revealed that the males were seen as significantly more attractive when the dyad was compatible for inclusion needs than when the dyad was incompatible in relation

to this need, $q(30) = 3.76$, $p < .05$. Females were seen as more attractive when the dyad was affection compatible than when it was incompatible, but the mean difference failed to exceed conventional levels of significance, $q(30) = 2.43$, $p < .25$.

Several general findings appear to emerge from among relationships described above and illustrated in Figure 6. Inclusion compatibility seems to be of considerable importance for women in generating initial love attraction to their male partner, whereas control and affection compatibility appear to make little difference. For men, on the other hand, control incompatibility appears to have a strong positive impact on their initial love attraction to their female partner while inclusion compatibility seems to make little difference.

In an effort to gain more precise information about the source of love attractiveness within control incompatible dyads, the two experimental cells within the Control domain (compatible and incompatible) were compared with a third compatibility condition, one consisting of dyads characterized by similarity compatibility and complementarity incompatibility. The six dyads constituting the latter condition were the only high-low or low-high couples successfully run in the present experiment. The combination of the three control compatibility conditions into a factorial design allowed analysis of variance to be performed for the respective love attraction scores of the three groups. Table VIII presents the results of this analysis. Individual comparisons within the significant main effect for compatibility revealed that the incompatible dyads were superior to both the compatible dyads, $t(30) = 2.42$, $p < .05$, two-tailed, and the sk compatible-ck incompatible $t(30) = 2.55$, $p < .025$, two-tailed. The cell means for the three

compatibility conditions were as follows:

ck-sk incompatible Mean = 51.92
ck-sk compatible Mean = 42.83
sk compatible-ck incompatible Mean = 42.42.

As can be seen, virtually no differences appeared between the ck-sk compatibility and the sk compatible-ck incompatible groups. Since the only difference between the two groups was the presence of sk compatibility, it might be inferred that the presence of sk incompatibility was conducive to greater attractiveness of females to males within the Control domain.

TABLE VIII

SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF RUBIN
 LOVE SCORES WITHIN THE FIRO-B CONTROL DOMAIN
 AS A FUNCTION OF COMPATIBILITY AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	691.72	2	345.86	4.10*
Dyads w. Groups	1266.50	15	84.43	
<u>Within Dyads</u>				
Sex	1.77	1	1.77	.01
Sex x Compatibility	534.06	2	267.03	1.77
Sex x Dyads w. Groups	2261.17	15	150.74	

*P < .05.

IJS Attraction Scale

Table IX presents the results of analysis of variance of IJS Attraction scores as a function of compatibility, FIRO-B, and sex. No main effect or interaction attained significance at conventional levels. The main effect for sex, however, approached significance, $F(1, 30) = 3.89, p < .06$.

TABLE IX
SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF IJS
ATTRACTION SCORES AS A FUNCTION OF
COMPATIBILITY, FIRO-B NEED
DOMAIN AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	2.00	1	2.00	1.43
FIRO-B	7.11	2	3.56	2.55
Compatibility x FIRO-B	2.33	2	1.17	.83
Dyads w. Groups	41.83	30	1.39	
<u>Within Dyads</u>				
Sex	5.56	1	5.56	3.89 [†]
Sex x FIRO-B	2.78	2	1.39	.97
Sex x Compatibility	.06	1	.06	.04
Sex x Compatibility x FIRO-B	6.78	2	3.39	2.37
Sex x Dyads w. Groups	42.83	30	1.43	

[†]p < .10.

Figure 7 suggests that this effect was due to the fact that females were rated as more attractive by males, than were males by females. Although the overall main effect for compatibility was not significant, planned comparisons revealed that inclusion compatible dyads, as predicted, produced significantly higher attraction scores than inclusion incompatible dyads, $t(30) = 1.70$, $p < .05$, one-tailed. No significant difference was found between the means of the two compatibility conditions for the Affection domain. Inspection of Figure 7, however, suggests that the effect of inclusion compatibility on IJS Attraction scores was confined to males. In fact, it appears that inclusion compatibility was instrumental in making males more attractive to females, whereas affection compatibility was more important in generating higher attractiveness scores for females.

IJS Esteem Scale

Table X summarizes the results of analysis of variance of IJS Esteem scores as a function of the independent variables. No main effects or interactions attained significance at conventional levels, but definite trends were noted for the main effect of compatibility, $F(1, 30) = 3.22$, $p < .08$, and for the interaction of sex and compatibility, $F(1, 30) = 3.01$, $p < .09$. Figure 8 illustrates the nature of these effects. Overall mean esteem scores were higher for compatible dyads than for incompatible dyads, $t(30) = 1.78$, $p < .05$, one-tailed. Post hoc tests revealed, however, that males were more highly esteemed by their female partner when compatible with her than when incompatible, $q(30) = 4.50$, $p < .01$, whereas females were esteemed to approximately the same extent irrespective of the level of dyadic

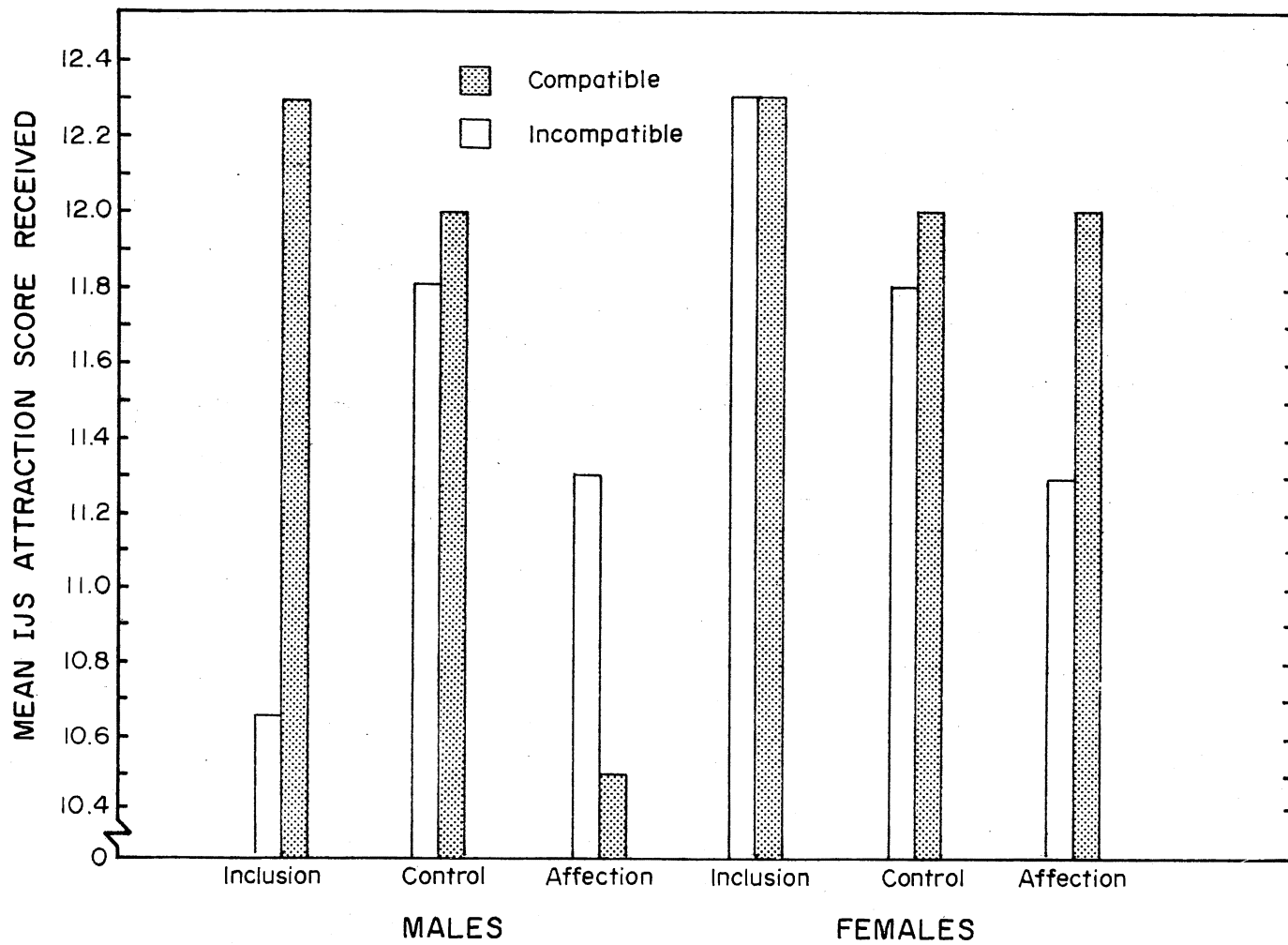


Figure 7. Mean IJS Attraction Score Assigned to Subjects by Dyadic Partners as a Function of Compatibility, FIRO-B, and Sex

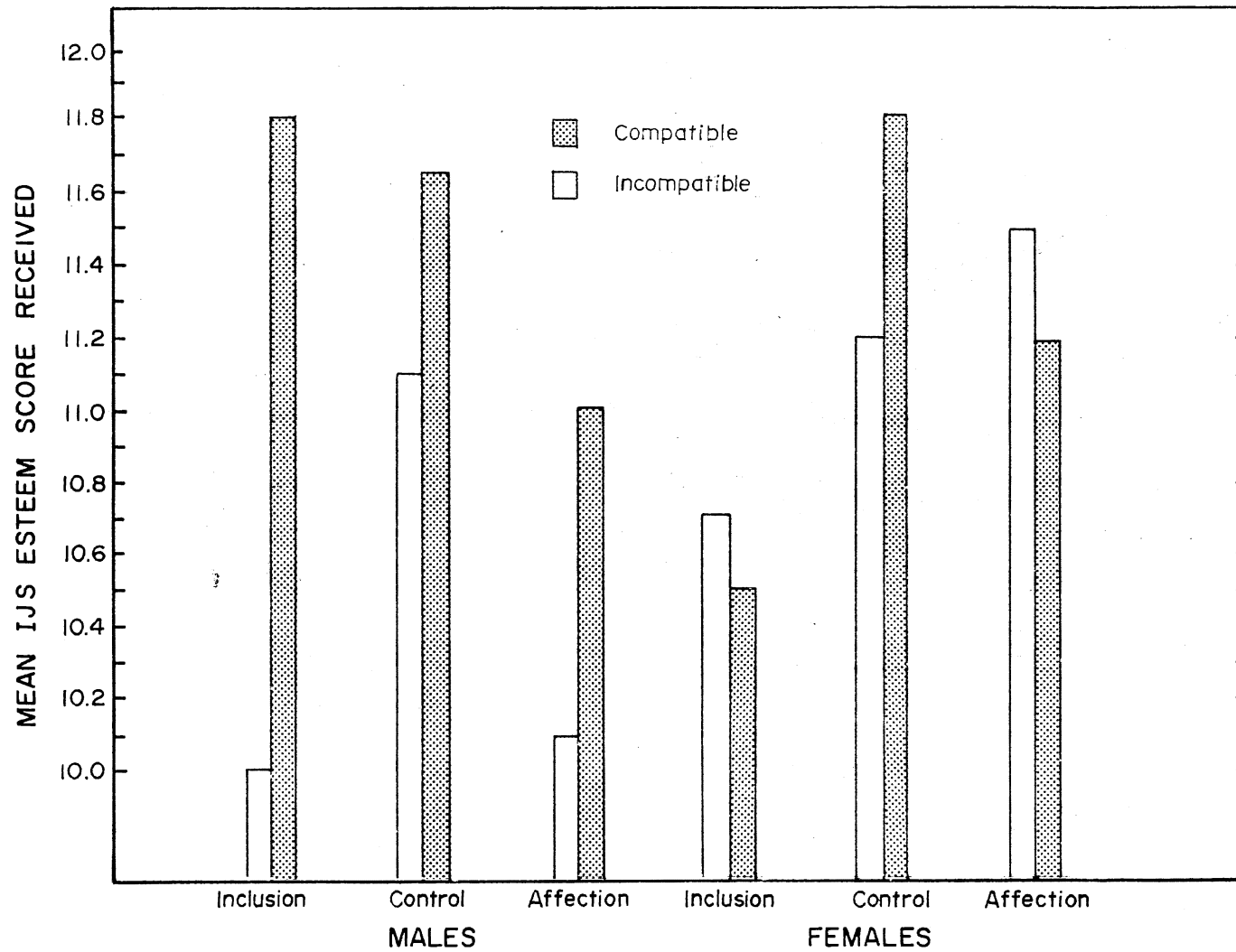


Figure 8. Mean IJS Esteem Scores Assigned to Dyadic Partners as a Function of Compatibility, FIRO-B, and Sex

compatibility. Planned comparisons revealed that, as predicted, members of inclusion compatible dyads were more highly esteemed than members of inclusion incompatible dyads, $t(30) = 1.72$, $p < .05$, one-tailed. Again, however, a posteriori analysis indicated that this difference was reliable only for males, $q(30) = 3.53$, $p < .05$. No significant differences were found between dyads compatible and incompatible for affection, $t(30) = .50$, $p < 1$, one-tailed.

TABLE X
SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF IJS ESTEEM
SCORES AS A FUNCTION OF COMPATIBILITY,
FIRO-B NEED DOMAIN, AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	5.56	1	5.56	3.22 [†]
FIRO-B	6.36	2	3.18	1.84
Compatibility x FIRO-B	1.03	2	.51	.30
Dyads w. (Groups)	51.83	30	1.73	
<u>Within Dyads</u>				
Sex	.50	1	.50	.33
Sex x FIRO-B	3.58	2	1.79	1.19
Sex x Compatibility	4.50	1	4.50	3.01 [†]
Sex x Compatibility x FIRO-B	3.58	2	1.79	1.20
Sex x Dyads w. (Groups)	44.83	30	1.49	

[†] $p < .10$.

Overall Compatibility

Hypothesis 2 predicted that initial heterosexual attraction would be greater within compatible dyads than incompatible dyads for the combined effect of all FIRO-B need domains (factorial main effect). Although significant simple main effects of compatibility were found for the Inclusion domain on all post-experimental attraction scales, only for IJS Esteem was the overall main effect for compatibility significant. These findings may indeed reflect a rather need-specific (inclusion) compatibility effect in initial heterosexual attraction. However, it should perhaps be pointed out that the nature of the selection criteria for compatibility used above does allow for some degree of potential confounding across different need domains. It will be recalled that while dyadic compatibility was held at fairly extreme levels for a given need domain (i.e., less than 2 or greater than 10, compatibility indices were allowed to range over considerable latitude (i.e., 4 - 8) on the two remaining need areas. In fact, it can be shown to be theoretically possible, within the constraints used in the present study, for dyads present in compatible and incompatible cells to overlap in the sense of absolute overall compatibility. For example, take the hypothetical case of the dyad characterized by the following inclusion compatibility parameters:

$$\underline{ck} = 10;$$

$$\underline{sk} = 10.$$

This dyad would qualify as inclusion incompatible within the present experiment. However, since compatibility values were allowed to range from 4 - 8 on the other FIRO-B need domains, the following case could

emerge:

	Inclusion	Control	Affection
<u>sk</u> =	10	4	4
<u>ck</u> =	10	4	4

Total compatibility = 36.

For this dyad, inclusion incompatibility summing over all need domains for sk and ck results in an overall compatibility value of 36. Now, another dyad could be formed such that:

	Inclusion	Control	Affection
<u>sk</u> =	2	8	8
<u>ck</u> =	2	8	8

Total compatibility = 36.

This dyad would actually qualify for the inclusion compatible condition. Thus, two dyads in different compatibility groups could possess identical overall compatibility indices.

No such extreme cases occurred in the present study. However, it was felt that sufficient narrowing of absolute compatibility differences between compatible and incompatible groups might have been present so that overall extremes were lessened. To explore this possibility, the absolute compatibility value was computed for each experimental dyad. The resulting distribution parameters for the overall experiment, and for each level of the compatibility factor are presented in Figure 9.

Inspection of Figure 9 for the original design shows that although the two compatibility conditions were clearly differentiated in terms of average overall compatibility scores, both means lie within plus or minus one overall standard deviation of the grand mean. This would

		Main Design				
		Inclusion	Control	Affection		
Compatible	N = 6	N = 6	N = 6	$N = 18$ $\bar{X} = 25.67$ $\sigma = 4.01$ Range = 20 - 32 Mdn = 26		
	$\bar{X} = 24$	$\bar{X} = 25$	$\bar{X} = 27$			
	$\sigma = 4.80$	$\sigma = 2.10$	$\sigma = 4.46$			
Incompatible	N = 6	N = 6	N = 6	$N = 18$ $\bar{X} = 44.67$ $\sigma = 3.56$ Range = 38.50 Mdn = 46		
	$\bar{X} = 44$	$\bar{X} = 45$	$\bar{X} = 45$			
	$\sigma = 4.00$	$\sigma = 2.44$	$\sigma = 4.52$			
Total: $N = 36$, $\bar{X} = 35.17$, $\sigma = 10.34$ Range: 20 - 50, Mdn = 35						

Post Hoc Design	
Compatible	Incompatible
N = 12	N = 12
$\sigma = 2.71$	$\sigma = 2.17$
$\bar{X} = 23.5$	$\bar{X} = 46.83$
Range = 20-28	Range = 42-50
Mdn = 24.5	Mdn = 46

Figure 9. Overall Compatibility Parameters for the Two Experimental Designs Used in the Study

appear to suggest that at least some overlap existed between the two distributions. Consequently, it was decided to explore absolute compatibility effects on the dependent variables under study in the present investigation. To this end, all 36 dyads in the experiment were ranked in terms of their absolute compatibility scores combined over FIRO-B need area, and the 12 dyads constituting the middle third of the resulting distribution were eliminated. The absolute compatibility parameters of the 24 remaining dyads representing the extremes (12 compatible and 12 incompatible) are summarized in the post-hoc design listed in Figure 9. The compatible group included 5 inclusion, 5 control, and 2 affection compatible dyads from the original factorial, while the incompatible group consisted of 3, 4, and 5 inclusion, control, and affection incompatible dyads, respectively. It should be noted that the means of the two compatibility conditions now lie beyond one standard deviation of the grand mean. Furthermore, a substantial reduction in the standard deviation of each compatibility group appears to have resulted.

The attraction data for all dyads within the new compatibility conditions were then re-analyzed by means of a $2 \times (2)$ (compatibility \times sex) split-plot factorial analysis of variance. It was hoped that a more powerful main effect for compatibility might result. In order to determine the direction of any differences, planned comparisons were performed for each compatibility main effect. Because of the significant compatibility \times FIRO-B interaction found for the Rubin Love Scale scores, however, this particular dependent measure of attraction was not re-analyzed within the new design.

Modified Rubin Liking Scale
(Overall Compatibility)

Table XI summarizes the results of analysis of variance of Rubin Liking scores as a function of compatibility and sex under the new design. An overall trend toward significance was observed for the compatibility main effect. Planned comparisons revealed that the mean difference was indeed in the predicted direction, and reliable, $t(22) = 1.79$, $p < .05$, one-tailed. Table XII summarizes the means as a function of compatibility and sex. Thus, since members of compatible dyads were significantly more attracted to each other than members of incompatible dyads, hypothesis 2 was now supported for Rubin Liking scores.

IJS Attraction Scale (Overall Compatibility)

Analysis of variance of IJS Attraction scores is presented in Table XIII, and the means are tabulated in Table XIV. A significant main effect for compatibility was obtained, $F(1, 22) = 6.20$, $p < .05$. Planned comparisons revealed that this difference, also, was in the direction predicted by hypothesis 2 (attraction greater for compatible than for incompatible dyads), and was quite reliable, $t(22) = 2.49$, $p < .02$, one-tailed.

IJS Esteem Scale (Overall Compatibility)

IJS Esteem scores were subjected to an analysis of variance under the new design and the results are described in Table XV. Again, a significant main effect for compatibility was obtained,

TABLE XI
 SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF
 RUBIN LIKING SCORES AS A FUNCTION OF
 COMPATIBILITY AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	414.19	1	414.19	3.19 [†]
Dyads w. (Groups)	2855.79	22	129.81	
<u>Within Dyads</u>				
Sex	35.02	1	35.02	.52
Compatibility x Sex	22.69	1	22.69	.34
Sex x Dyads w. (Groups)	1472.79	22	66.95	

[†] p < .10.

TABLE XII
 MEAN RUBIN LIKING SCORES RECEIVED AS A FUNCTION
 OF COMPATIBILITY AND SEX

	Compatible	Incompatible
Male \bar{X}	57.00	49.75
S.D.	(9.43)	(12.65)
Female \bar{X}	57.33	52.83
S.D.	(7.56)	(8.53)

TABLE XIII
 SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF IJS
 ATTRACTION SCORES AS A FUNCTION OF
 COMPATIBILITY AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	9.19	1	9.19	6.20*
Dyads w. (Groups)	32.63	22	1.48	
<u>Within Dyads</u>				
Sex	2.52	1	2.52	.21
Compatibility x Sex	.02	1	.02	.01
Sex x Dyads w. (Groups)	32.96	22	1.50	

*p < .05.

TABLE XIV
 MEAN IJS ATTRACTION SCORE RECEIVED AS A FUNCTION
 OF COMPATIBILITY AND SEX

	Compatible	Incompatible
Male \bar{X}	12.00	11.17
S.D.	(1.04)	(1.64)
Female \bar{X}	12.50	11.58
S.D.	(.67)	(1.36)

TABLE XV
 SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF IJS
 ESTEEM SCORES AS A FUNCTION
 OF COMPATIBILITY AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	7.52	1	7.52	6.14*
Dyads w. (Groups)	26.96	22	1.23	
<u>Within Dyads</u>				
Sex	.52	1	.52	.27
Compatibility x Sex	1.69	1	1.69	.88
Sex x Dyads w. (Groups)	42.29	22	1.92	

*p < .05.

TABLE XVI
 MEAN IJS ESTEEM SCORE RECEIVED AS A FUNCTION
 OF COMPATIBILITY AND SEX

	Compatible	Incompatible
Male \bar{X}	11.50	10.33
S.D.	(.91)	(1.62)
Female \bar{X}	11.33	10.92
S.D.	(1.30)	(1.13)

$F(1, 22) = 6.14, p < .05$. Planned comparisons confirmed that the difference was in the hypothesized direction, $t(22) = 2.48, p < .02$, one-tailed. The actual means as a function of compatibility and sex are presented in Table XVI.

Clear support was thus obtained for hypothesis 2 on each of the three measures of initial heterosexual attraction. It appears that compatibility, when considered in the more absolute sense defined above, does have a definite impact on affective impression formation during the earliest stage of acquaintance. Members of compatible dyads are indeed more attracted to each other than members of compatible dyads.

Eye-Gaze Measures of Attraction

The basic unit of analysis for the gaze measures of attraction was total time of facial gaze, in seconds, measured during the full 15 minute interaction session. Two separate measures were used: (1) total eye gaze, which represented the absolute time each member of a dyad spent gazing at their partner's face; and (2) mutual eye-contact, which was based on the total amount of time of mutual gaze (simultaneous eye-gaze) between dyadic partners occurring during the interaction session. Split-plot factorial ($2 \times 3 \times (2)$) analysis of variance was performed for total eye-gaze, and a 2×3 completely randomized factorial was used for mutual eye contact data.

Table XVII summarizes analysis of total eye-gaze as a function of compatibility, FIRO-B area, and sex. No main effects or interactions attained conventional levels of significance, and thus none of

the experimental hypotheses were supported. A very large error term was noted, however.

TABLE XVII
SPLIT-PLOT FACTORIAL ANALYSIS OF VARIANCE OF
TOTAL EYE-GAZE AS A FUNCTION OF
COMPATIBILITY, FIRO-B AND SEX

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility	35941.10	1	35941.10	.23
FIRO-B	31799.00	2	15799.13	.10
Compatibility x FIRO-B	29840.20	2	14920.11	.94
Dyads w. (Groups)	4739973.90	30	157999.13	
<u>Within Dyads</u>				
Sex	55372.70	1	55372.70	.36
FIRO-B x Sex	259168.90	2	129584.47	.84
Compatibility x FIRO x Sex	268440.30	2	134220.14	.87
Sex x Dyad w. (Groups)	4604757.50	30	153491.92	

Mutual eye-contact measures were also subjected to analysis of variance procedures, and the results are presented in Table XVIII. For this gaze measure also no significant main effects or interactions appeared. No experimental predictions were supported. The mean square error here was even larger in relation to the mean squares for experimental factors.

TABLE XVIII
 COMPLETELY RANDOMIZED FACTORIAL ANALYSIS OF VARIANCE
 OF MUTUAL EYE CONTACT AS A FUNCTION OF
 COMPATIBILITY AND FIRO-B NEED DOMAIN

Source	ss	df	ms	<u>F</u>
Compatibility	9.30	1	9.30	< .01
FIRO-B	3644.41	2	1822.23	.02
Compatibility x FIRO-B	149603.52	2	47801.76	.75
Dyads w. (Groups)	2977866.75	30	99262.23	

Analysis of variance was also performed for eye-gaze measures as a function of overall compatibility (see above). These analyses, like those described above, failed to attain significance, total eye-gaze, $F(1, 30) = .10$, $p > .75$; mutual eye-contact, $F(1, 22) = .05$, $p > .82$.

Physical Attractiveness

Ratings of physical attractiveness were obtained for all subjects in the experiment. Reliability indices based on Pearson correlation coefficients between the male judge and each of the two female judges are presented below:

	Pam	Diane
Roger	.65	.67.

Although these coefficients are somewhat smaller than is normally desired for high levels of interjudge reliability (Cronbach, 1960), they were considered acceptable for the present study since the average of

the two ratings for each subject was used as the measure of physical attractiveness.

If experimental predictions had been made on the basis of Murstein's formulation, then no systematic effects of interpersonal need compatibility might have been expected to occur during and after only 15 minutes of acquaintance. The findings described above do not lend support to such a prediction. Hypothesis 6, however, did predict a significant positive correlation between physical attractiveness and initial heterosexual attraction as measured by the various dependent variables. Inspection of Table XIX reveals that this prediction was supported only for female Rubin Love, $r(34) = .48$, $p < .003$, and female IJS Attraction, $r(34) = .40$, $p < .01$, scores received. Over all subjects, no positive correlation between independently-rated physical attractiveness and interpersonal attractiveness scores was significantly different from zero for any of the dependent variables. In general, therefore, hypothesis 6 was also not supported.

Some interesting empirical findings did emerge, however. A small but significant negative correlation, $r(70) = -.27$, $p < .02$, was found between a subject's own physical attractiveness rating and the IJS Esteem score he assigned to his dyadic partner. A similar negative correlation, $r(70) = -.32$, $p < .007$, was found between physical attractiveness and total eye-gaze (looking as opposed to being looked at). This correlation, however, was apparently associated more strongly with female eye-gaze behavior. A moderately strong negative correlation, $r(70) = -.57$, $p < .001$, occurred between the amount of mutual eye-contact during the interaction session and the average physical attractiveness of the dyad as a unit (average of the

TABLE XIX

PEARSON CORRELATION COEFFICIENTS FOR RATED PHYSICAL ATTRACTIVENESS
AND SEVERAL DEPENDENT VARIABLES

	Males		Female		All Subjects	
	Expressed ¹	Received ²	Expressed ¹	Received ²	Expressed ¹	Received ²
Rubin Liking	-.19	.05	-.05	.21	-.11	.08
Rubin Love	-.10	-.15	-.07	.48**	-.09	.19
IJS Attraction	-.04	-.04	-.19	.40**	-.15	.19
IJS Esteem	-.25	-.22	-.28 [†]	-.09	-.27*	-.15
Eye-Gaze	-.23	0.19	-.37*	.02	-.32**	-.08
Mutual Eye- Contact	-.25 (Male attractiveness) N=36		-.47** (Female attractiveness) N=36		-.57** (Average dyad attractiveness) N=72	

[†]p < .10; *p < .05; **p < .01; ***p < .001.

¹Mean score given to one's partner.

²Mean score received from one's partner.

³Mutual eye-contact across sex was correlated with the average physical attractiveness rating for the dyad as a whole.

attractiveness ratings of the male and female). Also, a moderate negative correlation, $r(34) = -.47$, $p < .01$, emerged between mutual eye-contact and the physical attractiveness rating of the female member of the dyad. The similar correlation for males, although negative, was not unequivocally reliable, $r(34) = -.25$, $p < .10$.

Thus, in summary it appears that attractive females tended to receive higher Rubin Love and IJS Attraction scores, but this trend did not appear for males, or for all subjects across dyads. It also appears that the more physically attractive a subject was, particularly if female, the less she tended to esteem her partner, and the less she looked at him during the interaction session. There was also less mutual eye-contact when the female member of the dyad was attractive. When both members of a dyad were physically attractive, mutual eye-contact within that dyad suffered an even further reduction. These results do not appear to provide overwhelming support for the notion of a strong positive association between physical attractiveness and initial heterosexual attraction, at least within the paradigm used in the present study.

Intercorrelations of the Dependent Variables

Appendix A summarizes the intercorrelations of all dependent variables used in the present experiment, and includes a narrative description and interpretation of a number of interesting and perhaps meaningful trends and significant associations found among the various measures.

CHAPTER V

DISCUSSION

Need-Resource Resonance

A major purpose of the present study was to obtain empirical confirmation of the existence and operation of need-resource resonance during the earliest phases of heterosexual acquaintance. The overall results do indeed tend to support this thesis of a rapid, almost immediate experiencing of the relative potential of opposite sex strangers to satisfy one's basic interpersonal needs.

Hypothesis 1 proposed that, through the mediation of need-resource resonance, subjects would have some form of gross awareness of the interpersonal need system of their dyadic partner. This prediction was supported by the finding that experimental subjects were able to predict their partner's FIRO-B scale scores at greater than chance levels after only 15 minutes acquaintance. Although the overall (composite) correlation was small (but significant), considering the wide range of interpersonal needs measured and the very brief interaction time allowed, this result seems to provide substantial support for the hypothesis.

On the other hand, the different levels of predictive accuracy found among the separate FIRO-B scales deserves some attention. It might be assumed that the need-instigated behaviors arising from the

expressed as opposed to the wanted dimension of interpersonal needs would be more readily apparent to others, especially when based on only 15 minutes acquaintance. Surprisingly, however, overall predictive accuracy was actually slightly better for wanted than for expressed scale scores. A possible empirical explanation for this logically inconsistent finding lies in the very low predictive accuracy found for expressed inclusion. Ignoring this correlation, the combined coefficient for the correlations of expressed control and expressed affection equals .31 ($p < .01$).

The low level of predictive accuracy found for expressed inclusion is, in itself, worthy of comment, however. It might be suggested that because the exchange of inclusion-related information seems to be a major focus of initial heterosexual acquaintance process (i.e., common acquaintances, favorite social activities, etc.), subjects may have experienced some difficulty in accurately discriminating the real extent of expressed inclusion needs in their partner. Also, the premium placed on social inclusion by college students may have inclined the experimental subjects to misrepresent somewhat the extent of their own social activities in the hope of impressing their dyadic partner.

The only other FIRO-B need scale which was not predicted at a level of accuracy which was minimally reliable, $p < .10$, was wanted control. Several interpretations might account for this finding. In the first place, subjects in the initial stages of acquaintance may hesitate to reveal underlying needs to be controlled or dominated because this might be construed as signs of weakness. Such disclosure might be especially avoided by males because of the negative cultural sanctions often imposed for lack of male potency (Centers, 1975). Furthermore,

immediate revelation of wanted control needs might be avoided because of the vulnerability implied by such an admission, especially if one's partner is recognized as possessing strong expressed control needs, while other features of his or her personality still remain unclear. Stereotypic conceptions of the extent of wanted control needs among college students may also have worked against the achievement of high levels of predictive accuracy for the experimental subjects. It will be recalled that the stereotype of the extent of wanted control needs possessed by average, opposite-sex college students (based on the mean control group prediction) is considerably higher than the actual mean wanted control score of subjects in this experiment (control group prediction = 5.22; actual = 3.71). The average partner-predicted score (4.21) is, interestingly enough, somewhat higher than the actual, but considerably lower than the stereotype. It might be speculated that the stereotype may have influenced somewhat the partner-predictions, thus interfering to some extent with accuracy (interfering with resonance hunches).

In reference to possible interactions of experimental independent variables and need-resource resonance, the superiority of members of compatible dyads over members of incompatible dyads in accurately predicting their partners' FIRO-B scale scores deserves attention. First, it should be noted that the projection hypothesis, discussed in the previous chapter, cannot be unequivocally discarded. However, some modification of the operational paradigm for projection seems necessary in order to attempt to account for the present findings. It was noted in the previous chapter that because similarity compatibility (sk) is defined in terms of similar expressed and wanted scores for members of

a dyad. Simply assuming that members of compatible dyads merely projected their own need characteristics onto their dyadic partners would indeed account for the significant positive correlations obtained. It was also pointed out, however, that the same logic would lead one to predict that members of incompatible dyads would produce significant negative correlations between actual and partner-predicted FIRO-B scores. In fact, the obtained correlations for incompatible dyads were positive, but generally non-significant. Projection alone, therefore, appears untenable as an explanation for the present results. It seems clear that need compatibility somehow functioned as a mediator of accurate prediction. This fact, in itself, would appear to support the idea of the operation of some form of need-resource resonance. Exactly how compatibility functioned as a mediator remains at issue, however.

The results of the factorial analyses (described in the previous chapter) generally confirmed the expectation that members of compatible dyads would experience the greater potential of their partner to satisfy their needs and be attracted to them accordingly. Furthermore, Heider (1958) and Newcomb (1961) have proposed that individuals tend to make attributions of self-other similarity to persons to whom they are attracted. Therefore, it might be proposed that members of compatible dyads, being attracted to each other, tended to assume that they had similar interpersonal needs. Consequently, when asked to predict their partner's FIRO-B responses they may have projected their own need system onto their partner. Since they actually were similar in terms of FIRO-B scores at least within the need domain for which they were compatible the resulting overall correlations were indeed positive and significant. Members of incompatible dyads, on the other hand, because

they were not attracted to each other may have assumed that their partner was somehow different than themselves. Thus, when asked to predict their partner's FIRO-B answers, they may have responded in such a way as to maximize the differences between their own FIRO-B profile and that which they were completing for the partner. In other words, members of incompatible dyads may have used what could be termed a "negative projection" operation. It is, of course, true that incompatible subjects were considerably less accurate than compatible dyad members in predicting their partner's FIRO-B scores. This may have been because of uncertainty about what, exactly, constitutes difference. Therefore, incompatible dyad members may have failed to produce guesses which precisely matched the exact discrepancies between themselves and their partner (recall that sk incompatibility was defined in terms of large absolute differences between individual expressed-wanted scores for the area of incompatibility).

This newly proposed attraction-mediated projection hypothesis can be subjected to several empirical checks using data from the present study. In the first place, dyads were compatible or incompatible for only one of the three FIRO-B need domains. Thus, actual FIRO-B scale scores were systematically similar or different only for that area. Therefore, projection of personal similarity or difference when predicting partners' scores should produce high positive correlations primarily for the area of compatibility or incompatibility. In fact, however, inspection of Table IV (Page 102) reveals that members of compatible dyads were successful in predicting the FIRO-B scores of their partners on many scales other than those where low expressed/wanted discrepancies between themselves and their partners actually existed. Among members

of incompatible dyads, control incompatible subjects were most successful in predicting their partner's expressed control scale score, a finding in accord with attraction-mediated projection formulations. However, with this exception, members of incompatible dyads were actually more successful in predicting FIRO-B scale scores in areas other than those in which they were incompatible. Furthermore, the greatest predictive successes occurred for affection compatible dyads, despite the fact that affection compatibility effects on attraction were not significant for any of the post-experimental attraction measures.

It might be argued that because of the existence of relatively large intercorrelations between various FIRO-B scale scores, projecting similarity or differences onto one's dyadic partner could produce large correlations between actual and predicted scores in areas other than the specific one in which high or low discrepancies exist. Table XX presents the intercorrelations of scale scores for all experimental subjects. Despite the existence of a number of significant intercorrelations between inclusion and affection scale scores, the correlations of these scales with the control scales were small and non-significant. Referring back to Table IV, it can be noted that control incompatible subjects were relatively successful in predicting the wanted affection scores of their partners and members of affection incompatible dyads, in turn, had some success in predicting their partner's wanted control scores despite the small intercorrelations among expressed and wanted control and expressed and wanted affection. For members of compatible dyads, Table IV indicates that control compatible subjects were able to predict, to some extent, the wanted affection scores of their partners, while affection compatible subjects

rather successfully estimated both control scales for their dyadic partners. Thus, despite its logical appeal, the attraction-mediated projection hypothesis, alone, appears hard-pressed to fully account for a number of empirical results of the present investigation.

TABLE XX
INTERCORRELATIONS OF ACTUAL FIRO-B SCALE
SCORES FOR ALL EXPERIMENTAL SUBJECTS

	I_e	I_w	C_e	C_w	A_e	A_w
I_e	--	.65***	.28*	.44***	.40***	.43***
I_w		--	.24*	.34**	.33**	.54***
C_e			--	.42***	.12	.22
C_w				--	.22	.21
A_e					--	.62***
A_w						--
		* P < .05		*** P < .001		N = 72
		** P < .01				

It seems reasonable to hypothesize that breadth and intimacy of self-disclosure might also have served to mediate between compatibility

and accurate estimation of the need system of dyadic partners. In other words, the amount of intimate self-disclosure within a dyad may have varied as an increasing function of the level of compatibility within that dyad. If so, then the increased amount of intimate material revealed may have helped members of compatible dyads to achieve a more accurate feeling for the basic interpersonal needs of their partners. Within incompatible dyads, on the other hand, the amount of intimate information disclosed may have been too scanty to allow accurate intuiting of the other's interpersonal needs.

Schneider (1976) makes a distinction between two types of intimate self-disclosure. One variety, which he describes as "normative intimacy," refers to personal information which is considered socially undesirable (taboo) to reveal to others (e.g., one's sexual behavior). The other type consists of information about inner needs, motives, private views of oneself and social reality, etc. The first type, Schneider feels, actually provides little information which would allow broad predictions of an individual's behavior, and it is almost never revealed to strangers. The second, on the other hand, is not only more likely to be disclosed to strangers, but may also reveal more about the person making the self-disclosure. Somewhat surprisingly, to this writer's knowledge, no studies have investigated the latter type of self-disclosure as a function of personality or attitude similarity, or interpersonal compatibility, etc. In fact, as Schneider has pointed out, nearly all studies of self-disclosure have defined it in terms of the normatively intimate variety. It seems reasonable to speculate, however, that the presence of interpersonal compatibility might generate sufficient trust between two people so that more of the nonstereotyped

variety of intimate self-disclosure might occur early in their relationship. This increased self-disclosure, in turn, might provide the type of personal information which would allow better understanding of each other's interpersonal needs, thus leading to more accurate prediction of FIRO-B scores. On the basis of the empirical results of the present investigation it might be argued that affection compatibility may have been the most highly efficacious in inducing relatively deep and intimate self-disclosure. Schutz (1966) has suggested that affection, as the predominant area of interpersonal behavior, tends to be important during late stages of a relationship. It appears conceivable, however, that the high levels of affectional-need compatibility experimentally generated for the affection compatible dyads in the present study may have short-circuited to some extent the typical evolution of a relationship in terms of the primary focus of interpersonal-need exchange. Thus, the relatively greater self-disclosure typical of a long-term relationship may have occurred fairly rapidly within these dyads. This might explain the high level of predictive accuracy found for affection compatible dyads across virtually all FIRO-B scales. The relationship between type and depth (intimacy) of self-disclosure and interpersonal need compatibility is currently being investigated using data from the present study. The validity of the above interpretation must await the outcome of this analysis.

Need-resource resonance was also indirectly supported by the findings of the factorial analyses. Hypothesis 2 predicted that members of compatible dyads would be significantly more attracted to each other than members of incompatible dyads across all FIRO-B need domains. In terms of this overall compatibility, this prediction was confirmed for

all post-experimental measures of attraction except the Rubin Love scale where the effects of compatibility were found to occur in complex interaction with FIRO-B need domain and sex. Only for the eye-gaze measures were no compatibility effects at all noted.

Although not necessarily operating consciously, the above results seem to suggest that need-resource resonance must have served some mediating function if subjects were attracted to each other differentially as a function of need compatibility within the dyad. The several confirmations of hypothesis 2 thus provides further support for the operation of need-resource resonance during the earliest stage of initial heterosexual acquaintance.

Need-Compatibility Effects on Initial Heterosexual

Attraction as a Function of FIRO-B Need Domain

Compatibility Effects in the Inclusion Domain

The question of which type of need compatibility is most directly instrumental to initial heterosexual attraction was also addressed by the present study. Hypothesis 3 predicted that inclusion compatibility would be most highly associated with initial attraction. This prediction was confirmed. Members of inclusion compatible dyads were significantly more attracted to each other than members of inclusion incompatible dyads for all post-experimental attraction measures. Although no effects were noted for the eye-gaze correlates of attraction, the constancy of this finding across the other measures of attraction tends to lend credence to the reality of this relationship.

The importance of inclusion compatibility in the formation of

positive initial heterosexual impressions was anticipated because it was assumed that disclosure of inclusion needs to a stranger would be less threatening than the revelation of more intimate needs such as those involving affection and control. Consequently, the content of conversation during the first few minutes of acquaintance was expected to be dominated by inclusion-related material. This circumstance was, in turn, expected to favor members of dyads characterized by inclusion compatibility extremes because it was anticipated that they would be able to more readily perceive the presence or absence of compatibility and be attracted to each other accordingly. Although logically appealing, this interpretation appears to encounter some empirical difficulties when confronted with the fact that experimental subjects were unable to predict their partner's expressed inclusion scores at a level greater than chance. If need-resource resonance is indeed a conscious process, then it is difficult to reconcile this finding with the interpretation presented above. On the other hand, if need-resource resonance is also postulated to function as a type of "unconscious intuiting" of another person's need system, then the greater inclusion information available during initial acquaintance might still be expected to favor dyads characterized by inclusion compatibility extremes.

Indications of differential attraction as a function of sex also appeared within inclusion compatible and incompatible dyads. Plots of cell means for male and female attractiveness scores suggested that the effects of compatibility were confined primarily to the female's rating of the attractiveness of her male partner. In other words, it appeared that inclusion compatibility was more important to women than to men.

Although this interaction was never quite significant, this effect was present across all post-experimental attraction scales in the form of relatively large mean differences. Thus, this finding requires some explication. It might be proposed that conventional sex-role differences in choice and decision-making responsibility relative to social activities typically engaged in by heterosexual couples might account, in part, for this finding. If men are generally expected to determine the focus and direction of such activities, then the woman might consider it particularly important to be compatible with the man in regard to need-instigated behaviors and activities relating to inclusion. Men, on the other hand, since they have greater control over choices may not be so concerned about compatibility with the woman in this need area. Furthermore, men traditionally have a much broader range of inclusion-related activities (primarily because of their greater involvement in the professional and work world), and are therefore not so dependent upon the woman for gratification in this area as vice versa.

Indirect empirical support for such speculation can be found in a study conducted by Kerckhoff and Bean (1963). These researchers hypothesized that among engaged couples, persons having a tendency to interact with others (as indicated by high FIRO expressed inclusion scores) would show a significant positive correlation between value consensus and positive perceptions of their partner. Among low expressed inclusion subjects this relationship was not expected to be as strong. Expressed inclusion was interpreted as an index of the need for value reinforcement because it was assumed that a very important goal of social interaction is the validation of one's attitudes and values by others. Thus, expressed inclusion subjects were expected to

view positively those persons who shared their values.

Interestingly, this hypothesis was confirmed only for high inclusion women. A weak negative relationship was found for high inclusion men. Kerckhoff and Bean interpreted this sex difference as reflecting the greater power of the male in a relationship. The man is better able to determine the outcome of interaction, be rewarded by it, and hence perceive this partner positively despite possible dissimilarity of values and attitudes (Kerckhoff & Bean, 1963). For the female, being the weaker member, similarity is essential if she is going to be rewarded in the relationship. Thus, she should be more attracted to similar others.

Extrapolating to the results of the present study, need compatibility for the inclusion domain might have been particularly critical to a woman with high inclusion needs. If she determined that her partner possessed relatively low needs to include others in his social activities, then she might recognize that a relationship with him would result in her having less opportunity for value reinforcement from others. Furthermore, by not including others in his activities, her partner would be, in essence, disconfirming one of her most important values, i.e., socializing with others. Consequently, her attraction to him might not be expected to be very great. Conversely, if a woman had very little need for value reinforcement from others (low expressed inclusion), then a high expressed inclusion partner might be seen as making social demands which she would experience as unpleasant and non-rewarding but, being the weaker member, would find difficult to resist. Thus, this type of inclusion incompatibility might also be expected to lead to less attraction. If the above interpretations are valid, then

the conscious or unconscious awareness of inclusion compatibility after only 15 minutes acquaintance may reflect a critical selective variable in initial heterosexual attraction, at least for females.

Compatibility Effects in the Affection Domain

Hypothesis 4 predicted that members of affection compatible dyads would also be significantly more attracted to each other than members of affection incompatible dyads. This hypothesis, however, was not confirmed for any of the post-experimental attraction scales or for any of the eye-gaze correlates of attraction, although mean differences were generally in the predicted direction. Since data based on the accuracy of partner-predicted FIRO-B scores suggest that members of both compatible and incompatible dyads were, at least to some extent, aware of the affection needs of their partner, it might be concluded that a failure of need-resource resonance cannot be used to account for this finding. Two major alternative explanations thus emerge: (1) that affection compatibility is not a major influence on initial heterosexual attraction; or that (2) within the present study, affection compatibility and incompatibility were not sufficiently articulated to produce such effects. In reference to the second possibility, Figure 9 (Chapter IV) indicates that the greatest overlap between compatible and incompatible dyads in terms of absolute compatibility did indeed occur within the affection domain. It is possible that sufficient confounding with compatibility levels present for the constrained FIRO-B need domains (inclusion and control) might have occurred so that attraction differences between compatible and incompatible dyads were lessened. For the present study, however, this issue must remain an empirical one.

Compatibility Effects in the Control Domain

Hypothesis 5 could not be directly tested because of the failure to run sufficient ck compatible-sk incompatible dyads within the control domain. Empirically, the only systematic effect of control compatibility occurred for Rubin Love Scale scores. Members of incompatible dyads were significantly more attracted to each other than members of compatible dyads as measured on this dependent variable. Although the greatest love attraction was, in fact, predicted for ck compatible-sk incompatible dyads, the superiority of incompatible dyads over the compatible ones was an unexpected and rather puzzling finding. It is true that individual expressed/wanted discrepancies were small for both compatible and incompatible dyads within the control domain and, therefore, subjects within both conditions might be classified as persons who experience interpersonal difficulties in the area of control. Although this might be expected to lower the overall attraction between members of dyads in both groupings, it does not readily explain the superiority of one over the other, particularly the incompatible dyads. Furthermore, the mean love attraction score of the control incompatible dyads was actually the highest of any cell in the general factorial. Carson (1969) has presented arguments which, if extended to the current study, might imply that similarity compatibility is not conducive to attraction when considering control needs. However, the control compatible dyads in the present experiment were also complementary compatible, the arrangement which Carson might expect to lead to interpersonal attraction. Therefore, it might be anticipated that compatible dyads would be at least relatively more attracted to each other than members of incompatible dyads. Clearly, the rationale upon which the

experimental hypotheses were based in the present study does not readily explain this result unless it is assumed that sk compatibility severely depresses initial love attraction despite the presence of the desired ck compatibility.

It was determined that the greater love attraction found for incompatible dyads was associated exclusively with the attractiveness of the female to the males, and seemed to be related to the desirability of similarity incompatibility. A somewhat different line of reasoning than that presented in Chapter II seems required, however, for any attempt to provide a satisfying overall explanation of these findings.

Centers (1975) has postulated the critical importance of motives to accentuate and maintain sexual identity and role in interpersonal relationships. He has predicted that if the need-instigated behaviors of an opposite sex person tend to reinforce one's culturally defined sexual identity, then that person will become highly attractive (see Chapter I, pp. 44-45). It is further hypothesized, by the present writer, that this effect might well be accentuated as an increasing function of the degree of ambivalence a person experiences about his own sexual adequacy in relation to conventional definitions of sex-role attributes and behaviors. Although admittedly post-hoc, this interpretation might provide a partial explanation of the present findings. Definitions of appropriate gender-related behaviors in respect to control and power are rather explicit in our culture, and tend to be somewhat mutually exclusive. Thus, if the male and female dyadic members with the compatible condition were similar in terms of their needs for control, power, dominance, and submission, etc. (similarity compatible), then almost by definition, both possessed to some extent sex-inappropriate

levels of these needs. Depending upon how comfortable the deviant dyadic member was about his or her gender-inappropriate control needs, attraction or repulsion might be expected to occur toward the dyadic partner.

To aid in illustrating how such dynamics might account for the present results, Figure 10 presents the four theoretically possible combinations of ck and sk compatibility in a manner which represents visually the interrelationships between expressed and wanted control needs, both within and between individual members of a dyad. All possible magnitude (low, medium, and high levels) and sex differences are also represented.

Inspection of the dyadic combinations represented in category 1 of Figure 10 shows that members of these dyads are completely identical with respect to control needs. That is, they are similar in the horizontal plane (similarity compatible), in the diagonal plane (complementary compatible), and in the vertical plane (internally conflicted about control needs). Thus, if complementarity compatibility is assumed to be a special case, these dyads are examples of absolute similarity compatibility. Following both Ryan and Carson, these subjects would not be expected to be highly attracted to each other. A case might therefore be made that ck is efficacious in producing attraction only in isolation, i.e., in combination with low or medium levels of sk as defined by FIRO-B compatibility formulae. Although this appears to make sense psychometrically, it remains logically unsatisfying. A key to synthesizing the two might lie in the FIRO-B notion of dichotomizing interpersonal needs into expressed and wanted dimensions. This not only allows consideration of the nature of the exchange of need-instigated behavior

		<u>ck</u> Compatible- <u>sk</u> Compatible					
1.	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	
	(a) e_L e_L	(b) e_M e_M	(c) e_H e_H				
	w_L w_L	w_M w_M	w_H w_H				
	<u>Rebels</u>	<u>Medium Conflicted</u>		<u>Highly Conflicted</u>			
<u>ck</u> Incompatible- <u>sk</u> Incompatible							
2.	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	
	(a) e_L e_H	(b) e_H e_L					
	w_L w_H	w_H w_L					
	<u>Rebel</u>	<u>Conflicted</u>	<u>Conflicted</u>	<u>Rebel</u>			
<u>ck</u> Compatible- <u>sk</u> Incompatible							
3.	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	
	(a) e_H e_L	(b) e_L e_H					No data available for present study
	w_L w_H	w_H w_L					
<u>ck</u> Incompatible- <u>sk</u> Compatible							
4.	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	<u>M</u> <u>F</u>	
	(a) e_L e_L	(b) e_H e_H					Relatively stable interpersonal adjustment
	w_H w_H	w_L w_L					

Figure 10. Visual Illustration of the Interrelationships Between Individual Expressed/Wanted Behaviors Within the Several Possible Combinations of ck and sk Compatibility and Incompatibility as Defined in the Present Experiment (M = Male, F = Female; L = Low, M = Medium, H = High FIRO-B Score)

in an interpersonal context, but, as Ryan (1969) has aptly pointed out, also provides clues to internal motivational conflicts in individuals. Thus, a broadly based conception of the relationship between need compatibility and interpersonal attraction might also be required to consider the possible impact of such internal conflicts on interpersonal outcomes.

To illustrate, take the example of the dyad represented in subcategory 1a. Here, dyadic members neither want nor express control in a relationship. Thus, both are "rebels" in Ryan's terminology. If participating in the present study, neither would have anyone to rebel against in terms of control and dominance. Therefore, after a rather aimless and unstimulating 15 minutes of interaction, both might feel that their needs were unsatisfied, and love attraction would be low. This, despite what, on the surface, would appear to be complementarity compatibility.

Subcategory 1b represents medium levels of both sk and ck compatibility. Here, the small discrepancies between individual expressed and wanted control suggest at least middling levels of autonomy-dependence conflict for both members of the dyad. In this case, culturally defined sex roles regarding the gender appropriateness of various need-instigated behaviors might begin to play a role, above and beyond compatibility, in determining the attraction outcome. An argument might be made that autonomy/dependence conflict in the male might be more detrimental to his attraction to the female than vice versa. Males, in this society, are typically not expected to desire or accept even moderate amounts of control from a woman in a relationship. However, since the male, at some level, does want to be controlled and the

female does tend to express moderate levels of control, this situation might be rather threatening to a man who is ambivalent about his control relations with women, and thus may question his masculine identity. It is possible that such a man might attempt to resolve his own dissonance by defining the woman as too aggressive and lowering his attraction to her. For the woman, on the other hand, the moderate control expressed toward her by the male would be genderically congruent behavior and thus would not only reinforce her femininity but would gratify her wanted control needs. The male's need to be controlled would result in her expressed control needs being satisfied to some extent, but this would be a gender incongruous circumstance and might also result in a lessening of her attraction to him. However, with the increasing social acceptance of female assertiveness (without concomitant acceptance of male passivity and dependence), conflict surrounding autonomy/dependence needs may not be as threatening to female sexual identity as is the case for males. Therefore, a woman's attraction to a control-conflicted male might indeed fall at the middle ranges found for the present study.

The really extreme examples of the above attraction scenario would, of course, be expected to occur for dyads similar to the example presented in 1c. Here, the autonomy/dependence conflict is severe. In fact, if only a few such dyads were included in the present study, they might be sufficient to markedly lower the mean attraction score for the control compatible cell.

Category 2 of Figure 10 illustrates the dyadic possibilities for the ck-sk incompatible group in the present experiment. This, of course, was the cell where the females were found to be highly attractive. It will be noted that these dyads are characterized by

dissimilarity of control needs in the horizontal plane (similarity incompatibility), the diagonal plane (complementarity incompatibility), but similarity in the vertical plane (internally conflicted about control needs). Actually, however, although both members of the dyad do have some personal difficulties, by definition these problems must be of different type for each individual. Thus, dyads in this category provide the closest possible approximation to absolute similarity incompatibility.

In terms of Ryan's classification system, the dyad represented in 2a is composed of a "rebel" (the male) and his partner who experiences autonomy/dependence conflicts. Thus, the female desires to both control and be controlled, while the male wishes neither. Ostensively, the female might be expected to find interaction with such a person not very gratifying in terms of extensive need satisfaction. However, since she is ambivalent about controlling versus being controlled, she might experience some gratification both when he refuses to allow her to dominate him, and when he avoids controlling her. Thus, her overall attraction to him might be difficult to assess. The male, on the other hand, does not experience this autonomy/dependence conflict. On the contrary, he might even enjoy rebelling against arbitrary sex-role demands for male dominance and control. Furthermore, the ambivalent and changing demands of the female to control him and be controlled by him would provide him with a great deal to rebel against. Therefore, despite the lack of complementary compatibility, the male might anticipate that a close relationship with such a woman would be stimulating and exciting, meeting many of his important, though "neurotic" needs.

The effect of the male's potential arousal may have other

implications for initial love attraction within control incompatible dyads. Walster and Berscheid (1971) following Schachter and Singer (1962) have suggested that romantic love of the type purportedly measured by Rubin's Love scale may develop fairly suddenly as part of a two-stage process. First, some form of nonspecific physiological arousal must occur, then the environmental contingencies must be such that the arousal is interpreted and labeled as "feelings of love" for another person. It is possible that such a sequence of events could have occurred for the males within incompatible dyads. If the male experiences some rather vague and nonspecific arousal as he resists (rebels against) the demands of his partner during the interaction session, the environmental cues associated with the heterosexual context of the present experiment might have allowed such arousal to be interpreted as love attraction. For compatible dyads, on the other hand, the arousal resulting from the threat to the male's sexual identity, might be too readily interpreted as anger toward a "castrating" woman to be labeled as feelings of love attraction.

The example of the control incompatible dyad illustrated in 2b of Figure 10 can also be interpreted within the context of sex-role congruency and possibly also within the Walster and Bercheid conception of the etiology of romantic love. Note that here the male is the one with autonomy/dependence conflicts, while the female is the rebel. In this circumstance, although the female resists the ambivalent demands of the male to control her and be controlled by her, the fact that she expresses no control behavior toward him is sex-role congruent in terms of cultural definitions of appropriate sex-role behavior. Thus, the male would probably not see her as a "castrating woman" trying to

dominate him. Furthermore, by resisting his sex-role incongruent demands to be dominated by her, she is essentially affirming his masculinity. The fact that she resists his attempts to control her might be interpreted by him as "playing hard to get," a challenging but socially acceptable sex-role behavior for a woman. Therefore, the interaction situation might be experienced by him as somewhat arousing but not threatening, resulting in the labeling of this arousal as love attraction.

Inspection of categories 3 and 4 of Figure 10 indicates that bipolar sk-ck dyads do not demonstrate the vertical expressed/wanted equivalence present for dyads in the first two categories. Thus, the patterns of interpersonal adjustment for the subjects constituting these dyads appears generally stable and may represent a relatively firm commitment to a specific interpersonal style in regard to control and dominance. If, as was hypothesized above, the sex x compatibility interaction found for jointly compatible or incompatible dyads stems primarily from the male's conflict over the generic incongruity of his high wanted control needs, then sex effects on love attraction scores should not be present for the high-low or low-high compatibility combinations where the large expressed/wanted discrepancies suggest little intrapersonal ambivalence about control. Low-high, ck-sk dyads actually obtained and run under experimental conditions were, of course, confined to the compatibility combination represented by category 4. However, as anticipated, sex differences in terms of mean love attractiveness scores for these dyads were minimal (male, mean = 41.17; female, mean = 43.67). The fact that members of these dyads were not highly attracted to each other can be readily understood in terms of

their ck incompatibility.

Given the moderately high correlation found between sk and ck for control ($r = .36$), it is perhaps surprising that so many persons would be interpersonally conflicted in the control area. However, in the writer's opinion, this fact merely reflects the unfortunate consequences of the culturally-defined sex roles present in this society which tend to deny real assertiveness to women and refuse to allow men to express or even admit their dependency needs.

Compatibility Effects on the Eye-Gaze

Correlates of Attraction

The failure to obtain significant compatibility effects for the eye-gaze measures perhaps deserves some brief comment. It might be concluded that within the context of the present study ocular behavior is not a correlate of initial heterosexual attraction at all. Indeed, eye-gaze (being looked at) was not significantly correlated with any of the other attraction measures with the exception of female Rubin Liking scores and here, in fact, the correlation was actually negative (see Appendix A). This finding may reflect tendencies for males to avoid revealing, non-verbally, their obvious interest in women to whom they are attracted because the possibility of rejection is a painful prospect. The extremely large error variance found to be associated with eye-gaze behavior during the interaction session may reflect relatively large individual differences which tended to swamp any systematic effects of the independent variables. Thus, it might be concluded that before eye-gaze behavior becomes systematically related to such variables as liking or attraction, some stabilization of a relationship may be

necessary. At least the time of acquaintance should perhaps be longer than the 15 minutes used in the present study.

Physical Attractiveness and Initial Heterosexual Attraction

Hypothesis 6 predicted that physical attractiveness would be systematically related to initial heterosexual attraction. This hypothesis was derived from Murstein's formulations which emphasize the rather exclusive importance of stimulus variables in initial heterosexual attraction and involvement. Somewhat surprisingly, this prediction received rather weak support from the results of the present study. The only reliable positive correlations between heterosexual attraction and independently-rated physical attractiveness occurred for female IJS Attraction and Rubin Love scores (see Table XVIII). Partner-rated physical attractiveness, on the other hand, was found to be significantly correlated with every post-experimental attraction measure with the exception of male IJS Esteem scores. These correlations, of course, were assumed to have been confounded with personality impressions since the attractiveness scales were administered to the subjects following the interaction session.

Interestingly, correlation of partner-rated and experimenter-rated physical attractiveness for females was large and highly reliable, while the same correlation for males was considerably smaller and of marginal significance. It would appear from this finding that males tend to be relatively objective about a woman's physical attractiveness, while women, on the other hand, seem to be rather strongly influenced by their impressions of a male as a person when making judgments of his

physical attractiveness. Conventional wisdom suggests that the "looks" of a potential heterosexual partner are more important to the man than to the woman. The present results while tending to confirm this notion, do appear to suggest, however, that the importance of physical attractiveness to initial heterosexual attraction may actually be difficult to assess independently of personality impressions, especially for females.

In light of the many studies of heterosexual attraction which have reported impressive correlations between physical appearance and attraction for both males and females (see Chapter I), the overall relationship between independently-rated physical attractiveness and interpersonal attraction found for the present study appears to be a surprisingly weak one. It will be recalled, however, that the "blind date" paradigm used in many of these studies was criticized earlier (in Chapter I) because of the demand characteristics of a sexual or romantic nature implicit in the acquaintance format used. It was proposed that the sexual evaluation implied may have led the subjects to focus rather exclusively on the social desirability of their partner's physical appearance, rather than on potentially gratifying personality or need characteristics. The present study, on the other hand, not only used an interaction format which was less specifically focused on potential sexual or romantic attachment, but the subjects were actually instructed to find out some things about their partner as a person. Thus, stimulus variables such as physical attractiveness may not have been forced into assuming the central potency they did in the "computer date" investigations. It might be argued from Murstein's perspective that the present study was therefore not a valid test of SVR theory. However, in this

writer's opinion the present study actually represents a more realistic analogue of the actual process (in the real world) of heterosexual acquaintance and attraction than do the computer dance, coke date, etc. methodologies reviewed in Chapter I. That is, potential heterosexual partners usually are, in fact, "thrown together" in a kind of "closed field" situation. Furthermore, satisfaction of interpersonal needs no doubt provides a much greater source of motivation for heterosexual relationship formation in the real world than in the experimental situations described above.

Implications for Further Research

The present study utilized a somewhat unique and original methodology for exploring the process of initial heterosexual impression formation and attraction. The laboratory analogue developed for use in this investigation seemed to allow direct and detailed observation and measurement of the process of getting acquainted while remaining relatively unobtrusive and still permitting a fairly comfortable interaction between the subjects.¹ This procedure seems to be a clear improvement over previous methodologies such as those involving computer dances, coke dates, etc., where the interaction between the members of a dyad were uncontrolled and rarely even observed, or those using bogus stranger paradigms (such as those typically used by Byrne and his

¹In responding to post-experimental queries about their experiences during the interaction session, most subjects reported that they were aware at first of being observed, but that very quickly they became more conscious of their partner than of the observation procedures being used. Admittedly, however, a laboratory setting does have limits in terms of inferences to the natural environment.

associates) where the correspondence to natural occurring events may be relatively low.

The present acquaintance and interaction format might well be extended to other person-perception or interpersonal relations studies not necessarily involving heterosexual attraction. The success of the methodology developed for measuring ocular behavior (i.e., the excellent inter-judge reliability obtained), for example, may point to possible useful applications of this procedure outside the context of the present investigation. Retaining the present interaction paradigm, on the other hand, it might be interesting to observe whether or not (and if so, how) ocular behavior stabilizes over a series of interaction sessions with the same initial stranger, and if any eventual correlation with attraction does emerge.

Another possible extension of the present procedure might be a cross-sectional study of both subjective and interpersonal factors involved in the emergence of liking and attraction as a function of the length of acquaintance. By using the data reported and described in Appendix A as a baseline, comparisons of relationships between various subject variables, person-perceptions, and attraction measures following different durations of acquaintance could be attempted (i.e., say 30 minutes, 2 hours, 4 hours, etc., total of laboratory interaction time over several weeks). Such a procedure might answer questions about whether the same correlates of attraction which emerge after 15 minutes acquaintance are found to be also related to attraction outcomes following say four hours of interaction. This might have a bearing upon the issue of the importance and stability of initial impressions in general.

The cross-sectional procedure outlined above might also be useful for investigating the temporal correlates of need-resource resonance. The findings of the present study suggest that this resonance, although operative, was rather minimally accurate after only 15 minutes acquaintance. It would be interesting to observe the improvements in accuracy, if any, after different durations of acquaintance, perhaps delineating that point at which need-resource resonance provides a really substantial amount of information about the need system of another person.

With regard to the use of FIRO-B compatibility indices, the results of the present investigation suggest that the differentiation of complementarity and similarity compatibility as defined by Close (1975) may result in confounding with interpersonal anxiety for the inclusion and affection domains. Thus, future research efforts directed toward investigating need compatibility in these areas should perhaps use a global measure (combination of sk and ck) as was done in the present study. For control, on the other hand, in order to avoid the complex problems of interpretation which emerged in this investigation, compatibility should perhaps be defined in terms of high ck, low sk compatibility extremes. In fact, because of the lack of adequate samples in the present study, empirical tests of the type of control compatibility most instrumental to love attraction remains to be performed. To avoid possible confounding with individual interpersonal maladjustment, however, confining such tests to comparisons of attraction levels occurring with ck incompatible, sk compatible dyads with those found for ck compatible, sk incompatible dyads appears advisable.

For the present study, it was found that the effects of compatibility on heterosexual attraction increase significantly when an

overall, as opposed to a need domain-specific index of compatibility is used. The original subject-selection methodology, designed to select compatible or incompatible dyads within each domain, separately, apparently does not produce extremely "pure" examples of either. This is probably because of the rather broad constraint limits allowed for compatibility scores in the two need domains not under consideration. Therefore, any future investigator wishing to study the effects of need compatibility in the separate FIRO-B domains would perhaps be well advised to utilize narrower constraint levels, even if this requires using fewer dyads (smaller N's) and a less complex design. Indeed, at this early stage in the development of methodologies for the laboratory study of initial heterosexual attraction, it might be argued that an absolute measure of compatibility, composed of sk and ck summed across all three FIRO-B need domains, actually provides a more realistic index, at least considering liking or esteem as opposed to love attraction.

Although the present investigation focused exclusively on initial heterosexual attraction, it might be interesting to explore present definitions of interpersonal need compatibility (ck and sk), as it is present in established heterosexual couples at different levels of intimacy. Although several investigators have explored FIRO-B compatibility among dating, engaged, and married couples (e.g., Centers & Granville, 1971; Kerckhoff & Daiis, 1962), they have generally defined compatibility in a manner different from that used in the present investigation. Centers and Granville, for example, used a compatibility index composed of a combination of Schutz's rK, oK, and xK (see Figure 1) measure. This index, unlike those used for the present study, is rather difficult to interpret in terms of traditional conceptions of

dyadic need compatibility (i.e., similarity and complementarity compatibility). Kerckhoff and Davis, although they used an index of complementarity compatibility identical to that of the present study (i.e., Schutz's rK) defined similarity in terms of value consensus rather than need compatibility. In light of arguments presented earlier favoring total homogamy (complementarity and similarity) compatibility as most instrumental to need gratification within the inclusion and affection domains, it would appear that Kerckhoff and Davis' rather circumscribed definition does not allow clear-cut comparisons of their results to the present findings. It is worthy of note, however, that both Centers and Granville and Kerckhoff and Davis did find inclusion compatibility to be related to successful heterosexual relationships.

It might be of interest, therefore, to compute the compatibility indices used in the present study for samples of dating, engaged and married couples for each of the separate FIRO-B domains, and perhaps for a combination of all three. Comparisons could then be made between the patterns of need compatibility associated with initial attraction, and those found at different qualitative or temporal stages of a heterosexual relationship. This procedure might provide clues to the long-term importance and stability of those types of need compatibility found to be associated with initial heterosexual attraction.

Finally, the intercorrelations among the various dependent measures of person-perception and attraction obtained in the present study, and described in Appendix A, suggest a number of intriguing empirical relationships perhaps worthy of further investigation. It seems likely that

a systematic factor analysis of these intercorrelations might be useful in beginning to construct a meaningful picture of the process of initial heterosexual impression formation and attraction.

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APPENDIX A

POST HOC ANALYSES: THE CORRELATES OF INITIAL
HETEROSEXUAL IMPRESSION FORMATION
AND ATTRACTION

Tables XXI and XXII present the intercorrelations of all dependent measures used in the experiment. Table XXI summarizes the overall correlations across all subjects irrespective of sex, while Table XXII lists the intercorrelations of the measures for males and females, separately. Significance levels are included for both tables. For Table XXII differences between male and female correlations were tested by means of Fisher's r to z Transformation (Snedecor & Cochran, 1967).

Modified Rubin Liking Scale

Reference to Table XXI reveals significant correlations between the Rubin Liking Scale and the Rubin Love Scale, $r(70) = .48$, $p < .001$, IJS Attraction Scale, $r(30) = .52$, $p < .001$, and IJS Esteem Scale, $r(70) = .54$, $p < .001$. A significant correlation was also found between Rubin Liking scores and the physical attractiveness rating assigned subjects by their dyadic partner, $r(70) = .48$, $p < .001$. Table XXII indicates that the first three correlations above were somewhat stronger for females than for males. This tendency was reliable only for IJS Esteem, however, $z = 1.98$, $p < .05$.

A significant negative correlation was found between Rubin Liking scores and the total amount of gaze directed toward a female subject by her dyadic partner, $r(34) = -.40$, $p < .05$. A significant positive correlation was noted between the liking scores assigned male subjects and the amount of affection that they were seen as typically expressing, $r(34) = .43$, $p < .01$, in a relationship. A similar association between the two measures was not found for females, $r(34) = -.20$, $p > .24$. In fact, the two correlations were significantly different, $z = 2.65$, $p <$

TABLE XXI.
 PEARSON CORRELATION COEFFICIENTS FOR INTERCORRELATIONS OF
 DEPENDENT VARIABLES FOR ALL SUBJECTS¹

	Rubin Liking	Rubin Love	IJS Att.	IJS Est.	Eye-Gaze ¹	Partner Att.	FIRO-B Scale Score Predicted by Partner											
							OUEI	OUI	OUEC	OUGC	OUEA	OUIA						
Rubin Liking																		
Rubin Love	48***																	
IJS Att.	52***	50***																
IJS Est.	54***	15	45***															
Eye-Gaze ²	-25*	02	06	-04														
Partner Att.	48***	45***	37**	30*	-08													
OUEI	15	06	-05	-07	-01	-09												
OUI	02	-13	-23*	-07	07	-23*	73***											
OUEC	-18	-22 [†]	-24*	-18	-03	-17	05	17										
OUGC	13	03	01	-01	-02	03	13	03	-23*									
OUEA	16	13	-05	-04	05	-06	56***	46***	-03	16								
OUIA	05	05	-14	03	11	-16	42***	50***	19	-21 [†]	59***							
Eye-Gaze ³	-13	-07	-18	04	-01	-18	10	25 [†]	39***	-20*	32**	50***						
Physical Att.	08	19	-18	-15	-08	46***	-30**	-32**	-08	08	-17	-34**						

N=72

¹For convenience all decimals have been dropped from correlation coefficients presented in this table.

²Being looked at.

³Looking.

[†]p < .10.

*p < .05.

**p < .01.

***p < .001.

TABLE XXII
PEARSON CORRELATION COEFFICIENTS FOR INTERCORRE-
LATIONS OF ALL DEPENDENT VARIABLES
AS A FUNCTION OF SEX¹

	Rubin Like		Rubin Love		IJS Att.		IJS Est.		Eye-Gaze ²		Partner Att.	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Rubin Liking												
Rubin Love	47**	50**										
IJS Att.	63***	36*	54***	45**								
IJS Est.	69***	34*	42**	-16	63***	20						
Eye-Gaze ²	-16	-40*	03	01	16	-12	01	-11				
Partner Att.	44**	54***	44***	47**	44*	33*	40*	21	01	-17		
OUe1	20	10	26	-12	14	-21	-09	-02	01	01	-17	-04
OUWI	13	-08	03	-25	03	-46**	-08	-06	09	08	-29 [†]	-21
OUeC	-28 [†]	-08	41*	-05	-16	-39*	-21	-17	11	-22	-22	-12
OUWC	25	01	-07	15	01	12	07	-07	01	-01	-07	10
OUeA	43**	-20	44**	-19	14	-26	18	-29 [†]	12	-02	-04	-09
OUWA	30 [†]	-25	28 [†]	-17	07	-42**	10	-05	08	17	-02	-27
Physical Att.	-09	21	-15	48**	-04	40*	-22	-09	-19	02	29 [†]	61***
Eye-Gaze ³	-08	-18	-01	-11	-10	-24	09	01	-01	-01	-25	-13

N=36

¹For convenience all decimals have been dropped from correlation coefficients presented in this table.

²Being looked at.

³Looking.

[†]p < .10.

*p < .05.

**p < .01.

***p < .001.

FIRO-B Score Predicted by Partner											
OUEI		OUWI		OUEC		OUWC		OUEA		OUWA	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
74***	72***										
17	-02	29 [†]	10								
28 [†]	-11	27	-21	-06	-36*						
59***	51**	51**	42**	-11	09	34*	-09				
46**	42**	48**	54***	07	30 [†]	07	-49**	62**	58***		
-24	-33*	-20	-39**	-10	-09	08	14	-16	-15	41**	-30 [†]
-02	19	21	27	31 [†]	48**	-18	-27	14	49**	37*	62***

.01. A similar trend was found for male wanted affection and liking scores, males, $r(34) = .30$, $p < .10$; females, $r(34) = -.25$, $p > .14$; $z = 2.20$, $p < .05$. A trend in the direction of a negative correlation was found between liking scores and estimates of males' expressed control scores, $r(34) = -.28$, $p < .10$.

In summary, the Rubin Liking Scale seems to be moderately correlated with the Rubin Love Scale, the IJS scales, and partner's rating of physical attractiveness over all subjects regardless of sex, with the exception of esteem scores which appear to be somewhat more highly correlated for males. Apparently, well-liked males were also esteemed, but liked females were not necessarily also esteemed. For the eye-gaze measure, it appears that the more a woman was liked the less she was looked at by her male partner. For partner-predicted FIRO-B scores, the correlations with Rubin Liking suggest that men seen as needing to express control tended to be slightly less well-liked by their female partners.

Modified Rubin Love Scale

Rubin Love Scale scores were moderately correlated with IJS Attraction Scale scores, $r(70) = .50$, $p < .001$, and with partner's ratings of physical attractiveness, $r(70) = .45$, $p < .001$, over all subjects. A trend in the direction of a negative association appeared between love scores and partner-predicted FIRO-B expressed control scores over all subjects, $r(70) = -.22$, $p < .10$.

Inspection of Table XXII reveals differential correlations as a function of sex for IJS Esteem, predicted expressed affection, predicted wanted affection, and independently rated physical attractiveness. For

esteem scores, correlations with love scores were positive, moderate, and statistically reliable for males, $r(34) = .42$, $p < .01$, but not for females, $r(34) = -.16$, $p < .63$. The difference between the two correlations was also reliable, $z = 2.44$, $p < .05$. A significant positive correlation was also found only for males between predicted expressed control and love scores, $r(34) = .45$, $p < .05$, and between love scores and expressed affection, $r(34) = .44$, $p < .01$. The sex difference for the latter correlation was reliable, $z = 2.61$, $p < .05$.

In summary, the modified Rubin Love Scale appears to tap elements in common with the Rubin Liking and IJS Attraction Scales, but seem to have little relationship with IJS esteem for females. Females appear to give higher love scores to males they perceive as possessing greater needs to express control in interpersonal relationships, a result in direct opposition to that found for correlations with the Rubin Liking Scale. Love attraction, however, appears to operate in a fashion similar to liking attraction for affectional needs. Males who were seen as having strong needs to express affection, and to a lesser extent, receive it, were recipients of higher attraction scores on both the love and liking scales. Love scores seem to have little relationship with eye-gaze behavior during the initial heterosexual acquaintance process, but are, in contrast to liking scores, positively related to a woman's physical attractiveness.

IJS Attraction Scale

In addition to the correlations described above, IJS Attraction was also found to be significantly correlated with IJS Esteem, $r(70) = .45$, $p < .001$, predicted wanted inclusion scores, $r(70) = -.23$, $p <$

.05, predicted expressed control, $r(70) = -.24$, $p < .05$, and partner's rating of physical attractiveness, $r(70) = .37$, $p < .01$. Sex effects appeared for a number of correlations. The correlation of Attraction and Esteem scales was significant only for males, $r(34) = .63$, $p < .001$, and this sex difference was reliable, $z = 2.15$, $p < .05$. On the other hand, a moderate negative correlation was found between Attraction scores and predicted wanted inclusion for females, $r(34) = -.46$, $p < .01$, but not for males, $r(34) = .03$, $p > .86$. This difference is reliable, $z = 2.00$, $p < .05$. The negative association between Attraction scores and expressed control, described above, apparently existed primarily for females, $r(34) = -.39$, $p < .05$. IJS Attraction and wanted affection were negatively correlated for females, $r(34) = -.42$, $p < .01$, and positively but insignificantly correlated for males, $r(34) = .07$, $p > .67$. The difference was reliable, $z = 2.07$, $p < .05$. IJS Attraction was, like the Rubin Love Scale, significantly and positively related to independently rated physical attractiveness for females, $r(34) = .40$, $p < .05$, but not for males, $r(34) = -.04$, $p > .80$.

In summary, attraction and esteem apparently co-vary for males but not for females. Attraction scores co-vary with partner ratings of physical attractiveness for both males and females, but IJS Attraction is correlated with independent ratings of physical attractiveness only for females. Women, but not men, who receive higher IJS Attraction scores are apparently seen by their partner as having less need for interpersonal inclusion. The higher the Attraction score received by a female subject, the less she is seen as expressing control in a relationship. Unlike the case for love scores, no relationship apparently exists between IJS Attraction scores and expressed control scores

predicted for males. Finally, IJS Attraction does not appear to be related to eye-gaze behavior exhibited during the interaction session.

IJS Esteem Scale

In addition to the intercorrelations described above, two differential sex effects were noted for IJS Esteem. First, correlations of esteem scores and partner's rating of physical attractiveness was significant for males, $r(34) = .40$, $p < .05$, but not for females, $r(34) = .21$, $p > .12$. Second, a trend in the direction of a negative correlation was evidenced for females for the association of esteem scores and predicted expressed affection values, $r(34) = -.29$, $p < .10$. For males the correlation = $.18$, $p > .29$. This difference approached significance, $z = 1.92$, $p < .06$.

The possibility appears to exist that ratings of physical attractiveness of males by their female partner may have been confounded by the esteem she holds for him. This apparently was not the case for males' ratings of females. Furthermore, females who were highly esteemed tended to be seen as having less need to express affection in a relationship. IJS Esteem scores do not appear to be related to eye-gaze behavior as measured in the present study.

Partner's Rating of Physical Attractiveness

The correlation of this measure with other dependent variables has already been extensively described. Two additional correlations of interest require description, however. Partner's rating of physical attractiveness was found to be only moderately correlated with independent ratings of physical attractiveness, $r(70) = .46$, $p < .001$. A

moderate but non-significant sex effect was noted for this correlation, $z = 1.58$, $p < .11$. For males, only a trend toward significance was exhibited, $r(34) = .29$, $p < .10$, while for females a relatively large positive correlation, $r(34) = .61$, $p < .001$, emerged.

An overall negative correlation was found between partner-rated physical attractiveness and partner-predicted wanted inclusion scores, $r(70) = -.23$, $p < .05$. Considering each sex separately, however, this relationship emerged as only a trend for males, $r(34) = .29$, $p < .10$, and was non-significant for females.

Thus, the correlations described above seem to suggest that judgments of physical attractiveness may be made on a more objective basis for females than for males. Also, persons judged as physically attractive may generally be seen as having less need for social inclusion, particularly if they are men.

Intercorrelations of Partner-Predicted FIRO-B Scale Scores

Expressed Inclusion

Intercorrelations of expressed inclusion with other partner-predicted FIRO-B scale scores are presented in Tables XXI and XXII. Table XXI reveals overall significant positive correlations of this measure with wanted inclusion, $r(70) = .73$, $p < .001$, expressed affection, $r(70) = .56$, $p < .001$, and wanted affection, $r(70) = .42$, $p < .001$.

Wanted Inclusion

Table XXI reveals significant positive correlations between wanted

inclusion and expressed, $r(70) = .46$, $p < .001$, and wanted, $r(70) = .50$, $p < .001$, affection. A trend (Table XXII) was noted for the correlation of male wanted inclusion and expressed control scores, $r(34) = .29$, $p < .10$.

Expressed Control

A low but significant negative correlation was found between predicted expressed control and predicted wanted control, $r(70) = -.23$, $p < .05$. Inspection of Table XXII, however, reveals that this association was confined primarily to females (females, $r(34) = -.36$, $p < .05$; males, $r(34) = -.06$, $p > .73$). A trend toward significance was observed for the expressed control-wanted affection correlation, $r(70) = .19$, $p < .10$. This effect was also confined to females, however (females, $r(34) = .30$, $p < .10$; males, $r(34) = -.11$, $p > .54$).

Wanted Control

Table XXI reveals an overall trend toward a negative association between wanted control and wanted affection, $r(70) = -.21$, $p < .10$. Table XXII indicates, however, that this trend stems from a pronounced sex effect. The correlation for females was moderate, negative, and highly reliable, $r(34) = -.49$, $p < .01$, while that for males was low, positive, and non-significant, $r(34) = .07$, $p > .69$. The difference between the two correlations was significant well beyond conventional levels, $z = 2.42$, $p < .05$.

Expressed and Wanted Affection

An overall significant correlation was found between partner-predicted expressed and wanted affection scores, $r(70) = .58$, $p < .001$.

Summary

In general, the intercorrelations within and between the scale scores in the Inclusion and Affection domains were positive and reliable. This result is consistent with the patterning of intercorrelations reported by Schutz (1966) for original FIRO-B validation samples, and is similar to the intercorrelations found for the actual FIRO-B scale scores for subjects in the present experiment. In effect, persons who are seen as having strong expressed inclusion needs, for example, are also seen as having pronounced wanted inclusion needs as well. They also tend to be seen as having relatively strong needs to express and receive affection from others. Such effects appear to occur fairly equally across sex.

For the control domain, on the other hand, the patterning of intercorrelations with other partner-predicted FIRO-B scale scores is apparently more complex. The correlation between expressed and wanted control, for example, was negative and significant, while the same correlation for actual FIRO-B scores was moderate and positive. Furthermore, this negative correlation seemed confined to females, while for males it was not significantly different from zero. Thus, it appears that women were seen as either very controlling, or very dependent, rarely as having both types of needs. Women seen as having strong expressed control needs were also seen as having high wanted affection needs.

This relationship was again not present for males, however. On the other hand, males seen by their female partners as having high levels of expressed control were also seen as wanting a great deal of inclusion, but this relationship failed to appear for females. Finally, wanted control-wanted affection correlations were significantly different for the two sexes. Females seen as high in wanted affection were viewed as low in wanted control, and vice-versa. No correlation at all was found between these two scores for males. Thus, on the whole, the most pronounced sex effects were found in association with predicted control scores.

Eye-Gaze and Partner-Predicted FIRO-B

Scale Scores

Inspection of Table XXI reveals several correlations of note between eye-gaze (looking as opposed to being looked at) and partner-predicted FIRO-B scale scores. An overall positive correlation emerged between looking and predicted wanted inclusion scores, $r(70) = .26$, $p < .05$, between looking and predicted expressed control, $r(70) = .39$, $p < .001$, and between looking and predicted expressed affection, $r(70) = .32$, $p < .01$, and between looking and wanted affection, $r(70) = .50$, $p < .001$. A sex effect was present for the latter correlation. For females the correlation was moderate and significant, $r(34) = .49$, $p < .01$, while for males it was non-significant, $r(34) = .14$, $p > .56$. Thus, eye-gaze may actually provide more information about the interpersonal characteristics of the looker than about his attraction to the lookee. The present results suggest that persons who engage in considerable facial gaze were seen by their partners as high in expressed

control and affection, and as wanting a great deal of affection from others.

Experimenter Rated Physical Attractiveness and
Partner-Predicted FIRO-B Scale Scores

Table XXI reveals several overall negative correlations between independently rated physical attractiveness and predicted FIRO-B scores. These include expressed inclusion, $r(70) = -.30$, $p < .01$, wanted inclusion, $r(70) = -.32$, $p < .01$, and wanted affection, $r(70) = -.34$, $p < .01$. Sex effects were also noted. Physically attractive females, but not physically attractive males were seen as expressing and wanting less inclusion. Physically attractive members of both sexes were seen by their partners as needing less affection from others.

APPENDIX B

LEVEL OF ACQUAINTANCE FORM

Please complete this form by placing an X in the appropriate box next to the name listed below.

This is to indicate your level of acquaintance with this person.

	1	2	3	4	5	6
	Don't know him/her at all	Know who he/she is but have not talked to him/her	Have spoken to him/her a few times in class but don't really know him/her	Have socialized with him/her outside of class	He/She is a friend	He/She is a good friend
Name of Partner						

APPENDIX C

PREDICTED FIRO-B FOR PARTNER

Please complete this in terms of how you think the person you were with today would probably answer each statement. Base your answers on the general feelings and impressions you got of your partner.

Even if you feel that you don't have enough information to be completely sure of your answers, please give your best guess.

FIRO-B

WILLIAM C. SCHUTZ, Ph.D

DIRECTIONS: This questionnaire is designed to explore the typical ways you interact with people. There are, of course, no right or wrong answers; each person has his own ways of behaving.

Sometimes people are tempted to answer questions like these in terms of what they think a person *should* do. This is *not* what is wanted here. We would like to know how you *actually* behave.

Some items may seem similar to others. However, each item is different so please answer each one without regard to the others. There is no time limit, but do not debate long over any item.

NAME _____

GROUP _____

DATE _____ AGE _____

MALE _____ FEMALE _____

	I	C	A
e			
w			



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For each statement below, decide which of the following answers best applies to you. Place the number of the answer in the box at the left of the statement. Please be as honest as you can.

1. usually 2. often 3. sometimes 4. occasionally 5. rarely 6. never

- | | |
|---|---|
| <input type="checkbox"/> 1. I try to be with people. | <input type="checkbox"/> 9. I try to include other people in my plans. |
| <input type="checkbox"/> 2. I let other people decide what to do. | <input type="checkbox"/> 10. I let other people control my actions. |
| <input type="checkbox"/> 3. I join social groups. | <input type="checkbox"/> 11. I try to have people around me. |
| <input type="checkbox"/> 4. I try to have close relationships with people. | <input type="checkbox"/> 12. I try to get close and personal with people. |
| <input type="checkbox"/> 5. I tend to join social organizations when I have an opportunity. | <input type="checkbox"/> 13. When people are doing things together I tend to join them. |
| <input type="checkbox"/> 6. I let other people strongly influence my actions. | <input type="checkbox"/> 14. I am easily led by people. |
| <input type="checkbox"/> 7. I try to be included in informal social activities. | <input type="checkbox"/> 15. I try to avoid being alone. |
| <input type="checkbox"/> 8. I try to have close, personal relationships with people. | <input type="checkbox"/> 16. I try to participate in group activities. |

For each of the next group of statements, choose one of the following answers:

1. most people 2. many people 3. some people 4. a few people 5. one or two people 6. nobody

- | | |
|--|---|
| <input type="checkbox"/> 17. I try to be friendly to people. | <input type="checkbox"/> 23. I try to get close and personal with people. |
| <input type="checkbox"/> 18. I let other people decide what to do. | <input type="checkbox"/> 24. I let other people control my actions. |
| <input type="checkbox"/> 19. My personal relations with people are cool and distant. | <input type="checkbox"/> 25. I act cool and distant with people. |
| <input type="checkbox"/> 20. I let other people take charge of things. | <input type="checkbox"/> 26. I am easily led by people. |
| <input type="checkbox"/> 21. I try to have close relationships with people. | <input type="checkbox"/> 27. I try to have close, personal relationships with people. |
| <input type="checkbox"/> 22. I let other people strongly influence my actions. | |

For each of the next group of statements, choose one of the following answers:

1. most people 2. many people 3. some people 4. a few people 5. one or two people 6. nobody

- | | |
|--|---|
| <input type="checkbox"/> 28. I like people to invite me to things. | <input type="checkbox"/> 35. I like people to act cool and distant toward me. |
| <input type="checkbox"/> 29. I like people to act close and personal with me. | <input type="checkbox"/> 36. I try to have other people do things the way I want them done. |
| <input type="checkbox"/> 30. I try to influence strongly other people's actions. | <input type="checkbox"/> 37. I like people to ask me to participate in their discussions. |
| <input type="checkbox"/> 31. I like people to invite me to join in their activities. | <input type="checkbox"/> 38. I like people to act friendly toward me. |
| <input type="checkbox"/> 32. I like people to act close toward me. | <input type="checkbox"/> 39. I like people to invite me to participate in their activities. |
| <input type="checkbox"/> 33. I try to take charge of things when I am with people. | <input type="checkbox"/> 40. I like people to act distant toward me. |
| <input type="checkbox"/> 34. I like people to include me in their activities. | |

For each of the next group of statements, choose one of the following answers:

1. usually 2. often 3. sometimes 4. occasionally 5. rarely 6. never

- | | |
|---|---|
| <input type="checkbox"/> 41. I try to be the dominant person when I am with people. | <input type="checkbox"/> 48. I like people to include me in their activities. |
| <input type="checkbox"/> 42. I like people to invite me to things. | <input type="checkbox"/> 49. I like people to act close and personal with me. |
| <input type="checkbox"/> 43. I like people to act close toward me. | <input type="checkbox"/> 50. I try to take charge of things when I'm with people. |
| <input type="checkbox"/> 44. I try to have other people do things I want done. | <input type="checkbox"/> 51. I like people to invite me to participate in their activities. |
| <input type="checkbox"/> 45. I like people to invite me to join their activities. | <input type="checkbox"/> 52. I like people to act distant toward me. |
| <input type="checkbox"/> 46. I like people to act cool and distant toward me. | <input type="checkbox"/> 53. I try to have other people do things the way I want them done. |
| <input type="checkbox"/> 47. I try to influence strongly other people's actions. | <input type="checkbox"/> 54. I take charge of things when I'm with people. |

APPENDIX D

INTERPERSONAL JUDGMENT SCALE

On this scale, please rate the other person in this experiment as accurately as possible.

1. Personal Feelings (check one)

- I like this person very much.
 I like this person.
 I like this person to a slight degree.
 I neither particularly like nor particularly dislike this person.
 I dislike this person to a slight degree.
 I dislike this person.
 I dislike this person very much.

2. Respect (check one)

- I believe that this person is, to a great extent, not respected by those who know him.
 I believe that this person is not respected by those who know him.
 I believe that this person is, to a slight degree, not respected by those who know him.
 I believe that this person is neither particularly respected nor not respected by those who know him.
 I believe that this person is, to a slight degree, respected by those who know him.
 I believe that this person is respected by those who know him.
 I believe this this person is, to a great extent, respected by those who know him.

3. Intelligence (check one)

- I believe that this person is very much above average in intelligence.
 I believe that this person is above average in intelligence.
 I believe that this person is slightly above average in intelligence.
 I believe that this person is average in intelligence.
 I believe that this person is slightly below average in intelligence.
 I believe that this person is below average in intelligence.
 I believe that this person is very much below average in intelligence.

4. Working together in an experiment (check one)

- I believe that I would very much dislike working with this person in another experiment.
 I believe that I would dislike working with this person in another experiment.
 I believe that I would dislike working with this person in another experiment to a slight degree.

- _____ I believe that I would neither particularly dislike nor particularly like working with this person in another experiment.
- _____ I believe that I would enjoy working with this person in another experiment to a slight degree.
- _____ I believe that I would enjoy working with this person in another experiment.
- _____ I believe that I would very much enjoy working with this person in another experiment.

APPENDIX E

PROJECTED AFFECTIVE IMPRESSIONS SCALE

Instructions:

Please indicate with an X the extent to which each of the following statements describe your feelings about the person you were with today.

You will notice that some of the statements seem to describe various ways you might feel about and behave towards someone with whom you already have a relationship (already know quite well). However, based on your impressions of your partner, RIGHT NOW, we would like you to imagine how you might feel if you had already developed such a long-term relationship with him or her. Your answers will be kept completely confidential.

For example, based on your feelings about _____ (your partner) right now, if you had known each other a long time how accurate do you think the following statement would be?

"When I am short of money I don't hesitate to ask _____ (your partner today) for a loan."

Not at all true;
disagree completely

moderately true
agree to some extent

definitely true;
agree completely

Remember, you can place the X anywhere along the line.

*1. I feel that I can confide in _____ about virtually everything.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*2. I would do almost anything for _____.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*3. If I could never be with _____, I would feel miserable.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

4. I think that _____ is unusually well-adjusted.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

5. I would highly recommend _____ for a responsible job.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*6. If I were lonely, my first thought would be to seek _____ out.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

7. In my opinion, _____ is an exceptionally mature person.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

8. I have great confidence in _____'s good judgment.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*9. One of my primary concerns is _____'s welfare.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

10. Most people would react favorably to _____ after a brief acquaintance.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*11. I would forgive _____ for practically anything.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

12. I think that _____ is one of those people who quickly wins respect.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

13. _____ is one of the most likable people I know.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*14. I feel responsible for _____'s well-being.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*15. I would greatly enjoy being confided in by _____.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

16. _____ is the sort of person whom I myself would like to be.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

17. It seems to me that it is very easy for _____ to gain admiration.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*18. It would be hard for me to get along without _____.

Not at all true; disagree completely	Moderately true; agree to some extent	Definitely true; agree completely
---	--	--------------------------------------

*Love Scale items.

APPENDIX F

PARTNER'S PHYSICAL ATTRACTIVENESS

On the scale below please rate your partner's physical attractiveness (looks).

Very
Unattractive ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ : ___ Attractive
Very

APPENDIX G

SIMPLE EFFECTS OF COMPATIBILITY, FIRO-B NEED
DOMAIN AND SEX FOR RUBIN LOVE SCORES

TABLE XXIII

PARTIAL SUMMARY OF SIMPLE EFFECTS OF COMPATIBILITY,
 FIRO-B NEED DOMAIN AND SEX (RUBIN LOVE SCORES)

Source	ss	df	ms	F
<u>Between Dyads</u>				
Compatibility x FIRO	936.69	2	468.35	4.44*
Bet. comp. for inclusion	345.03	1	345.03	3.27
Bet. comp. for control	475.13	1	475.13	4.50*
Bet. comp. for affection	117.04	1	117.04	1.11
Dyads w. groups	3166.50	30		
<u>Within Dyads</u>				
Sex x FIRO x Comp.	871.58	2	435.79	3.92*
Comp. x sex for inclusion	425.03	1	425.03	3.83
Comp. x sex for control	515.05	1	515.05	4.63*
Comp. x sex for affection	221.88	1	221.88	2.00
Sex x dyads w. groups	3333.17	30	111.11	
Comp. x FIRO for males	572.44	2	286.22	2.64
Comp. x FIRO for females	1250.66	2	625.33	5.77*
Pooled error			108.33	
FIRO x sex for compatibility	687.45	2	343.73	3.09
FIRO x sex for incompatibility	302.17	2	151.09	1.40
Compatibility within females for control	990.09	1	990.09	9.14**
Compatibility within males for control			(means are equal)	
FIRO for female compatibility	472.33	2	236.16	2.18
FIRO for female incompatibility	871.00	2	435.50	4.02*

*p < .05.

**p < .01.

APPENDIX H

CELL MEANS FOR INDIVIDUAL FIRO-B SCALE SCORES
WITHIN THE MAIN EXPERIMENTAL DESIGN

TABLE XXIV
 CELL MEANS FOR INDIVIDUAL FIRO-B SCALE SCORES
 OF ALL EXPERIMENTAL SUBJECTS

FIRO-B Scale Score	Compatibility Type	FIRO-B Need Domain					
		Inclusion		Control		Affection	
		Male	Female	Male	Female	Male	Female
I_e	Compatible \bar{X}	6.50	7.00	5.00	5.50	3.83	5.33
	S.D.	(.84)	(1.10)	(2.76)	(1.22)	(2.32)	(1.97)
I_w	Incompatible \bar{X}	3.00	6.16	5.50	6.00	5.00	5.67
	S.D.	(2.76)	(2.14)	(1.76)	(2.00)	(2.10)	(2.07)
C_e	Compatible \bar{X}	7.60	6.67	4.67	4.50	4.67	5.00
	S.D.	(1.75)	(1.86)	(2.94)	(3.27)	(4.08)	(2.45)
C_w	Incompatible \bar{X}	1.83	7.17	6.00	4.67	4.83	4.00
	S.D.	(3.25)	(2.14)	(2.45)	(2.88)	(2.93)	(3.35)
A_e	Compatible \bar{X}	3.17	2.17	3.50	2.67	4.17	2.83
	S.D.	(1.60)	(1.72)	(2.26)	(1.03)	(3.43)	(1.94)
A_w	Incompatible \bar{X}	2.00	2.33	3.00	3.33	2.17	4.00
	S.D.	(.90)	(2.25)	(3.90)	(3.45)	(2.14)	(2.19)
C_e	Compatible \bar{X}	3.83	5.17	3.50	2.33	2.83	3.17
	S.D.	(2.14)	(2.23)	(1.38)	(1.03)	(2.79)	(1.60)
C_w	Incompatible \bar{X}	1.50	3.67	3.17	4.83	5.00	4.33
	S.D.	(.84)	(1.03)	(2.40)	(2.64)	(1.55)	(3.08)
A_e	Compatible \bar{X}	4.50	3.83	3.50	2.50	2.00	3.67
	S.D.	(2.59)	(1.47)	(3.02)	(1.52)	(1.10)	(2.34)
A_w	Incompatible \bar{X}	2.33	4.50	3.67	3.83	3.33	5.83
	S.D.	(1.21)	(2.51)	(1.75)	(2.23)	(2.07)	(2.99)
C_e	Compatible \bar{X}	6.50	5.17	4.50	4.00	3.17	3.67
	S.D.	(2.17)	(2.56)	(2.81)	(2.00)	(1.84)	(2.16)
C_w	Incompatible \bar{X}	3.00	6.33	5.17	6.33	2.83	7.33
	S.D.	(2.10)	1.21	(2.48)	(1.51)	(2.32)	(3.14)

N = 6 per cell (main design)

VITA

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Candidate for the Degree of

Doctor of Philosophy

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NEED COMPATIBILITY

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