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Application of the Circumplex Model in the Scaling of Selected Personality Variables

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APPLICATION OF THE CIRCUMPLEX MODEL

IN THE SCALING OF SELECTED PERSONALITY VARIABLES

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LIFE

Ardelina Erika Albano Baldonado was born on May 18, 1936. She is the fifth child of Rosalino and Jovita Albano of Bacarra, Ilocos Norte, Philippines. She attended public primary and elementary schools graduating with honors and personality awards. In 1955, she was graduated high school Valedictorian at La Salette of San Mateo, Isabela, Philippines.

Her Bachelor of Science in Nursing was conferred in April, 1959 by the University of Santo Tomas, Manila, Philippines.

In June, 1960 she came to the United States as an exchange nurse student and was conferred a certificate in Ward Management and Teaching by St. Luke's Hospital, Saginaw, Michigan. In 1961 she moved to Chicago, matriculated for a graduate education at De Paul University where she obtained a Master of Science, majoring in nursing education, on February 14, 1965.

She has been a staff nurse, charge nurse, and nursing instructor at the Alexian Brothers Hospital School of Nursing, Passavant Memorial Hospital School of Nursing, and Northwestern University, Department of Nursing Education. She was acting chairman of Level II Faculty and Instructional Program at St. Francis Hospital School of Nursing, Evanston, Illinois, and has taught for three years at the University of Illinois College of Nursing prior to her appointment as Assistant Professor, Maternal-Child Nursing at Loyola University School of Nursing in 1976. The following year, she was appointed member of the graduate

faculty in the Department of Medical-Surgical Nursing.

In 1978 she was accepted as a doctoral student in Educational Foundations, majoring in Research Methodology.

She was Vice-President of the Philippine Nurses' Association of Chicago in 1966 and was a board member of the association for four years. She has been an avid member of the American Nurses Association, American Nurses' Association Council of Nurse Researchers, the National League for Nursing, American Critical Care Nurses' Association, Sigma, Theta Tau, American Education Research Association, Research on Women in Education, and various school and religious organizations in her community.

She has authored a book published in 1978, has published numerous articles in professional journals such as: The Journal of Continuing Education for Nursing, Philippine Journal of Nursing, Supervisor Nurse, Nephrology Nurse.

She is married to Alfredo Baldonado and has three children, Rozelda Fredelyn, Bradshaw-Mark Patrick, and Erika-Gina Theresa.

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CHAPTER I

INTRODUCTION

Researchers use diversified approaches to categorize "person taxonomies". Likewise, levels of personality abstractions advocated varies from a two-dimensional, that is, having both a vertical and horizontal dimension by Rosch (1978), to a three-level hierarchy by Cantor and Mischel (1979), and a five-level interpersonal personality system (La Forge and Suczek, 1955). In addition, categorizing personality for one purpose or another has ranged from 4 by Carson (1969) to 36 by Benjamin (1974). However, the majority of investigators have used between 8 and 16 categories. Examples are Becker and Krug, 1964; Foa and Foa, 1974; Leary, 1957; Lorr and McNair, 1965; Shaefer, 1959; Wiggins, 1979 (Wiggins, 1980, p. 274). Hence, there is no agreement in the conceptualization of "personalities" and the number of person categories used in personality research. Further, theoretical and empirical orientations as well as interpretation of empirical data vary, at times conflicting (Jackson and Helmes, 1979).

Limiting the concern to interpersonal domain, it should be noted that... "within the domain of interpersonal taxonomies, the radex model provides a more explicit representation of categorization schemas than does the two-dimensional model of Rosch. At each level of abstraction along the vertical dimension, the circumplex model specifies the degree of differentiation expected between a given

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category and other categories that are adjacent, opposite or orthagonal
to it on the circle. It is also important to point out that this
circular relationship is expected to hold only within the interpersonal
domain... thus, in Cantor and Mischel's (1979) taxonomy, the domains of
psychopathology...beliefs...social role...and interpersonal...may re-
present a mixture of domains that are likely to be factorially complex"
(Wiggins, 1980, p. 274).

Despite the various methodologies used in assessing interpersonal
variables, two-dimensional orderings have been reported for many years
(Schaefer, 1961), and the general conceptual model can be traced as
far back as Galen (Roback, 1928). Indeed studies varying widely in
measurement, variables and populations have shown remarkable conver-
gences in both conception and structure. "The circumplex model has
provided a nomological network that has enhanced the meaning and
significance of separate interpersonal variables employed" (Wiggins,
1979, p. 409).

To this end the present study, which is a part of a large scale
project, attempts to lend support to the more recent resurgence of
using Gutman's (1954) Radex-Circumplex Model in assessing the meaning-
ful relationships and lawful ordering of interpersonal behaviors.
Succintly stated, the issues posed here are related to the plausibility
of postulating a more precise direct item-scaling over factoring of
items in personality tests or trait descriptors and the two-dimensionality
of interpersonal behaviors by using a "two-dimensional real space
circumplex to capture the interrelationships among trait terms"
(Wiggins, 1979, p. 409). Thus, the direct-item scaling of personality

tests is asserted as being more precise than item-factoring in delineating the meaningful relationships among trait terms. The procedure also allows for: (1) more meaningful interpretation of the meaning of item-statements, (2) utilizing all the items in defining the particular scale (given that they satisfy the criteria for appropriately scaled items), and (3) discriminating between items, thus item ambiguity is identified.

This study is a replication of one of the procedures used by McCormick (1977) which demonstrated the direct-item scaling and calibrating interpersonal behaviors into the circumplex model.

In the McCormick study (1977) of scaling and calibrating the Interpersonal Checklist (ICL) as used by Leary, "gaps" in the distribution of the items plotted into the circumplex appeared. This indicates a high probability of inadequate representative sampling of items for the categories of the ICL. According to Wiggins (1980), properly scaled personality variables form a lawful ordering of circular pattern of interrelationships without a beginning or end. The concern is to have a necessary and sufficient sampling of items that will cover all discriminable points around the circle to define categories of the domain of interest which demonstrate equal intervals and no gaps (McCormick, 1977; McCormick and Kavanagh, in press).

The Jackson (1967) Personality Research Form AA (PRF-AA) which was systematically developed by a rational (Lorr and Seifert, 1977), substantive approach to test construction (Wiggins, 1973), and has been used for diverse research purposes was used in the present study. To scale the meaning of the items of the PRF, a selected two-dimensional,

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bipolar nine-point method was employed. The sorting procedure used by McCormick (1977) and Slosberg (1941, 1952) was not used. It was postulated, however, that the findings of this study would converge with those obtained by the procedures used by McCormick and Slosberg.

In the present investigation, it was hypothesized that there are two-dimensional, meaningfully related personality traits. Given, that there are only two dimensions of personality traits, a sample of subjects for whom English is the native language should be able to scale the meaning of the items of the PRF on those two dimensions (submission-dominance and hate-love), and that most of the items would scale meaningfully on one or both of those dimensions. Assuming that the PRF items can be scaled into the circumplex model which could lead to a better scale, personality assessment becomes more accurate. Given this premise, the second part of this study was to have a sample of subjects, for whom English was a second language, scale the PRF items using the same procedure. It was hypothesized that the non-English speaking subjects would not scale the items in the same way as the English speaking subjects. Therefore, a non-convergence of the scales by both sample (English speaking and non-English speaking) subjects implies that one cannot make valid inferences on personality traits of these two types of samples using the PRF as an assessment tool.

The PRF, designed by Douglas N. Jackson, can be used to measure a broad spectrum of personality traits and covers normal social and interpersonal behaviors (Anastasi, 1972; Jackson, 1967, 1974, 1976; Lorr, et.al., 1977; Lorr and Seifert, 1977). It is based on the framework of Henry Murray's personology theory and personality taxonomy

(Murray, et.al., 1938). It is a self-report personality inventory that has five formats: Form A, B, AA, BB, and E. All but Form E have been designed for use in college populations. Form E was developed for use in a variety of groups. It has been used successfully with junior and senior high school students, with the aged, in vocational rehabilitation and in job counseling and placement (Jackson, 1974; Lorr, et.al., 1977; Lorr and Seifert, 1977). The parallel forms (Form AA and Form BB) and Form E have 440 items each and provide twenty trait scores. The other parallel forms (Form A and Form B) have 320 items each and provide fourteen trait scores or scales. In all of its five formats, the items in the PRF are "keyed" items. The PRF also includes scales for Infrequency and Social Desirability of responding. If the "infrequency scale attains a raw score of 4 or above, serious consideration should be given to the possibility of errors in scoring or in responding" (Jackson, 1974, p. 12). This infrequency scale and the controlled social desirability of responding during the construction of the items add to the credibility of the PRF as a personality assessment tool (Buros, 1972, 1978; Thorndike, 1977; Wiggins, 1973).

Consequently the major purposes of the present study are to:

(a) test the plausibility of a more precise direct-item scaling over factoring of items in personality tests, and

(b) to examine the orthagonality of the dimensions, submission-dominance scale and hate-love scale.

The hypotheses to be tested are:

Ho$_1$: A sample of English-speaking subjects will not scale the items of the PRF in the circular plane as determined by

the hate-love and submission-dominance dimensions.

Ho$_2$: A sample of subjects for whom English is a second language will not scale the items of the PRF in the circular plane as determined by the hate-love and submission-dominance dimensions.

Ho$_3$: There will be no discernible gaps in the circular frequency distributions of the averaged item responses by either the English-speaking subjects and subjects for whom English is a second language.

Ho$_4$: There will be no significant differences between the item placements to the circular model by both samples of subjects.

Ho$_5$: The personality trait scales as defined by the PRF will not plot uniformly in circular order according to the circumplex model.

Results of the study are to be compared with other similar studies and implications related to personality assessment are systematically discussed.

CHAPTER II

REVIEW OF LITERATURE

Contemporary research in personality theory is characterized by experimentation with the use of increasingly precise measurement in relatively limited behavioral domains (e.g., need achievement, anxiety, authoritarianism). According to Di Caprio (1974), theories of personality are conceptual portraits of man's psychological nature. They are personal interpretations of the theorist. Each theorist offers a different portrait, usually focused on a particular aspect of personality and often biased by the theorist's own perspectives and personality make up. Di Caprio holds that theory should account for a particular complex of variables within a single individual or enable comparisons among people in order to obtain complete knowledge of personality make up and functioning.

Invariably, the conceptual unit of these theories is the unitary or gestalt man functioning within and interacting with his internal and external environment. However, the study and understanding of human behavior is approached from different theoretical viewpoints and interpretations of the "core" and "peripheral" aspects of man's nature. The core of the personality may be conceived as the tendencies and characteristics present in all men at all times that influence the directions of behavioral functioning. The peripheral aspects of personality are learned, are present in some rather than all people, and are specific

rather than general in their effect upon behavior (Maddi, 1968, p. 228).

Personality is defined in terms of characteristic traits of individuals directly observable in behavior, in terms of the ways in which persons interact with others or in terms of the roles individuals have ascribed to themselves and adopt in their functioning (Pervin, 1972, p. 3). Shoen (1930, p. 397) defined personality as an organized system: a functioning whole or unity of habits, dispositions and sentiments that mark off any member of a group as different from other members of the same group. According to Allport (1937), personality is a dynamic organization of those psychological systems that determine an individual's unique adjustment to his environment.

Personality traits are defined and conceptualized differently by different authors. However, common elements can be identified in the definitions. In general, traits are considered the fundamental units of personality. They account for the variability of a person's behavior and are veridical, that is, they are "real" and correspond to a neuro-physiological system. Therefore, a trait is a constant directing psychic force which determines the individual's active and reactive behavior (Baumgarten, 1936, p. 290; Shaffer and Shoben, 1956, p. 317). Guilford attests to the veridicality of traits by reference to unipolar and bipolar traits. Somatic and the behavioral ability traits are unipolar. They are scaled from zero to infinite amounts, whereas, the bipolar traits extend from one pole to an opposite pole through a zero point in a scale. He defined trait as any distinguishable enduring way which differentiates individuals from one another (Guilford, 1959), pp. 6-41).

Trait is also defined as the collection of responses or reactions bound by some kind of unity which permits the responses or reactions to be gathered under one identifying term and treated in the same fashion for most purposes (Cattell, 1946, p. 61).

Allport (1937) defined trait as the generalized and focalized neuropsychic system peculiar to the individual. This system has the capacity to render many stimuli functionally equivalent, and to initiate and guide equivalent (meaningfully consistent) forms of adaptive and expressive behavior.

A lexicon of trait is a method of comparing one person to another. Trait names are derived from linguistic fads and fashions of encultura-tion as well as universal modes of communication. They are considered as social symbols emanating from a mixture of psychological, interpersonal transactions, cultural and ethical norms and mores (Wiggins, 1973).

Therefore, psychological and contextual variables are examined to provide for valid personality assessment methods. The following review of selected personality assessment research describes the divergence as well as convergence of trait descriptors and analytical procedures used in cross-sectional and cross-cultural studies. It should be noted that each analytical procedure is based on the goal of the study. Nonetheless, any procedure is only as good as the instrument(s) used to gather data. Hence, selected studies on the development and empirical applications of the Jackson Personality Research Inventory (PRF-AA) are discussed. Most importantly, the advantages of the direct-item scaling of personality variables are presented.

<u>Personality Assessment</u>

The historical background of personality assessment has been summarized by Lanyon and Goodstein (1971). The early beginning of personality assessment occurred in 3000 B.C. with the ancient Chinese practice of palmistry. Palmistry used the hand lines and transitory swellings of the hand to describe personality. This practice was followed by other imprecise methods such as phrenology and physiognomy. Phrenology purports that there is a correlation between man's personal qualities and bodily structures. Personality descriptions were based on the contours, protrusions and characteristic configurations of the skull. Physiognomy, on the other hand, correlated skeletal structure with temperament. The characteristic external appearance of the body, specially facial configurations and expressions, were the bases for personality descriptions (Allport, 1937, pp. 65-95). From this early beginning came the development of empirically based personality theories. The theories are formulated for the understanding of and for predicting human behavior. Each theory has a constellation of variables which require tools for measurement of each variable specified in the theory. The variables should be explicitly defined to ensure selection of valid-specific test instruments and assessment models. The theory may serve as the assessment model and for every proponent of the theory the model may be popularized or a different assessment paradigm developed. A theoretical model, which may be "costly", can be justified for use over those which are not theoretically-based in terms of its: (1) relevance to the behavior criterion; (2) generalizability of application; and (3) basic contribution to knowledge and understanding of

human behavior (Wiggins, 1973, pp. 354-355).

Sherman (1979) proposes two basic methods to study personality. The first method is the use of an objective, external frame of reference. In this method, the behavioral psychologist studies personality in terms of the interrelationships between objective stimulus and overt responses of the individual. The second method involves a perceptual, personal, phenomenal construct. The psychologist studies personality not from the point of view of the individual or his world but from the point of view of the individual himself. That is, his phenomenal field--his perception of his world including himself. Combs and Snygg (1959, p. 20) assert that all behaviors are completely determined by and pertinent to the phenomenal field of the individual. The meaning of the phenomenal field is extended by George Kelly (1955) and Carl Rogers (1951) to include a subjective reference, that is, the individual's unconscious experiences. Therefore, a phenomenal field includes all that is experienced, whether consciously or unconsciously, the individual's perceptions of his world, and his perception of himself.

The above assessment methods (objective external, frame of reference, and perceptual phenomenal construct) subsume the biological, experimental, social, psychometric and computer modeling in personality assessment. The biological model focuses on the interaction of behavior with its biological bases. Personality is construed in terms of interactions among early experience, genetic and anthropologic backgound of the individual.

The experimental model focuses on how particular events influence future behavior. Events are construed in terms of uniform learning,

perceptual and higher order processes.

The social model focuses on the contextual aspects of behavior. Events are construed in terms of the social context or the particular individual's environmental milieu. Hence, cultural norms, roles and cultures are studied.

In the psychometric model, personality is assessed in terms of attributes which reflect underlying needs, dispositions and trait organizations. In computer modeling the goal is diagnosing and predicting behavior. Its focus is on attitude change and psychotherapy (Wiggins, 1971).

A useful assessment scheme shown in Table 1 is developed by Pervin (1979, p. 77). It shows selected test categories and characteristics, the specific instruments, the theoretical approach, the illustrative theory and theorist. Congruent with and complementary to Pervin's assessment scheme, Wiggins (1973) cites some examples of personality assessment models, the related test and the target dimension (see Table 2).

Representative assessment models which are more generalizable to theoretical and atheoretical paradigms include: (1) psychoanalytic models; (2) transactional models; (3) cognitive models; (4) multivariate models; and (5) social learning models.

The psychoanalytic model is one of the earliest comprehensive frameworks for psychological assessment. The assumption is that a complete understanding of any behavior of sequential acts can be achieved by a thorough assessment and reconstruction of the multiple causes of behavior.

Table 1

Some Suggested Relationships Among Assessment Techniques and Personality Theories

Test Category	Test Characteristics	Illustration	Data Obtained or Inferred	Theoretical Approach	Illustrative Theory and Theorist
Projective	Nonstructured, disguised	Rorschach TAT	Organization of conscious and unconscious motives and conflicts	Psychodynamic	Psychoanalysis: Freud
Subjective	Nonstructured or semi-structured, undisguised	Interview Q-sort REP Test	Individual perception of self and world	Phenomenological	Self: Rogers, Personal construct: Kelly
Psychometric	Structured, voluntary	16 P.F.	Personality trait	Factor analytic	Trait: Cattell
Objective, Behavioral	Structured, Objective	Behavioral Assessment	Behaviors (responses) in specific situations	Learning	Learning theory: Skinner

Table 2

Examples of Instruments Used in Assessing Target
Dimensions Under Different Personality Models

Model	Target Dimension	Typical Instrument
Psychoanalytic	Ego Synthesis	Rorschach
Interpersonal	Docility	Interpersonal Checklist
Transactional	Need Achievement	Activities Index
Cognitive	Cognitive Complexity	Role-construct Repertory Test
Multivariate	Cyclothymia	16 P.F. Questionnaire
Social Learning	Behavioral Competence	Survey of Problematic Situations

The transactional model is based on the personology theory of Murray (1938, 1951, 1959). Emphasized in this theory is the analysis of behavior in reference to the contextual environment in which it occurs. This is congruent with Lewin's (1935) thesis, and is referred to as transactional by Dewey and Bentley (1949).

The cognitive model is based on the personal construct theory of George Kelly (1955, 1963, 1970). This model emphasizes the role of the individual as the scientist representing and understanding his environment. The hierarchial orderings of his construct system in channeling his psychological processes and the individual's fundamental beliefs and values are the superordinate core constructs.

The multivariate model was popularized by Raymond Cattell (1946, 1950, 1957, 1965). The focus of the model was the study of personality traits so as to predict behavior. He uses traits as the fundamental units of personality--the entities whose organizations and dynamic interrelationships determine the behaviors to be predicted.

The social learning theory is based on the psychological associationism theory of Thorndike and Pavlov which inspired the classical learning theories of Bandura and Walters, Guthrie, Skinner and Hull, and Talman (Hilgard and Bower, 1966; Neel, 1977). The model holds behavioral assessments as samples rather than signs of criterion measures. These criterion measures are objective and specific and the functional analysis of behavior that permits prediction is qualified by the situation in which the criterion behaviors occur. This model converges with Lewin's (1935) theory, that is, in order to predict a psychological behavior one has to determine for every psychological

event: (1) an action or any expression, and (2) the momentary whole situation inclusive of the momentary structure, the state of the person and the psychological environment.

Allport (1937, pp. 370-463) discussed the use of a macro model of psychological assessment. Figure 1 shows the use of multi-methods and specialized technical aids for personality assessment.

The circular arrangement of the elements in the model represents a continuum of internal and external aspects of personality and simultaneously differentiates those that deal with practical aspects of behavior from those concerned with homogeneity and congruence of the personality as a whole (Allport, 1937, p. 371).

In conclusion, the relevance and precision of personality assessment should be guided by the logic of triangulation. This should include triangulation of data (person, space, time), theory (e.g., analytic, social learning), investigator (e.g., behaviorists, social psychologists, statisticians), and methods (i.e., within method and between method triangulation) (Denzin, 1978, pp. 291-307).

The Jackson Personality Research Forms

The overall goal for the development of the Personality Research Form (PRF) was to demonstrate application of theory (Murray's persono- logy), assess personality and test personality test construction (Jackson, 1974, p. 4). This goal was accomplished through sequential steps of scale construction guided by: (1) explicit theoretical assump- tions; (b) operational definitions of variables; and (c) a priori specifications of empirical indicants of each variable and/or measure- ment methods to be used. Thus, for each variable scale (personality
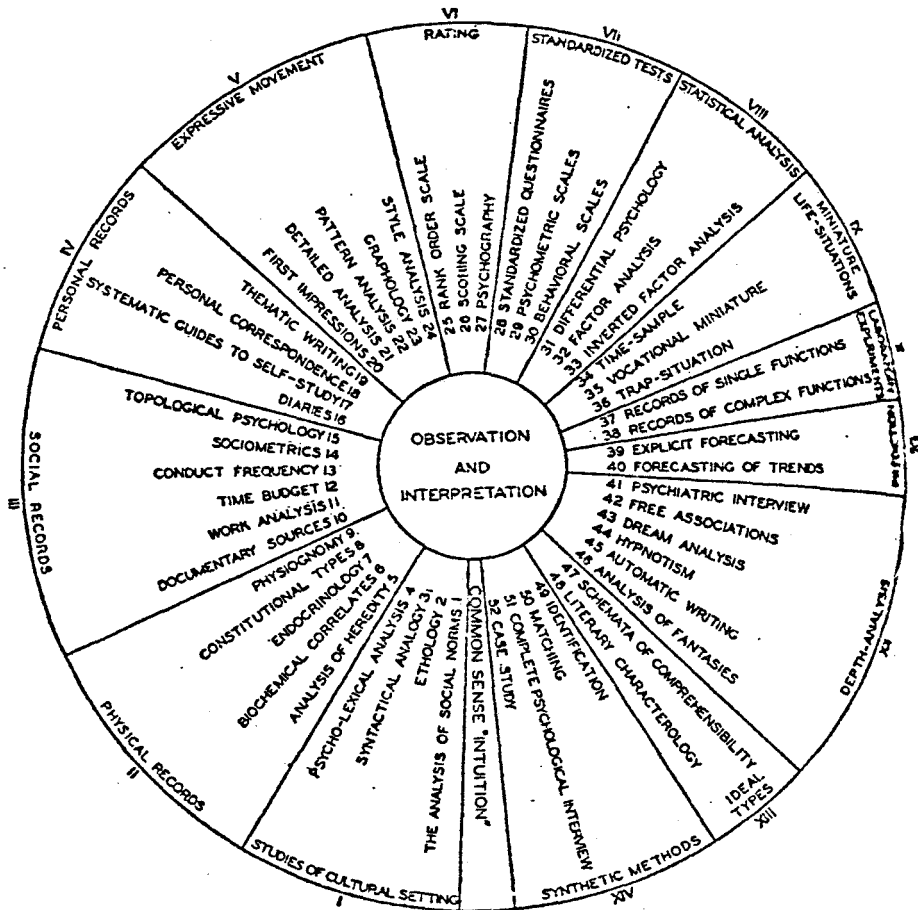
Figure 1.   A Survey of Methods for Studying Personality (Allport, 1937, p. 370).

trait dimension) explicit definitions, descriptions and trait adjectives (as shown in Table 3) were rigorously subjected to concurrent validation during the process of scale construction. These procedures fostered achievement of reliability, substantive generalizability and validity (Wiggins, 1973).

The PRF variables, although patterned from Murray's need taxonomy, are distinct from them in terms of theoretical and measurement viewpoints. That is, all the variables were conceived, theoretically and in terms of measurement, to be bipolar. For every PRF scale, half of the items were written in terms of one pole of the dimension, and half in terms of the other. Both poles were defined to assure a more exact specification of what was being measured. Therefore, either high or low scores indicate the presence of attributes which differentiated the individual from other individuals. In addition these bipolar definitions also helped control response bias such as style and acquiescence (Jackson and Messick, 1958; Jackson, 1967).

Selection of the PRF items was predicated by basic assumptions of refined personality measurement. Each of the scales was developed using four basic principles: (1) an explicit, theoretically based definition of a particular trait is essential prior to attempts at measurement; (2) careful empirical selection of items for homogeneity contributes substantially to refined measurement; (3) suppression of response biases and scale development; and (4) both convergent and discriminant component of validity must be considered at every stage of scale development if the final scales are to possess these properties (Jackson, 1974, p. 15). Thus, the PRF scales possess content

validity and reliability and freedom from response style and acqui-
escence.

In concert with these assertions made by Jackson, other
researchers claim that the PRF was developed in rational (Lorr and
Seifert, 1977) and substantive approaches to test construction (Wiggins,
1973). According to Wiggins (1973, pp. 380-440) structured tests
which are developed under the response-options restrictions may be
approached from three points of view. These are: (1) rational or
correspondence points of view; (2) empirical or instrumental points of
view; and (3) substantive or construct points of view.

The rational point of view assumes a direct correspondence
between the testee's verbal report and his internal states or feelings.
In contrast the assumption of the empirical perspective is that item-
response acquire "meaning" only in the presence of a correlation
between item and criterion variable. Hence, correlates of behaviors
in non-test situations are discovered only by empirical means (Buchwald,
1961; Meehl, 1945).

Construct Validity of the PRF

Various specialized, empirically tested instruments have been
developed under the construct-oriented procedures (e.g., Jessor and
Hammond, 1957; Loevinger, 1962; Wiggins and Winder, 1961). However,
none of these studies can equal the PRF as the best example of a
large-scale personality inventory guided explicitly by substantive,
structural, and external considerations (Wiggins, 1973, p. 409).
Substantive considerations require the sampling of items from a
defined universe of content, that the initial item-pool include both

relevant and irrelevant content and that more than one response format be tested. In the structural considerations, the degree of item-intercorrelations in a scale must reflect the homogeneity of external behaviors implied by the trait and the items to be combined in a scale under a model of measurement that mirrors the organization of the non-test manifestation of the trait. The external considerations require: (1) convergent validity, that is, the resultant scale is correlated with the external manifestations of the trait; and (2) discriminant validity demonstrated by the absence of correlation between the scale and irrelevant or possibility of confounding measures. These considera-tions as applied by Jackson took the form of interrelated principles such as: (a) the overriding importance of psychological theory; (b) the necessity for suppressing response style variance; (c) the homo-geneity of scale; and (d) the fostering convergent and discriminant validity at the inception of the test construction (Jackson, 1970, p. 63).

To demonstrate convergent and discriminant validity of the final PRF scales (20 content trait and 2 validity scales), Jackson used an initial pool of more than 3,000 items. "A team of hetero-geneous item-writers constructed more than 100 items for each of the positive and the negative poles of the scales. Hence, the boundaries between trait dimensions reflected the considerations of convergent and discriminant validity at the stage of item writing" (Wiggins, 1973, p. 410).

Jackson used a series of validation studies based on trait attribution data. It is construed that the "most convincing and

direct method of demonstrating validity for a set of personality score scales is to relate them to the ratings made by judges who know the assessees well as such the major PRF validation studies used trait and behavior ratings by persons who have natural opportunities to observe assessee" (Jackson, 1974, pp. 23-24). In the validation studies, Jackson used a grid adopted from one developed by Campbell and his colleagues (Campbell, Miller, Lubetsky, and O'Connell, 1964). The grid consisted of traits exemplifying the PRF variables, situations and behavior sequences considered relevant to each substantive domain. Judges rated the trait scales on a nine-point scale on the degree to which each trait was present or absent. "Thus, each judge would rate for each person being judged the degree to which each trait was present or absent, and the pooled ratings provided a kind of average or consensus regarding the degree to which each trait was present. Essentially, this was the procedure used to appraise PRF validity (a) in a study of combined PRF Forms AA and BB with 51 Stanford University and San Jose State College students by Jackson; (b) in a study of PRF Form AA with 202 Pennsylvania State University students by Jackson and Guthrie; and (c) in a study of ten scales selected from PRF Form A with 94 University of Western Ontario male students by Kusyszyn (1968) (Jackson, 1974, p. 24). Table 3 presents a summary of the results of validity coefficients for twenty PRF scales.

"In the final selection of the PRF items, statistical procedures were selected to ensure that the resultant scales possessed maximal convergent and discriminant content saturation" (Wiggins, 1973, p. 411). This was achieved by first administering the provisional items to a

Table 3

Validity Coefficients for Twenty PRF Scales

| Scale | California Sample | | | | Pennsylvania Sample | |
| | Behavior Ratings | | Trait Rating Form | | Behavior Ratings | Self Ratings |
	N=40	N=51	N=40	N=51	N=202	N=202
Achievement	53	52	55	42	46	65
Affiliation	44	43	80	75	40	56
Aggression	52	66	71	73	36	38
Autonomy	55	54	66	60	25	44
Dominance	69	56	73	75	38	63
Endurance	44	52	52	35	27	52
Exhibition	73	71	45	51	45	43
Harmavoidance	62	60	42	40	53	58
Impulsivity	36	34	73	65	30	39
Nurturance	41	34	72	72	27	37
Order	64	63	72	68	64	76
Play	48	55	52	53	42	52
Social Recognition	44	47	47	57	20	26
Understanding	29	50	58	58	16	29
Abasement	25	17	33	19	19	33
Change	38	28	28	29	22	24
Cognitive Structure	32	35	39	35	18	30
Defendence	42	57	45	58	25	23
Sentience	24	10	57	45	32	31
Succorance	60	59	58	55	20	49

Note: Decimals have been omitted from the above Pearson product-moment
correlations (Jackson, PRF Manual, 1974, p. 24).

group of college students to obtain the item statistics needed for item analysis and selection. The Kuder-Richardson formula 20 were computed for each trait as a preliminary test for the substantive homogeneity of the provisional item pools. The indices of homogeneity ranged from .80 to .94 (Wiggins, 1973, p. 411). These indices were interpreted as characteristic correlations among behaviors within a trait (Loevinger, 1957). The provisional item-pool representing a homogeneous content dimension was then subjected to an elaborate computer-based, sequential system of item analysis and selection. Each item was correlated with each of the twenty provisional content scales. An item which correlated higher with a content scale other than the one for which it was written was discarded on the grounds of its insufficient discriminant validity (Wiggins, 1973, pp. 11-12). Jackson (1971) noted that although there were approximately 5,700 opportunities for an item to be more correlated with an irrelevant content scale, such "misses" occurred only five times. This finding attests to the success of the substantive item-writing of the PRF (Wiggins, 1973, p. 412).

Further appraisals of convergent and discriminant validity of the PRF scales were done by Jackson and Guthrie (1968). They applied a multimethod factor analysis on self-ratings and peer ratings of traits and behavioral descriptions relevant to each of the characteristics measured by the 20 PRF scales. The data was obtained from a group of 202 subjects who had taken the PRF Form AA. The study yielded a 60 by 60 matrix of intercorrelations in which each of the twenty traits was measured by three different methods. Table 4 displays the results of this study. A multi-factorial analyses of correlations and rotation

Table 4

MULTIMETHOD FACTOR ANALYSIS OF SELF RATING, PEER RATING, AND PERSONALITY RESEARCH FORM SCORES

(N=202)

FACTOR I	FACTOR VII	FACTOR XIV
82 Achievement – Sr	79 Sentience – Sr	75 Impulsivity – Sr
61 Achievement – Pr	60 Sentience – Pr	44 Impulsivity – Pr
83 Achievement – PRF	60 Sentience – PRF	44 Impulsivity – PRF
FACTOR II	**FACTOR VIII**	
76 Dominance – Sr	73 Change – Sr	
64 Dominance – Pr	50 Change – Pr	36 Aggression – Sr
60 Dominance – PRF	35 Change – PRF	41 Aggression – Pr
		53 Aggression – PRF
	FACTOR IX	**FACTOR XV**
–52 Abasement – Sr	86 Harmavoidance – Sr	77 Exhibition – Sr
–38 Abasement – Pr	60 Harmavoidance – Pr	61 Exhibition – Pr
–56 Abasement – PRF	73 Harmavoidance – PRF	69 Exhibition – PRF
FACTOR III	**FACTOR X**	**FACTOR XVI**
84 Affiliation – Sr	74 Nurturance – Sr	85 Play – Sr
69 Affiliation – Pr	44 Nurturance – Pr	67 Play – Pr
64 Affiliation – PRF	64 Nurturance – PRF	60 Play – PRF
FACTOR IV	**FACTOR XI**	**FACTOR XVII**
79 Autonomy – Sr	83 Social Recognition – Sr	79 Understanding – Sr
66 Autonomy – Pr	52 Social Recognition – Pr	63 Understanding – Pr
55 Autonomy – PRF	74 Social Recognition – PRF	49 Understanding – PRF
FACTOR V	**FACTOR XII**	**FACTOR XVIII**
93 Order – Sr	76 Defendence – Sr	77 Succorance – Sr
84 Order – Pr	57 Defendence – Pr	23 Succorance – Pr
83 Order – PRF	54 Defendence – PRF	38 Succorance – PRF
FACTOR VI	**FACTOR XIII**	
78 Cognitive Structure – Sr	76 Endurance – Sr	31 Nurturance – Pr
23 Cognitive Structure – Pr	31 Endurance – Pr	29 Play – PRF
31 Cognitive Structure – PRF	70 Endurance – PRF	–46 Cognitive Structure – Pr
–30 Abasement – Pr	49 Achievement – Pr	
–28 Play – PRF		

Note – Data from Jackson and Guthrie (1967). Factor loadings reported are the highest loadings obtained for each factor. Abbreviations used are as follows: Self ratings – Sr; Peer ratings – Pr; Personality Research Form – PRF.

(Jackson, PRF Manual, 1974, p. 26)

to a varimax criterion showed that "20 PRF scales are loaded on 18 factors which were also defined by relevant criterion scales. Two of the factors are defined by two sets of relevant PRF scales and criterion measures. Factor II shows positive loadings by three dominance measures and negative loadings by three abasement measures. Similarly, Factor XII shares loadings for measures of Aggression and Impulsivity. Single sets of PRF scales and criterion measures define the remainder of the factors. From this standpoint, it is possible to treat each scale as distinct, and to have confidence that each scale provides a unique contribution to personality assessment" (Jackson, 1974, p. 25).

Since content saturation may be decreased by a response style such as social desirability of responding and acquiescence, Jackson minimized the possible stylistic effects of the PRF scale by having half of the items in each scale reflect the positive pole of the trait and half the negative pole. He used a group of college students' ratings on the social desirability values of the items. A group of keyed true items (highly desirable items) and a group of keyed false items (undesirable items) were assembled in a single desirability scale that were heterogeneous with respect to content. The assumption was that subjects who obtained high scores on a scale did so primarily on the basis of a tendency to respond to items in terms of their perceived social desirability. Prior to selection of items, each item in the provisional pool was correlated with the desirability scale. A differential reliability index (DRI) defined by the formula: DRI = $r_{ig}^2 - r_{idy}^2$ was used by Jackson (1974, p. 16) to maximize reliable content saturated variance in relation to variance associated with

response bias. The first term (r_{ig}) of the formula is the biserial correlation between an item and its own scale, and the second term (r_{idy}) is the biserial correlation between an item on a desirability scale. The DRI may be considered the proportion of variance for a given item associated with the total scale score for a given trait scale from which the variance shared by the item and a desirability scale has been subtracted. After this procedure, the items were ranked in terms of the magnitude of the DRI within each scale. The desired number of items (40 items) showing the highest rankings were chosen and the K-R formula 20 reliability coefficients, scale inter-correlations and other summary statistics were obtained. Table 5 shows the mean desirability scale values for the 22 PRF scales.

Structural Reliability

Structural considerations of the PRF are demonstrated by elaborate item-analytic procedures to achieve homogeneity within each scale and content saturation as previously discussed. Considerable evidence has been presented indicating that the final PRF scales are relatively uncontaminated by sources of stylistic variance (Jackson, 1967, 1970, 1971). A series of studies notably those conducted by Trott and Jackson (1967); Jackson and Lay (1968); and Neill and Jackson (1970) demonstrate that suppression of response style variance increases the homogeneity of personality scale content. Other recent studies on the PRF's freedom from stylistic responses have been accomplished by Abbott and Robert (1975); Braun and Constantine (1970); Edwards and Abbott (1972); Gross, et.al. (1973); Helmes, et.al. (1977); Hoffman and Nelson (1971); and Stricker (1974).

Table 5

Mean Desirability Scale Values for
Personality Research Form Scales

Scale	Desirability Scale Values		
	True Items	False Items	Total
Abasement	4.17	4.32	4.25
Achievement	5.96	6.37	6.17
Affiliation	6.94	6.34	6.64
Aggression	3.42	4.23	3.83
Autonomy	4.88	4.33	4.61
Change	5.49	5.51	5.50
Cognitive Structure	5.68	5.30	5.49
Defendence	4.74	4.40	4.57
Dominance	5.23	5.38	5.31
Endurance	5.82	5.67	5.75
Exhibition	4.84	5.47	5.16
Harmavoidance	4.56	5.13	4.85
Impulsivity	5.08	4.36	4.72
Nurturance	5.89	6.13	6.01
Order	6.15	6.24	6.20
Play	5.36	5.26	5.31
Sentience	6.21	5.94	6.08
Social Recognition	5.54	5.06	5.30
Succorance	4.94	4.67	4.81
Understanding	6.00	5.69	5.85
Infrequency	3.26	2.73	3.00
Desirability	6.86	6.80	6.83

Jackson, D. (1974, p. 12).

Empirical Applications and Other Validation Studies

Studies demonstrate the application of the PRF in various research settings and populations. Included in this review are selected research findings related to (1) correlations of the PRF with other personality inventories; (2) factor-structure studies of the PRF; (3) uses of the PRF in giving therapy or treatment; and (4) administering the PRF to diagnose and predict behavior.

Selected studies of the correlations of the PRF with other personality inventories include the following:

1. Correlations of the PRF scales with the California Psychological Inventory by Stricker (1973).

2. Correlations of the PRF scales with the Strong Vocational Interest Blank by Seiss and Jackson (1967).

3. Comparison of the BEM Sex Role Inventory and the PRF Androgeny Scale by Gayton, et.al. (1977).

4. Comparison of the PRF scales with the Edwards Personal Preference Schedule, Comrey's Personality Scale, and the Lorr-Youniss Interpersonal Style Inventory (ISI) by Lorr, O'Connor, and Seifert (1977).

The study by Lorr, et.al. used a factor analytic approach in testing the equivalence of personality constructs of the PRF Form AA (Jackson, 1967), the EPPS (Edwards, 1954), the CPS (Comrey, 1970), and the ISI (Lorr and Youniss, 1973) inventories. The tests were administered to large samples of college and high school students. A principal component factor analysis of each inventory was done in order to establish which scales represent sources of variance. This procedure was followed

by analysis of pooled scales representing each factor found in any inventory. Twelve trait dimensions were identified in the college and high school data. Table 6 shows the dimensions retained in two or more of the inventories. The result indicates a convergence on a set of basic personality constructs measurable and equivalent in the four inventories. Thus, any validity established for a given scale may be generalized in support of its equivalent scale in the other inventories (Lorr, et.al., 1977, p. 526).

The item-factor structure of the PRF was investigated by Helmes and Jackson (1977) and on the higher order factor structure by Messelroade and Baltes (1975). Studies on the second order factor structure were accomplished by Berzins, et.al. (1971); by Seidman, et.al. (1974); and by Stricker (1974). The first order factor structure was explored in such studies done by Edwards and Abbott (1972); Edwards, Abbott and Klockars (1973); and Lorr and Seifert (1977). According to Lorr and Seifert, the Edwards and Abbott, and Edwards, et.al. studies only examined indirectly the first order factor structure of the PRF. The Lorr and Seifert study involved paid volunteer samples of college men and women and paid volunteers of 327 high school boys. Cattell's (1966) scree test was used in deciding the number of factors to retain for factor rotation. The scree test revealed twelve factors on the high school half score intercorrelations matrix but one factor was considered uninterpretable. The college half score intercorrelations matrix revealed fifteen factors two of which were the validity measures. Nine factors were found equivalent in the high school and college samples. A comparison of the results with the Edwards and Abbott, and

Table 6

Equivalent Scales in Four Personality Inventories
Listed by Construct

	High School			College	
Form	Construct	Loading	Form	Construct	Loading
		Directive			
ISI	Directive	.53	ISI	Directive	.56
EPPS	Dominance	.61	EPPS	Dominance	.62
				Achieving	.42
PRF	Dominance	.50	PRF	Dominance	.48
		Sociable			
ISI	Sociable	.61	ISI	Sociable	.55
CPS	Extroverted	.46	CPS	Extroverted	.60
PRF	Affiliative	.38			
		Succorant			
ISI	Help Seeking	.60	ISI	Help Seeking	.56
EPPS	Succorant	.49	EPPS	Succorant	.55
PRF	Succorant and		PRF	Succorant and	
	Autonomy	.49		Autonomy	.45
		Nurturant			
ISI	Nurturant	.44	ISI	Nurturant	.52
CPS	Empathy	.54	CPS	Empathy	.56
		Adventure Seeking			
ISI	Adventure	.66	ISI	Adventure	.57
	Seeking			Seeking	
PRF	Harm avoidance	-.66	PRF	Harm avoidance	-.51
		Novelty Seeking			
ISI	Novelty Seeking	.47	ISI	Novelty Seeking	.58
EPPS	Change	.55	EPPS	Change	.64
PRF	Change	.57	PRF	Change	.54

(Lorr, et.al., 1977, p. 523)

Edwards, et.al. analyses revealed substantial agreement (Lorr and Seifert, 1977, p. 270). Based on this finding, Lorr and Seifert concluded that the PRF measures twelve dimensions of personality rather than twenty.

Applications of the PRF in Relation to Therapy or Treatment of Subjects

A review of approximately 200 studies on the uses of the PRF attest to its effectiveness in personality assessment, behavior prediction, selection for treatment program and evaluation of treatment effects. The following are selected examples of studies done in such areas as: (1) adjustment and interpersonal transaction: Butler, 1976; De Vito, 1979; Schner, 1979; (2) performance evaluation and achievement: Hess and Neville, 1977; Hildebrand, 1976; Kuncel, 1974; Loucks, et.al., 1979; Tetenbau, 1975; (3) diagnosing and predicting behavior: Bentler, 1969; Burstein, et.al., 1979; Gross and Nerviano, 1973; Hoffman, 1970(a), 1970(b); Kelly and Worell, 1077; Meyer and Pepper, 1977; Phil and Spiers, 1977; Sanders, 1976; Siddens, 1977; Skinner and Jackson, 1977; Weiss, 1977; and (4) program placement, selection for treatment program, and evaluation of treatment effects: Balance, et.al., 1977; Bradley and Bradley, 1977; Bornstein, 1979; Dunnette, 1969; Hoffman, 1971; La Bouvie and Baltes, 1976; Moore, 1975; and Seiss, 1973.

The Radex-Circumplex Model

The radex-circumplex model represents a complex structural hypothesis in a molar correlational analysis of variables. Each of the variables in this context is a "cluster" or mixture of elementary components which cannot be arranged in a hierarchical rank-order of simple to complex (Nunnally, 1978, p. 533).

The circumplex model of analyzing variable relationships in such areas of research as personality dimensions, social cognition, social exchange and testing behavioral prediction have been used by: Benjamin (1974); Carson (1969, 1979); De Boeck (1976); Druckman (1979); Foa (1961); Foa and Foa (1974); Leary (1957); Lorr, et.al. (1963); McCormick (1977); McLemore and Benjamin (1979); Olson, et.al. (1979); Russel (1979); Schaefer (1959, 1961); Stern (1970); Wiggins (1968, 1979); and Wiggins and Holzmuller (1978).

Wiggins (1980) discussed the relevance of the circumplex model towards the resolution of one of the major problems of scientific assessments. That is, the marshaling of evidence in the form of theoretically coherent empirical relations to support inferences that stable and consistently observed responses reflect a particular psychological construct (Jackson and Messick, 1967). To support this claim, a brief review of the theoretical bases of the radex-circumplex model is presented, and a few of the cited studies are systematically discussed.

Theoretical Bases of the Radex-Circumplex Model

Gutman (1954) proposed the theory of structure and the theory of order to explain the interrelationships and lawful ordering among simplexes of variables within the radex-circumplex structure. The general structure of a simple radex is a doubly-ordered system which can be portrayed by a two-dimensional diagram (Gutman, 1954, p. 260). Within this two-dimensional diagram are "elementary" components which may be scale items, units, traits, tests or other variables. These components form simplexes which may differ only in kind or only in degree of

complexity. A set of variables (e.g., tests) of the same kind which differ only in the degree of their complexity is called a simplex. These simplexes may be arranged from the least to the most complex hierarchy of complexity. Correspondingly, variables (tests) of the same degree of complexity can differ among themselves only in the kind of phenomenon (e.g., ability) they define. In this case they cannot be rank-ordered. However, the theory of order is imputed, not in a least to most hierarchy but in a circular order of equal rank. Hence, the variables are in an ordered-circle of no beginning or end. These circularly ordered variables are called a circumplex.

For the case of tests (or variable-clusters) differing simultaneously both in kind and in their degree of complexity, their general structural relationships is called a radex. A radex, therefore, is a set of variables whose intercorrelations form an ordered pattern of relationships that imply a radial expansion of complexity.

Theoretically a radex may be composed of an indefinite number of sectors and infinite number of elementary components. Each sector can be divided indefinitely and each point in the circle may be regarded as an elementary component. Actually, the discernible features of a radex are clusters of point components within the circle. These clusters of components may be combined or segregated from one another.

The Uniform, Perfect, Additive, Equally-Spaced Circumplex

The circumplex of correlations posited by Gutman (1954) possesses several distinct characteristics. Gutman described a uniform circumplex as that which consists of n = number of test(s) as a function of an equal number of the n elementary components. For the additive circumplex,

if n = 5 tests form a uniform circumplex with m = 3, the resultant structure would be

$$t_{1i} = C_{1i} + C_{2i} + C_{3i}$$
$$t_{2i} = \quad\ C_{2i} + C_{3i} + C_{4i}$$
$$t_{3i} = \qquad\qquad C_{3i} + C_{4i} + C_{5i} \qquad\qquad (1)$$
$$t_{4i} = \qquad\qquad\qquad C_{4i} + C_{5i}$$
$$t_{5i} = C_{1i} + C_{2i} \qquad\qquad\ + C_{5i}$$

The arrangement of the tests and their components is arbitrary. However, for the general case, Gutman gave the following formula:

$$t_{ji} = C_{ji} + C_{j+1,i} + \cdots C_{j+m-1,i} \qquad (j\ n=m+1) \quad (2)$$
$$C_{1i} + C_{2i} \quad + \cdots C_{j-n+m-1,i}\ (C_{ji}+\cdots C_{ni}) \quad (j\ n=m+1)$$

Gutman also provided us with a hypothetical illustration (Figure 2) of the circumplex. Figure 2a shows a uniform circumplex made up of five elementary components shown schematically as sectors of a circle. Figure 2b shows the components which comprise test 1 and test 4. The figure indicates that C_1 represents a common variance of the two tests.

For the equally-spaced, uniform, perfect, additive circumplex, the following assumptions are made: (1) the elementary components are uncorrelated, and (2) the elementary components have equal variance. Hence, where

$$r_{cp\ cq} = 0 \qquad (\ p \neq q\ ) \qquad\qquad\qquad (3)$$

$$^2_{c1} = {}^2_{c2} = \ldots\ {}^2_{cn} = {}^2 \qquad\qquad\qquad (4)$$

and $\qquad$ m $\quad$ n/2. $\qquad\qquad\qquad\qquad\qquad\qquad (5)$

$$r_{jk} = \begin{array}{l} 1 - \dfrac{k-j}{m} \\[4pt] 1 - \dfrac{n-k+j}{m} \end{array} \qquad \begin{array}{l} 0 \quad k-j \quad n-m \\[6pt] n-m \quad k=j \quad n. \end{array} \qquad (6)$$
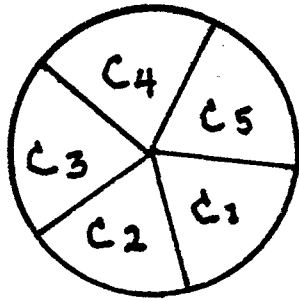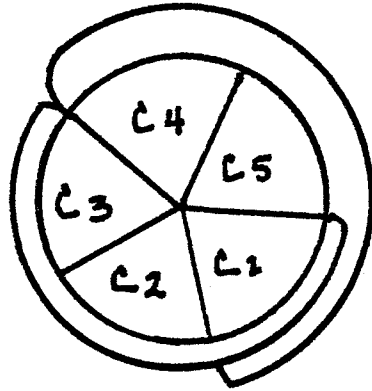
a. The Sectors   b. Two Tests

Figure 2.   A Hypothetical Uniform Circumplex of Two Tests

Using a numerical example for equation 6 where n = 6 and m = 4,
Gutman demonstrated the intercorrelations for an equally-spaced,
uniform, perfect, additive circumplex (See Table 7). From the table,
it is noted that a perfect circumplex is characterized by the values
of unity in the main diagonal. The equality of values along with each
diagonal parallel to the main diagonal and the equal column totals of
the correlations define the equally-spaced circumplex. The table also
shows the same entries for each row as the preceding row, but moved,
one space to the right, the end moving to the beginning. These charac-
teristics of the matrix defined by equation 6 is technically a circulant
which is symmetric (Gutman, 1954, p. 328).

In empirical circumplexes one may find unequal column totals.
This indicates a non-perfect, uniform circumplex (i.e., a quasi-
complex). According to Gutman, a quasi-circumplex is a perfect circum-
plex plus its deviations (Gutman, 1954, p. 329).

Empirical Studies

Becker and Krug (1964) examined the applicability of the circum-
plex in a study of child-parent behaviors. They used a 72 bipolar,
7-point rating scale on two types of samples. One sample consisted
of the ratings by two teachers and the other consisted of the parents'
ratings of the 71 kindergarten children used in the study. The circum-
plex model used two dimensions: introversion-extraversion and emotional
stability-emotional instability. Factor analysis, using a varimax
centroid factor solution showed that the variables plotted on the
first two factors. Cannonical correlations were used to evaluate the
goodness-of-fit between the circumplex and varimax solution. In

Table 7

The Intercorrelations for an Equally-Spaced, Uniform,
Perfect, Additive Circumplex
When n = 6 and m = 4

Test	t_1	t_2	t_3	t_4	t_5	t_6
t_1	1.00	.75	.50	.25	.50	.75
t_2	.75	1.00	.75	.50	.25	.50
t_3	.50	.75	1.00	.75	.50	.25
t_4	.25	.50	.75	1.00	.75	.50
t_5	.50	.25	.50	.75	1.00	.75
t_6	.75	.50	.25	.50	.75	1.00
Total	3.75	3.75	3.75	3.75	3.75	3.75

conjunction with this study, Becker and Krug also re-analyzed data from five previous studies on parent-child behaviors using the same procedures. Their findings also resulted in a common frame of reference. That is, related variables were rarely "displaced" more than one sector. Hence, they concluded the applicability (with added clarity and meaningfulness) of the circumplex model to empirical data.

De Boeck (1976) studied acquiescence and social desirability of responses to the traditional Parental Attitude Research Instrument (PARI) constructed by factor analytic techniques. He also investigated the presence of the dimensions of the circumplex model of maternal behavior in the traditional PARI by using alternative factor solutions. Specifically, he rotated factors of the five factor analyses to test the adequacy of the alternative factor solutions with three factors: acquiescence response, autonomy versus control and love versus hostility. His findings gave positive confirmation to the presence of response biases and inclusion of the three dimensions of the circumplex model of maternal behavior in the PARI.

Druckman (1979) used the circumplex model to implement and evaluate a policy of giving a treatment program to female juvenile offenders in a family-based treatment design. The model classified families as either chaotically or rigidly disengaged. Twenty-nine families were assessed by the use of the Model Family Environment scale before and after the treatment regime. Families who completed the treatment regime were compared with those who did not complete the treatment program. Families who completed their program of treatment improved in their family environment scores but their scores in recidivism did

not decrease. Druckman concluded that the circumplex model was mini-
mally supported by the data.

Olson, et.al. (1979) developed a tool for clinical diagnosis and
for specifying treatment goals for couples and families. They incor-
porated two dimensions of family behavior (cohesion and adaptability)
into a circumplex model used to identify sixteen types of family
systems. Their model proposed that a balanced level of both cohesion
and adaptability is the most functional to marital and family develop-
ment. The postulate for the cohesion concept was that too much close-
ness leads to enmeshed family systems and too little closeness to dis-
engaged systems. In testing adaptability, change was used as an index.
That is, too much change leads to chaotic systems while too little
change leads to rigid systems. The findings showed applicability of
the circumplex model to the data.

In another study by Sprenkel, et.al. (1978) the same circumplex
model of marital and family systems (cohesion and adaptability) was
applied to the data. In this study a marriage counseling program was
given to an experimental group of 25 families and an equal number of
families were used as control. Overall, the findings supported the
model.

Wiggins and Holzmuller (1978), in their analysis of self-
applicability ratings (on a nine-place Likert scale) of 1710 trait-
descriptive adjectives by 187 college students revealed an eight-
variable circumplex of interpersonal behavior (Figure 3). This model
and the statistical procedures they used were applied to Bem's (1974,
1975) measure of psychological androgyny. They concluded that Bem's
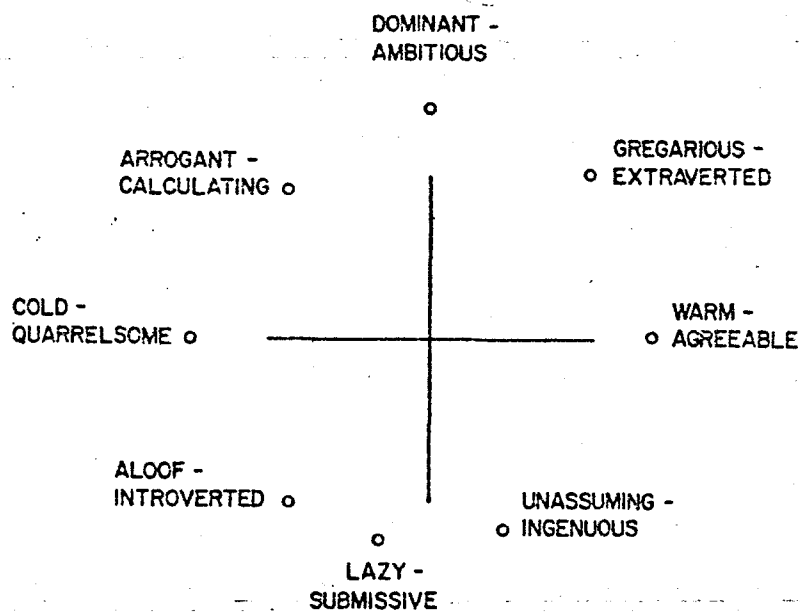
(Wiggins and Holzmuller, 1978, p. 41)

Figure 3. Eight-Variable Representation of Interpersonal Behavior

measure of psychological androgyny was derived from only two relatively
desirable dimensions of interpersonal behavior. Figure 3 shows the
eight-variable circumplex.

Earlier studies by Freedman, Leary, Ossorio and Caffey (1951)
showed a circular model for interpersonal behavior which became the
framework for the construction of the Interpersonal Checklist (La Forge
and Suczek, 1955). Rinn (1965) also confirmed the circular order of
the Interpersonal Checklist (ICL).

Lorr, Klett, and McNair (1963) developed an inventory of inter-
personal behavior on the same circumplical model. Then Stern (1970),
in the latest edition of the Activities Index (AI) also found a cir-
cular ordering among the AI scales. Schaefer (1961) and Slater (1962)
in their studies on the MMPI also revealed circularly-ordered scales.

McCormick (1977) used the circumplex to scale and calibrate
items of the ICL in accord with Leary's interpersonal system of per-
sonality diagnosis (Leary, 1957). He used two samples, the first
sample sorted the ICL items into the eight-scale categories substitut-
ing two scale labels of the original Leary's label. That is, he used
the labels skeptical and critical instead of aggressive and rebellious.
The second sample scaled each item twice using a nine-point bipolar
scale, hate-love, and dominance-submissiveness. The resultant scales
showed similarity with the factor plot of the eight ICL scales of
Leary's scheme. McCormick's study, however, showed that many items were
found to be displaced by the scaling procedures from placements given
by the ICL authors (McCormick and Kavanagh, in press).

The review of literature indicates that the universe of content

among different domains of trait categories and their definitions, the procedures for classifying terms within the domains, and the selected measurement models are dictated by theoretical considerations.

Assessment tools are also continuously being evaluated for construct validity, reliability, empirical relevance, and predictive validity.

Russel (1979) provides evidence that the affective space is bipolar. This is defined by pleasure-displeasure and degree of arousal representing meaningful relationships among scales of pleasure, displeasure, sleepiness, depression, and Thayer's (1967) four factors of activation. In addition, Russel's (1978) study showed that the same dimensions "emerged as the two major dimensions of affect from studies of semantic differential ratings, verbal self-reports, successive interval scalings, and multidimensional scaling of affect terms" (Russel, 1979, p. 354).

Wiggins (1979) developed a taxonomy of trait descriptive terms for the interpersonal domain. A two-dimensional circumplex of eight adjectival scales was elicited. Wiggins claims that the scales possess substantive, structural and psychometric characteristics. "Hence, they may prove useful both as assessment device in their own right and as reference points for the classification of variables in personality and social psychology" (Wiggins, 1979, p. 395).

Controversies exist regarding different structural models used in personality assessments. Proponents of the circumplex model are not without opponents. "Personality is almost certainly more complex than that which can be represented realistically in a two-dimensional plane--

even when considering only the interpersonal domain" (Jackson and Helmes, 1979, p. 2284).

The majority of the studies evaluated circumplexity of a set of variables by plotting the correlations of each variable (ordinate) with other variables (abscissa). Wiggins claims that this generates a series of overlapping sine curves which can be examined for goodness of fit. An alternative procedure is to extract the first principal components from the matrix of intercorrelations and to examine the plots of the variables on these two components. This study, on the other hand, uses the weighted frequency distributions of item responses on each of two othogonal dimensions to obtain a bivariate plot rather than the correlation coefficients of the variables.

Evidence is provided by the aforementioned selected literature regarding the significance of the circumplex model in the analysis of interpersonal transactions and in the development of measurement tools for personality assessment and prediction. Further, the review presented the relevance of the direct-item-scaling of selected personality variables as demonstrated by McCormick (1977).

CHAPTER III

METHOD

The primary purpose of this study is to demonstrate the applica-
bility of the direct-item nine point method of scaling personality
variables into a unit circle using Gutman's (1954) Circumplex Model.
Additionally, the validity of bipolarity and two-dimensionality of
interpersonal behaviors as previously shown by factor analytic studies
(e.g., Benjamin, 1974; Carson, 1979; Leary, 1957; McLemore and Benjamin,
1979; Rinn, 1965; Russel, 1979; Wiggins, 1968, 1979) is systematically
investigated using the dimensions of hate-love and submission-dominance.
A double scaling procedure, once in each dimension, is used to scale
the meaning of the statements of the Jackson Personality Research Form
AA (PRF-AA) by a sample of subjects for whom English is their native
language and another sample of subjects for whom English is not their
native language.

Hypotheses

The following null hypotheses were tested:

Ho$_1$: A sample of English-speaking subjects will not scale the
items of the PRF in the circular plane as determined by
the hate-love and submission-dominance dimensions.

Ho$_2$: A sample of subjects for whom English is a second language
will not scale the items of the PRF in the circular plane
as determined by the hate-love and submission-dominance

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dimensions.

Ho$_3$: There will be no discernible gaps in the circular frequency distributions of the averaged item responses by either the English-speaking subjects and subjects for whom English is a second language.

Ho$_4$: There will be no significant differences between the item placements to the circular model by both samples of subjects.

Ho$_5$: The personality trait scales as defined by the PRF will not plot uniformly in circular order according to the circumplex model.

Subjects

Two nonequivalent female samples with an equal number of volunteer subjects were included in the study. The first sample of 100 subjects for whom English is the native language were all registered nurses in Illinois. Each subject holds a baccalaureate degree in nursing and majority (88) of them were currently taking courses for a Master of Science in Nursing at the Marcella Niehoff School of Nursing, Loyola University of Chicago. The rest (12) of the subjects were actively engaged in continuing education programs in nursing and/or taking courses towards a masters degree in a university in Chicago or nearby suburbs. The majority of the subjects (77%) were between the ages of 20-29, nineteen percent (19%) were between the ages of 30-39, and four percent (4%) were forty years old and over.

The second sample of 100 subjects for whom English is a second language consisted of a multi-culture group. The majority (73%) were from the Philippines, and the remainder were from Thailand (13%),

Korea (11%) and India (3%). Less than half (44%) of the second sample was between the ages of 20-29, forty-five (45%) were 30-39 years old, and nine percent (9%) were forty years old and over. Among this group, the age at which the English language was first learned was also obtained. Subjects from the Philippines (73%) first learned English at school entry. That is, between the ages of five to seven (5-7) English being the medium of instruction. The rest of the subjects, with one not responding, learned English at ages 8-16 (19%), and seven percent (7%) first learned English at ages 18 to 46.

The educational background of this sample varied from a basic diploma training in nursing (38%) to a baccalaureate nursing degree (61%), and a limited to a considerable active participation in continuing education programs in nursing. Only ten percent (10%) of this sample were currently enrolled in a Master of Science in Nursing at the Marcella Niehoff School of Nursing, Loyola University of Chicago. Seventy-five percent of the subjects were registered nurses in Illinois and/or another state. Twenty-five percent (25%) were preparing to take the National Licensing Examination in Nursing for the first time in the United States. The length of stay in U.S.A. ranged from 1-3 years (34%), 4-10 years (43%), 11-17 years (19%), 19-26 years (3%), and one non-response.

Procedure

Permission was obtained from Jackson (PRF author) and the Psychologist Press (PRF Publisher) to reproduce and research the complete 440 items of the PRF-AA.

The PRF items were typed in a Likert-type nine point scale from

-4 to 4 using the bipolar dimensions: hate-love and submission-dominance for the double scaling procedure by each subject. The bipolar dimensions were anchored by the adverbs: Extremely, Strongly, Moderately, and Mildly (with a Neutral center).

The face sheet of the instrument was designed to include the general purpose of the study, the instructions for and an example of the scaling procedure, and the demographic data.

The demographic data obtained from subjects in both populations included age and educational background. Data elicited from subjects for whom English was a second language included: birthplace, age at which English was first learned, number of years in the United States, and whether English was spoken only at work, at home, and when necessary.

The general purpose of the study cited was: "it is a study of the meaning of the statements relative to the bipolar dimensions: hate-love and submission-dominance; and, that the study is not a study of the personality of the subjects."

The instructions given were: (1) the subjects were to judge to what extent the statement seems to be related to either of the poles of the bipolar dimensions presented at the top of the instrument and to place a check in the blank space of the appropriate column opposite the statement, (2) if the statement did not seem to relate to the dimension, the subject is to place the check mark in the neutral column, (3) if the subject has no ideas as to the meaning of the statement, she should leave that item and place no check mark for it, and (4) the subjects are to judge and scale the statement as fast as possible following their first inclination as to where to place the mark, and that

they should not delibrate too long over any one statement.

The instruments were logically ordered so as to minimize the possible effects of difficulty in scaling the meaning of the statements relative to the two dimensions, as well as the plausible effects of fatigue on responses of subjects after scaling the 440 statements into one of the dimensions. Thus, each set of the instruments for the double scaling procedure was alternately stapled and presented as stimuli to the subject. That is, each set which contained the two dimensions having the same code were stapled in alternate order. If one set consisted of a hate-love dimension followed by the submission-dominance, the next sequentially coded set of instruments had the reverse order of the two dimensions.

Equal number of the alternately stapled sets of instruments were randomly distributed to the three intact classes of English-speaking subjects. All subjects in two of the three classes completed the double scaling procedures within 70-110 minutes. The first and second classes consisted of nine (9) students in the Research I course and 18 students in the Concepts and Theory Development course. The third intact class, also a Research I course, had nine (9) students. Five students in this class completed the scaling procedures during the given class time of one hour. Four students completed and returned the instruments within three days. The rest of the subjects in both populations were each given one set of the instruments which was returned within one to three weeks.

Inspection of Data

Completed instruments were inspected for completeness and gross

irregularities. Instruments which were not completed were discarded.
In addition, four instruments were not used in the data analysis
because in each of the double scaling procedures, all the items (state-
ments) but 4-8 were rated neutral by each subject. The subjects were
from the English-speaking population. Two instruments were also dis-
carded because both of the subjects used only the strongly negative and
strongly positive scales in each of the double scaling procedures.
The subjects were from the population for whom English was a second
language. Lastly, one instrument was not used because the subject
(English-speaking) checked both poles (two checks for each statement)
of the hate-love dimension in the last six (6) pages of the instrument.

Responses in each of the usable instruments were transferred into
punched cards for computer analysis. The punch cards were submitted
to the Computer System, IBM 3777, at Loyola University. The data was
stored on disk, off-line listing of the data was then examined for any
inappropriate entry, irregularities or errors and necessary corrections
were made. The data analytic routine used the Statistical Analysis
System (SAS), version 79.5, SAS Institute Inc., Box 8000, Cary, North
Carolina 27511. Hand checks were made for computer accuracy for
selected items in each part of the output.

Data Analysis

Frequency of ratings by each group of subjects in the Likert-
type scaling method in each of the two dimensions, hate-love and
submission-dominance were obtained. Additionally, a univariate
analysis consisting of means, standard deviations, standard means,
variance, skewness, kurtosis, coefficient of variations, quartiles,

USS, CSS, and t-test. The t-test of significance was used to determine if the means were significantly different from zero. If any item was scaled at the origin in both dimensions, the item was judged "not scaled".

To test the first three hypotheses, the mean for each item from the hate-love (H-L) and submission-dominance (S-D) dimensions were used to form an ordered pair. The ordered pair was then used to find the corresponding angle lying on the unit circle. The angular values for each of the 440 PRF items were then arranged in circular oder, from 0-360 degrees, for each population. A circular plot of the angular values for each population was made.

To test the fourth hypothesis, the Kolmogorov-Smirnov Two Sample Test was applied to each of the 440 items in both scaling procedures. Additionally, circular plots of the 20 items for each of the 22 PRF scales for both populations were done. The negatively scored items were reflected 180 degrees in each of the 22 scales.

To test the fifth hypothesis, means for each of the 20 items were found for both H-L and S-D dimensions which were used to form the bivariate pair for which a resultant vector (angle) was found. The resultant vectors were computed for Group A (English-speaking) subjects. The resultant vectors of the 22 PRF scales were then plotted into the unit circle.

CHAPTER IV

RESULTS

This chapter contains the results relative to each of the five hypotheses. The results are discussed according to the sequence of the data analysis in Chapter III. Thus, hypothesis one to five are investigated sequentially using the aforementioned statistical procedures.

The data is based on the 100 sample subjects in each of the two populations. The groups are designated: (1) Group A = English is the native language, and (2) Group B = English is a second language.

Frequency Distribution

The frequency distribution of responses to individual items in each dimension: hate-love (H-L) and submission-dominance (S-D) for each group of subjects was examined for random ratings. The Kolmogorov-Smirnov Goodness of Fit to the normal curve (shown in Table 8 and Table 9, asterisks (*) preceding each item-statement) revealed that for Group A, all the items in the hate-love dimension and all but three items (162, 230, 285) in the submission-dominance dimension were statistically significant at $p \leq .01$ for almost all of the items. Only a few items were statistically significant at the $p \leq .05$ level.

Group B subjects had 61 items in the H-L dimension and 76 items in the S-D dimension not achieving statistical significance at $p \leq .05$. Table 8 (See Appendix A, p. 149) lists the items, the frequency

distribution, the level of significance for each item in the H-L dimension for both groups of subjects. The first row of numbers contains the data for Group A and the second row contains the data for Group B. Likewise, Table 9 (See Appendix B, p. 180) lists the items, the level of significance and frequency ratings in the S-D dimension for both populations.

Table 10 lists the items which were not statistically different from uniform distribution grouped by scale category for Group B. It is interesting to note that all items in the Understanding (Un) scale were statistically significant in the S-D dimension and all except one item (393) were not significant in the H-L dimension. Overall, the Kolmogorov-Smirnov (K-S) test indicate fewer items not statistically significant in the H-L dimension. Of the 22 scales, only one item in four scales: Defendence (De), Impulsivity (Im), Succorance (Su), and Understanding (Un), and two items in Abasement (Ab), Affiliation (Af), Aggression (Ag), Change (Ch), Dominance (Do), Nurturance (Nu), Social Recognition (Sr), and Social Desirability (Dy) scales did not reach statistical significance. The data thus seem to imply that approximately one third of the subjects in Group B experienced more difficulty and uncertainty in scaling the items in the S-D dimension. This finding partially supports the verbalized difficulty in interpretation.

t-test on the Means of Individual Items

The t-statistic was used to test the mean of individual items for significance at $/t/ = p \leq .05$. An item was judged "not scaled" if the test on the mean had a value of $/t/ = p > .05$ on both H-L and S-D dimensions. The t-test was performed on the data for both groups

Table 10

Scale Category of Items Which Were Not Statistically Significant Using the Kolmogorov-Smirnov Goodness of Fit Test of the Frequency Distribution of Items in the Two-Dimensional Scaling Procedure by the Group of Subjects for Whom English is not the Native Language. Negative (-) Signs Indicate the Opposite Poles of the Bipolar PRF Scales

Scale:	Ab	Ac	Af	Ag	Au	Ch	Cs	De	Do	En	Ex
LOVE-HATE DIMENSION	-111	178	69	180	-5	226	117	-228	9	-54	-121
	-155	354	-91	-378	-93	-248	-183		53	76	-165
		-376			-357		205			-142	-209
							249				-297
							-271				-385
							381				
Total:	2	3	2	2	3	2	6	1	2	3	5
SUBMISSION-DOMINANCE DIMENSION	-23	-24	-47	-114	-49	-72	73	118	-31	76	99
	221	-244	-135	400	159		-183	163	405	120	143
		-288	-355		247		-227	250	-427	252	187
					-313		-359	294		240	275
					-357		-403	382		384	363
							425				
Total:	2	3	3	2	5	1	6	5	3	5	5

Table 10 (continued)

Scale:	Ha	Im	Nu	Or	Pl	Se	Sr	Su	Un	In	Dy
LOVE-HATE DIMENSION	122	245	-58	103	38	-127	238	-327	393	87	286
	-188		212	-169	-280	149	326			219	374
	386			191	-324	-215				373	
				-257	434	-259					
				-345		413					
				-433							
Total:	3	1	2	6	4	5	2	1	1	3	2
SUBMISSION-DOMINANCE DIMENSION	122	-123	-102	191	-104	17	-304	41		-43	-264
	166	-167	388	-389	-197	105		-107		263	-252
	210	-387	-410	-433	258	237		129		-307	-308
	298				246	413		305		395	
	242										
	-364										
	-408										
Total:	7	3	3	3	4	4	1	4	0	4	3

GRAND TOTAL: LOVE-HATE DIMENSION = 61   SUBMISSION-DOMINANCE DIMENSION = 76

GRAND TOTAL OF NEGATIVE ITEMS: LOVE-HATE = 30   SUBMISSION-DOMINANCE = 36

of subjects.

Table 11 (See Appendix C, p. 211) lists the means, the standard deviations, and the number of subjects for both groups.

Table 12 (See Appendix F, p. 266) lists the scaled items, the corresponding scale category of the items, the signs for the positively (+) and negatively (-) scored items, the statements for the items, the angles, vector lengths, sines, and cosines of the items, for Group A. The "not scaled" items and statements are listed in Table 13. A total of 22 items were judged not scaled using the t-test criteria. Fifteen (15) of the items were negatively scored. Distribution of the items into their scale category ranged from one in Succorance (Su) to a maximum of five in Sentience (Se) scale. Based on the results of the K-S test and the t-test on the means, the first null hypothesis (a sample of English-speaking subjects will not scale the items of the PRF in the circular plane as determined by the hate-love and submission-dominance dimension) is rejected.

t-test on the means for Group B showed 108 non-scaled items. One half of the items were positively scored and one half are negatively scored. Table 14 lists the non-scaled items, their corresponding signs and statements. Table 15 lists the non-scaled items grouped by scale category. The distribution of items in their respective scales ranged from one in Aggression (Ag) to eleven in Sentience (Se). Although a larger number of items were judged "not scaled" by this group of subjects, the greater proportion of scaled item leads to the rejection of the second null hypothesis (a sample of subjects for whom English is a second language will not scale the items of the PRF in the circular

Table 13

Non-Scaled Items (p > .05), Scale Category and the
Positively (+) and Negatively (-) Scored Statements by
Group A Subjects for Whom English is the Native Language

Item	Scale	Positive Negative	Statements
16	Pl	-	I feel that adults who still like to play have never really grown up
39	Se	-	Most animals are rather uninteresting to watch
60	Pl	-	I consider most entertainment to be a waste of time
61	Se	+	The smell of freshly-baked bread makes my mouth water
127	Se	-	I rarely notice how things smell
146	Nu	-	I get little satisfaction from serving others
172	Sr	-	It seems foolish to me to worry about my public image
200	Ac	-	I really don't enjoy hard work
214	Pl	+	I like to go "out on the town" as often as I can
235	Or	+	A messy desk is inexcusable
244	Ac	-	I have rarely done extra studying in connection with my work
246	Ag	-	If I have to stand in line, I seldom try to cut ahead of the other people
279	Or	-	My work is always well organized
304	Sr	-	If I have done something well, I don't bother to call it to other people's attention
314	Ch	+	I like to work on several projects at the same time so I can change from one to another
326	Sr	+	I feel that my life would not be complete if I failed to gain distinction and social prestige
347	Se	-	I don't like the feeling of wind in my hair
377	Af	+	I spend a lot of time visiting friends
392	Sr	-	When I am being introduced, I don't like the person to make lengthy comments about what I have done
415	Su	-	I prefer to take care of things for myself, rather than have others watch out for me
422	Ag	-	I try to show self-restraint to avoid hurting other people
435	Se	-	I would never spend my money to have a steam bath

Table 14

Non-Scaled Items (p > .05), Scale Category, and the
Positively (+) and Negatively (-) Scored Statements by Subjects
(Group B) for whom English is not the Native Language

Item	Scale	+ -	Statement
007	Cs	-	I live from day to day without trying to fit my activities into a pattern
012	Ha	-	I almost always accept a date
014	Nu	-	I think a man is smart to avoid being talked into helping his acquaintances
016	Pl	-	I feel that adults who still like to play have never really grown up
018	Sr	+	I consider it important to be held in high esteem by those I know
050	Ch	+	I like to have new things to eat from week to week
056	Ha	-	I would enjoy learning to walk on a tightrope
059	Or	+	When I am going somewhere I usually find my exact route by using a map
061	Se	+	The smell of freshly-baked bread makes my mouth water
074	De	+	I don't like people to joke about what they feel are my shortcomings
076	En	+	If people want a job done which requires patience, they ask me
077	Ex	-	I would not like the fame that goes with being a great athlete
097	Do	+	I feel confident when directing the activities of others
102	Nu	-	I dislike people who are always aking me for advice
104	Pl	-	When I have a choice between work and enjoying myself, I usually work
120	En	+	If I want to know the answer to a certain question, I sometimes look for it for days
122	Ha	+	I can't imagine myself jumping out of an airplane as skydivers do
124	Nu	+	People like to tell me their troubles because they know that I will do everything I can to help them
127	Se	-	I rarely notice how things smell
130	Un	+	I have unlimited curiosity about many things
137	Au	-	I usually try to share my problems with someone who can help me
138	Ch	+	I am always looking for new routes to take on a trip
144	Ha	-	I think it would be enjoyable and rather exciting to feel an earthquake
145	Im	+	I have often broken things because of carelessness
160	Ch	-	It would take me a long time to adapt to living in a foreign country

Table 14 (continued)

Item	Scale	+ -	Statement
163	Do	-	Most community leaders do a better job than I could possibly do
166	Ha	-	I avoid some hobbies and sports because of their dangerous nature
168	Nu	+	I believe in giving friends lots of help and advice
170	Pl	+	Most of my spare moments are spent relaxing and amusing myself
171	Se	-	I feel about the same after a hearty meal as before one
184	De	-	I don't get angry when people laugh at my errors
189	Im	+	I enjoy arguments that require good quick thinking more than knowledge
192	Pl	-	Practical jokes aren't at all funny to me
194	Sr	+	Nothing would hurt me more than to have a bad reputation
196	Un	-	Abstract ideas are of little use to me
198	Dy	+	My memory is as good as other people's
199	Ab	-	I avoid situations which would make me seem inferior
200	Ac	-	I really don't enjoy hard work
202	Ag	-	If someone hurts me, I just try to forget about it
204	Ch	-	I would be satisfied to stay at the same job indefinitely
207	Do	-	I think it is better to be quiet than assertive
209	Ex	-	At a party, I usually sit back and watch the others
211	Im	-	I am not one of those people who blurt out things without thinking
214	Pl	+	I like to go "out on the town" as often as I can
215	Se	-	I have never seen a statue that reminded me of a real person
225	Au	-	Family obligations make me feel important
226	Ch	+	The main joy in my life is going new places and seeing new sights
228	De	-	I am only very rarely in a position where I feel a need to actively argue for a point of view I hold
235	Or	+	A messy desk is inexcusable
242	Dy	+	Most of my teachers were helpful
244	Ac	-	I have rarely done extra studying in connection with my work
249	Cs	+	I don't like situations that are uncertain
250	De	+	Since people are always looking for a person's weak spots, I am careful never to talk about mine
254	Ha	+	I prefer a quiet, secure life to an adventurous one
259	Se	-	All cheeses taste the same to me
263	Im	+	I think the world would be a much better place if no one ever went to school
265	Ab	+	When I was a child I allowed other children to take my toys away from me

Table 14 (continued)

Item	Scale	+/-	Statement
266	Ac	+	People have always said that I am a hard worker
273	Do	+	When two persons are arguing, I often settle the argument for them
277	Im	+	It seems that emotion has more influence over me than does calm meditation
278	Nu	-	I avoid doing too many favors for people because it would seem as if I were trying to buy friendship
282	Sr	+	One of the things which spurs me on to do my best is the realization that I will be praised for my work
283	Su	-	I prefer to face my problems by myself
284	Un	-	I really don't know what is involved in any of the latest cultural developments
296	En	+	When I am working outdoors I finish what I have to do even if it is growing dark
297	Ex	-	I think that trying to be the center of attention is a sign of bad taste
301	Or	-	I often forget to put things back in their place
303	Se	-	I rarely sit and watch the water at a beach or stream
308	Dy	-	I often question whether life is worthwhile
310	Ac	+	I don't mind working while other people are having fun
311	Af	-	When I see someone I know from a distance, I don't go out of my way to say "Hello"
314	Ch	+	I like to work on several projects at the same time so I can change from one to another
318	En	-	If I get tired while playing a game, I generally stop playing
322	Nu	-	People's tears tend to irritate me more than to arouse my sympathy
323	Or	+	I spend much of my time arranging my belongings neatly
325	Se	+	One of my favorite pastimes is sitting before a crackling fire
326	Sr	+	I feel that my life would not be complete if I failed to gain distinction and social prestige
330	Dy	+	I am able to make correct decisions on difficult questions
332	Ab	-	It doesn't really matter to me whether I become one of the best in my field
335	Au	+	I would not mind living in a very lonely place
343	Im	-	If I am playing a game of skill, I attempt to plan each move thoroughly before acting
347	Se	-	I don't like the feeling of wind in my hair
348	Sr	-	I don't try to "keep up with the Joneses"
353	Ab	+	I let people get ahead of me when waiting in a line since they probably have something more important to do than I do

Table 14 (continued)

Item	Scale	+/-	Statement
354	Ac	+	Sometimes people say I neglect other important aspects of my life because I work so hard
355	Af	-	I want to remain unhampered by obligations to friends
362	En	-	I am easily distracted when I am tired
366	Nu	-	I become irritated when I must interrupt my activities to do a favor for someone
367	Or	+	I keep my possessions in such good order that I have no trouble finding anything
369	Se	+	Certain pieces of music remind me of pictures or moving patterns of color
379	Au	+	Having a home has a tendency to tie a person down more than I would like
381	Cs	+	Each day I check the weather report so that I will know what to wear
382	De	+	I deliberately keep people from getting to know me too well
385	Ex	-	I don't like to do anything unusual that will call attention to myself
386	Ha	+	I will not climb a ladder unless someone is there to steady it for me
391	Se	-	I am not very good at describing things
392	Sr	-	When I am being introduced, I don't like the person to make lengthy comments about what I have done
394	Un	+	I am unable to think of anything that I wouldn't enjoy learning about
395	Im	+	I can run a mile in less than four minutes
398	Ac	+	I enjoy work more than play
399	Af	-	I am quite independent of the people I know
402	Ch	+	I would rather make new and different friends than spend my time with old friends
411	Or	+	I can't stand reading a newspaper that has been messed up
413	Se	+	I like to feel sculptured objects
415	Su	-	I prefer to take care of things for myself, rather than have others watch out for me
416	Un	-	There are many activities that I prefer to reading
417	Im	-	I would have a hard time keeping my mind a complete blank
429	Ex	-	The idea of acting in front of a large group doesn't appeal to me

Table 15

Non-Scaled Items Grouped by Scale Category: Group B Subjects

Scale

Ab	Ac	Af	Au	Ch	Cs
-199	-200	-311	-137	50	-7
265	-244	-399	-225	138	249
-332	266	-355	335	-160	381
353	310		379	-204	
	354			226	
	398			314	
				402	

De	Do	Ha	Im	Or	Pl	En	Ex
74	97	-12	145	59	-16	76	-77
-184	-163	-56	189	235	-104	120	-209
-228	-207	122	-211	-301	170	296	-297
250	273	-144	277	323	-192	-318	-385
382		166	-343	367	214	-362	-429
		254		411			
		386					

Nu	Se	Sr	Su	Un	Im	Dy
-14	61	18	-283	130	263	198
-102	-127	194	-315	-196	395	242
124	-171	282		-284	-417	-308
168	-215	326		394		330
-278	-259	-348		-416		
-322	-303	-392				
-366	325					
	-347					
	369					
	-391					
	413					

plane as determined by the hate-love and submission-dominance dimensions).

ANGULAR PLOTS OF ITEMS INTO THE CIRCUMPLEX

Circular Ordering of the Total Items

The angle, vector length, sine and cosine of each of the 440 PRF items were calculated for each group of subjects. Table 16 (See Appendix D, p. 242) lists the data for Group A and Table 17 (See Appendix E, p. 254) contains the data for Group B. The items are listed according to their ordinal relationships within the circumplex. Referring back to Table 12 (Group A data), it is noted that there are 418 items which are statistically significant at $/t/ = p \leq .05$. The table depicts that the items are circularly ordered in varying degrees of relatively meaningful relationships. The relationships are defined by the angular proximity of items for a particular scale and the inter-relatedness of the statements within a sector, e.g., 5 to 10 degrees, of the unit circle. Scattering of clustered items are noted which vary from 2 to 5 congruently scored (all positives or all negatives) items for a particular scale. Additionally, the relationships between scale traits defined by the ordered angular distribution of "meaning-fully" related item-statements are located in only a few sectors of the circumplex. The trait scale-statements are positively or negatively related. Examples:

Item	Scale	Angle	Statement
-7	Cs	186.4	I live from day to day without trying to fit my activities into a pattern.
-28	Ch	186.8	Changes in routine disturb me.

405   Do   23.4   With a little effort, I can "wrap most people around my little finger".

-8   De   26.9   When someone presents me with strong arguments, I usually settle on some middle ground.

Graphical illustrations of the angular ranking of the 440 items by both groups of subjects were made. Figure 4 is the circular plot for Group A and Figure 5 is the circular plot for Group B. Figure 6 contains the circular plots for both groups. The outer ring is by Group A and the inner ring is by Group B. The figure delineates the differences in the areas where the gaps occurred in the circle.

The three figures demonstrate the ordering of items within the unit circle. Some of the items fall at the same point in the circle. The numerous items necessarily covered almost all discernible points in the circle except for a few gaps ranging from one to six degrees. Thus, the third null hypothesis (there will be no discernible gaps in the circular frequency distribution of the averaged item responses by either the English-speaking subjects and subjects for whom English is a second language) is also rejected.

Individual Item Mean: Differences Between Groups

The individual items were examined for variability between groups of subjects using the Kolmogorov-Smirnov Two Sample Test. Table 8 and Table 9 also list the items in each dimension achieving statistical significance at the $p \leq .01$ and $p \leq .05$ levels delineated by the asterisk (*) preceding the item-number. The K-S two sample test revealed a total of 152 items in the H-L dimension and 106 items in the S-D dimension not statistically significant as shown in Table 18 and Table 19 respectively, by Group B. This finding seems to support the conjectured

DOMINANCE
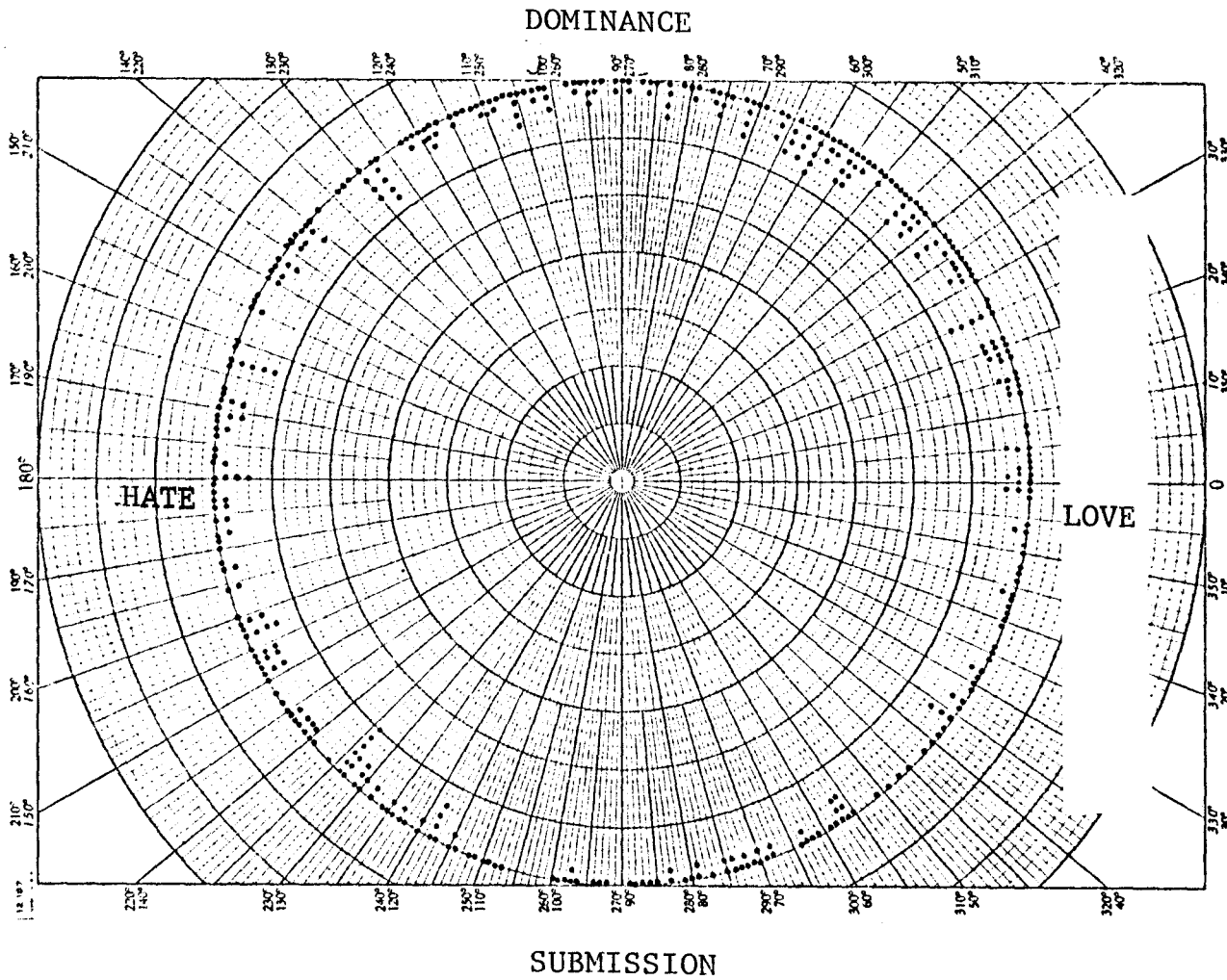
SUBMISSION

Figure 4. Angular Placement of the 440 PRF Items from the Two-
Dimensional Scaling Procedure by the English-Speaking
Subjects

DOMINANCE
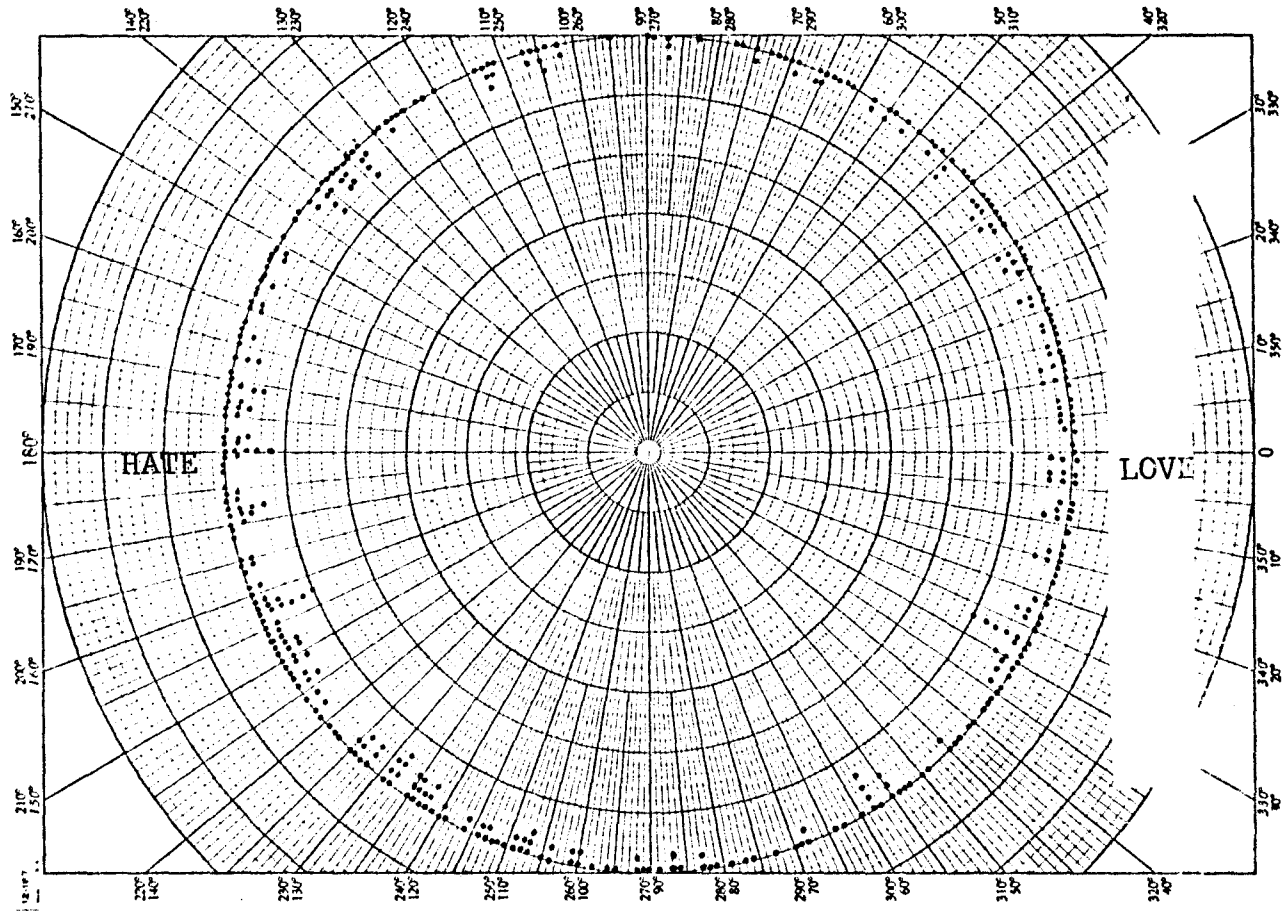
Figure 5. Angular Placement of the 440 PRF Items from the Dimensional Scaling
Procedure by the Non-English Speaking Subjects
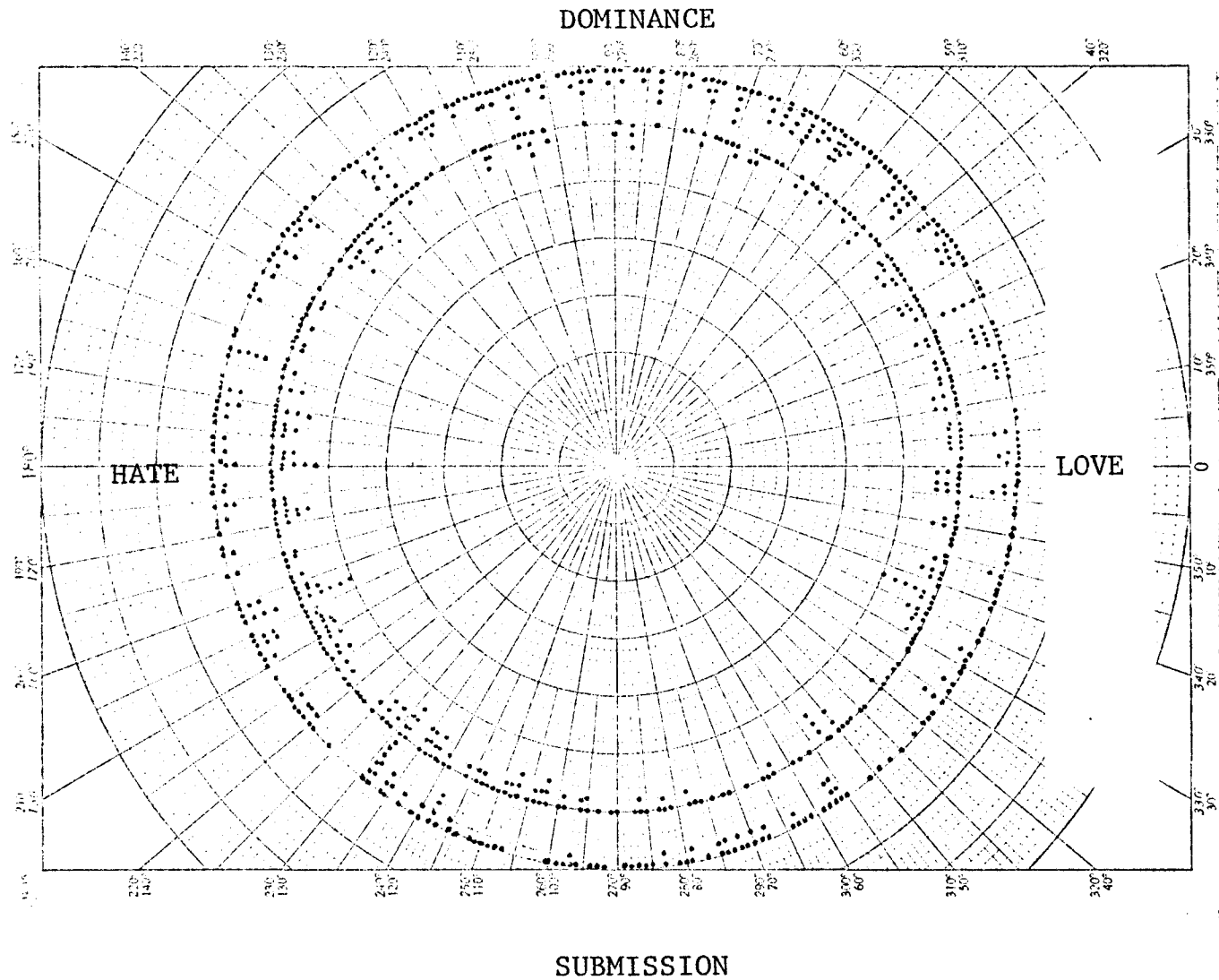
Figure 6. Angular Placement of the 440 PRF Items by the English-
Speaking Subjects(Outer Ring) and the non-English
Speaking Subjects (Inner Ring)

Table 18

Scale Category of Items Which Were Not Statistically Significant Using the Kolmogorov-
Smirnov Two Sample Test of the Frequency Distribution of Items in the Two-Dimensional
Scaling Procedure. Negative (-) Signs Indicate the Opposite Pole of the Bipolar PRF Scales

LOVE-HATE DIMENSION

Scale: Ab	Ac	Af	Ag	Au	Ch	Cs	De	Do	En	Ex
-23	-24	25	4	-5	270	73	-8	141	-98	11
45	-68	-47	-26	203	402	161	30	-295	-230	-33
177	90	69	136	-269		-183	-52	-383	296	55
221	-200	113	180	291		-271	118		-318	-77
309		-179	-202	-401		293	-140		-362	
-331		201	224	423		-359	162		-406	
397		-311	-246			-403	-184			
-419		333	268				-228			
		421	-290				250			
			-334				294			
			356				-316			
			-422				-360			
							426			
Total: 8	4	9	12	6	2	7	13	3	6	4

Table 18 (continued)

Scale: Ha	Im	Nu	Or	Pl	Se	Sr	Su	Un	In	Dy
-12	13	-102	15	-16	105	18	217	-108		22
386	-79	124	59	-60	281	62	347	174		66
	-123	168	-125	-104		150		-196		-264
	233	-234	147	170		282		262		286
	-299	256	-213	-192		-348		-284		330
	-343	-278	279	-236				306		
	-387	344	323	258						
	-431	388	367	-280						
		-410		-324						
				-368						
Total: 2	8	9	8	10	2	5	2	6	0	5

GRAND TOTAL = 104

GRAND TOTAL OF NEGATIVE ITEMS = 52

Table 19

Scale Category of Items Which Were Not Statistically Significant Using the Kolmogorov-Smirnov Two Sample Test of the Frequency Distribution of Items in the Two-Dimensional Scaling Procedure. Negative (-) Signs Indicate the Opposite Pole of the Bipolar PRF Scales

SUBMISSION-DOMINANCE DIMENSION

Scale: Ab	Ac	Af	Ag	Au	Ch	Cs	De	Do	En	Ex
1	-68	-179	-26	203	-28	-7	74		-10	-429
45	134	-223	-158	291	-160	161	162		32	
-199	222	-267		-313	-292	205	-184		76	
-375	-288	289		335	-336	-271	250		164	
	310					337	-316		-230	
	354					-403	338		252	
							-360		-274	
									-318	
									-362	
Total: 4	6	4	2	4	4	6	7	0	9	1

Table 19 (continued)

| Scale: | | | | | | | | | | |
Ha	Im	Nu	Or	Pl	Se	Sr	Su	Un	In	Dy
-12	57	36	59	-60	105	18	-19	42	-197	66
-56	-79	-234	-125	214	-127	-84	173	262	219	-88
78	-167	300	-169		-171	106	217	-284	263	110
-100	-343		235		193	-128	261	-328	285	286
-144	365		279		237	238	-283	438	-351	-308
-364	-387		-301		-259	-260	349			330
-408			-389		-303	282	393			-352
			411		325	326	-415			374
					-347	-348	437			-440
					369	370				
					-391	414				
					413	-436				
Total:										
7	6	3	8	2	12	12	9	5	5	9

Grand Total = 152

Grand Total of Negative Items = 76

difficulty by this group in scaling the items in the S-D dimension as previously implied by the greater proportion of items not significantly different from a uniform distribution using the K-S test criteria.

Items which were congruently rated (not statistically significant) using the K-S two sample test grouped by scale category ranged from zero in the Dominance and Infrequency scales in the S-D dimension to a maximum of 13 (defendence scale) in the H-L dimension. Considering the number of items similarly rated by both groups in the specific scales and dimension, and the complete absence of similarity in the Do scale (S-D) dimension one may infer the possible effect of education and training in this unique groups (all nurses) despite their differences in academic background. Additionally, the effect of cultural and ethnic characteristics is implied but needs further study.

Scale Plots: Differences Between Groups

Circular plots of the ordered angles of the 20 items in each of the 22 PRF scales were made for each population. The scale plots for Group A (Figures 7-28) show major gaps as much as 112 degrees in the Cs scale, and non-uniformity in the areas where the gaps occurred. Only seven (7) scales demonstrate scaled items where they are concep- tually expected to fall, e.g., abasement scale has four positively scored items clustering within 40 degrees in the submission pole, three items at 45 degrees toward the hate pole of the H-L axis, and eight negatively scored items within 90 degrees at the dominance pole of the S-D axis (ordinate). Another example is the six positively scored items of Or scale located at the quadrant of dominance and love, and the five positively scored items at the midpoint of the quadrant of

dominance and hate for the Aggression scale. Lastly are the six negatively scored items of the Su scale clustering within 45 degrees of the dominance axis (ordinate).

Overall, some scales (do seem to) demonstrate the dimension towards which the scale trait clearly tends to scale. Examples are: Ab, Af, Ch, Ex, Im, and Se in the S-D dimension, and Su in the H-L dimension. When one considers the non-scaled items, only one item is not scaled in the Af and Ch scales, five items in the Se scale, four items in the Sr scale, and no item is non-scaled in the Ab and Im scales. Thus, the non-scaled items do not drastically affect the ordering of items into the circumplex.

Group B's circular plots of item-angles demonstrate more variability in the location of the scored items and the areas where the gaps occurred in the circle (Figures 29-50).

Scale traits which tend to scale towards the H-L axis are: Ag, Ch, Ex, Nu, Se, and Su. Among these scales, the number of non-scaled items by scale category are: Ag = 1, Ch = 7, Ex = 5, Nu = 7, Se = 11, and Su = 2. Hence, the proportion of non-scaled items in three of the scales would seem to alter the circular ordering of items.

In the S-D dimension, there is less clearly identified clustering of items in either pole. The number of items which polarize in either of the poles are limited to a few of 2 to 6 items with a maximum of 8-15 items (negatively scored items reflected 180 degrees) in any one quadrant of the circle. An example is the Sr scale. Although a total of 15 items are within the Dominance and Hate quadrant, eight (8) items cluster more towards the hate pole and seven (7) items at the

dominance pole.

A closer examination of group differences in the exact angular placements of individual items are illustrated in the aforementioned Figures 7-50. The proportion of items scaled by both groups having angular values within ten degrees of one another in any one scale ranged from 2 to 9. The two scales with the least number of items placed at almost precisely at the same point in the circle are the Affiliation and Succorance scales. The scales with the maximum number of items having almost equal angles are: Understanding, Social desirability, Autonomy, Defendence, Impulsivity, and Harm avoidance. A few examples of the items with almost equal angles are:

Item	Scale	Angle:	Group	Statement
		A	B	
229	Do	201.6	203.8	When I am with someone else I do most of the decision-making.
405	Do	203.4	206.7	With a little effort, I can "wrap most people around my little finger".
29	Cs	53.8	54.9	When I talk to a doctor, I want him to give me detailed explanation of any illness I have.
159	Au	305.0	302.8	I like to have a job in which I don't have to answer to anyone.
-8	De	206.9	206.2	When someone presents me with strong arguments I usually try to settle on some middle ground.
-431	Im	277.3	277.6	I like to take care of things one at a time.

In general, individual items per scale category revealed that most of the differences between the two groups of subjects are related to the pole towards which the item is scaled. Examples are:

74
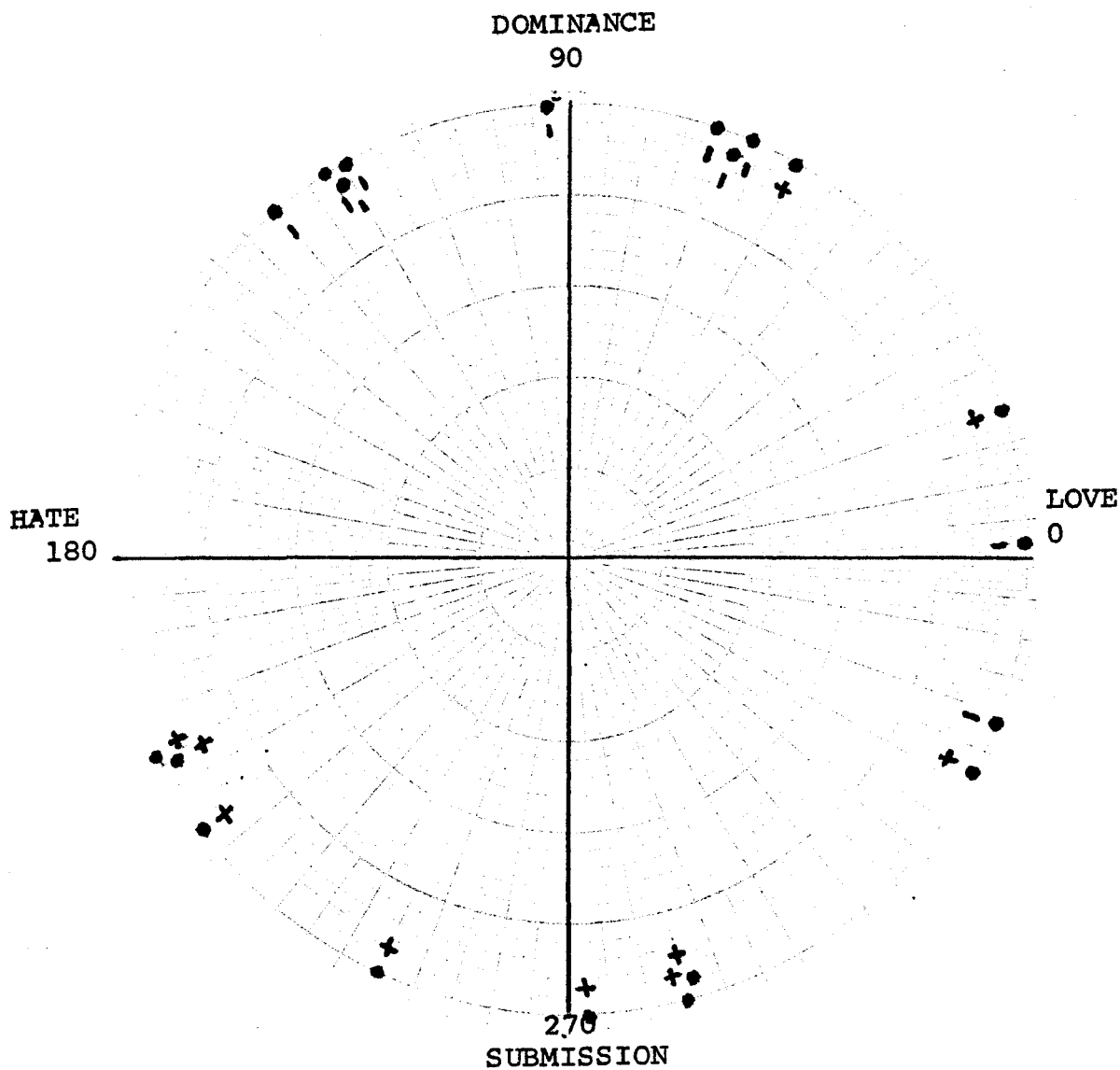
Figure 7. Ab Scale Circular Plot: Group A
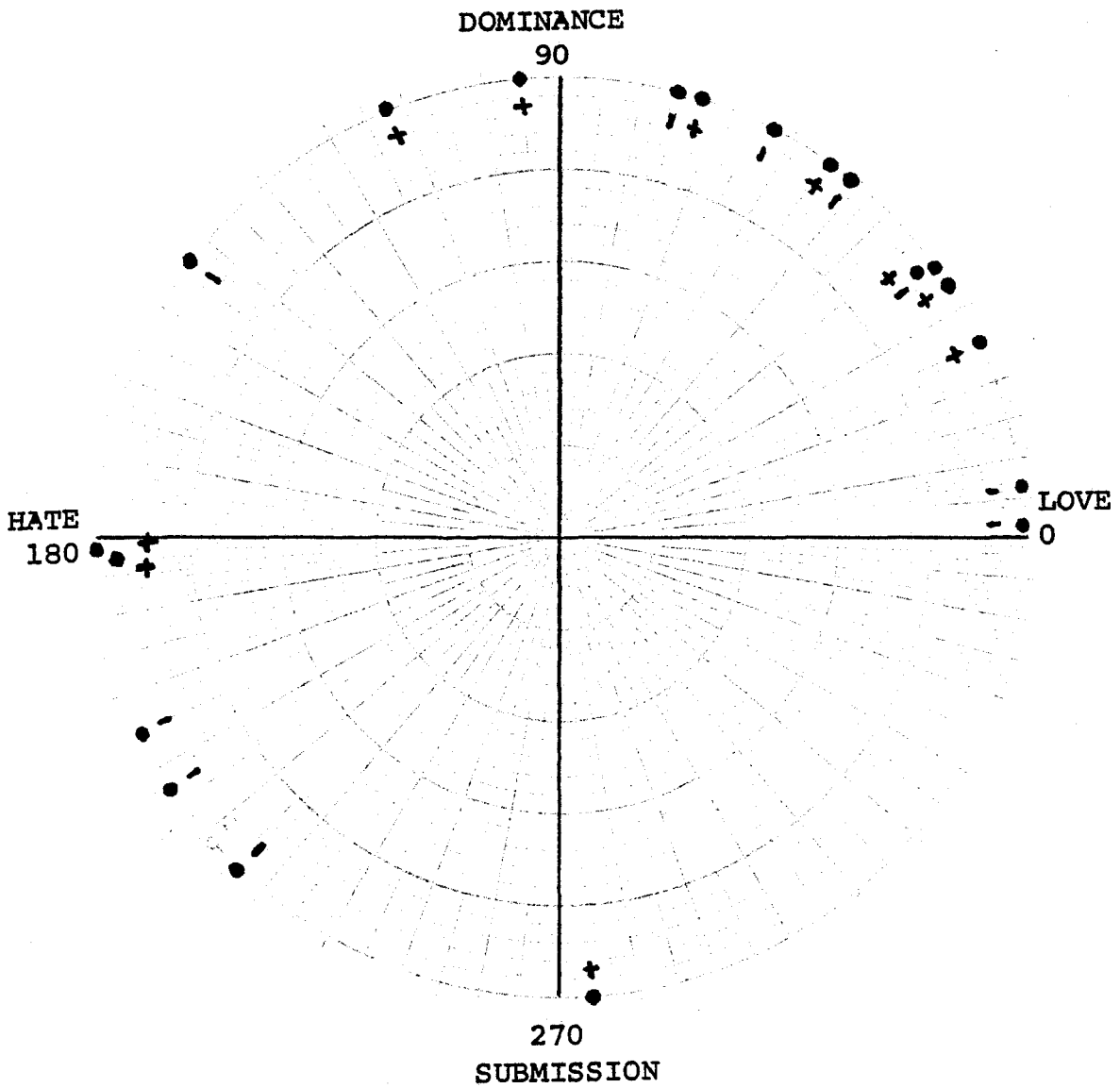
Figure 8. Ac Scale Circular Plot: Group A
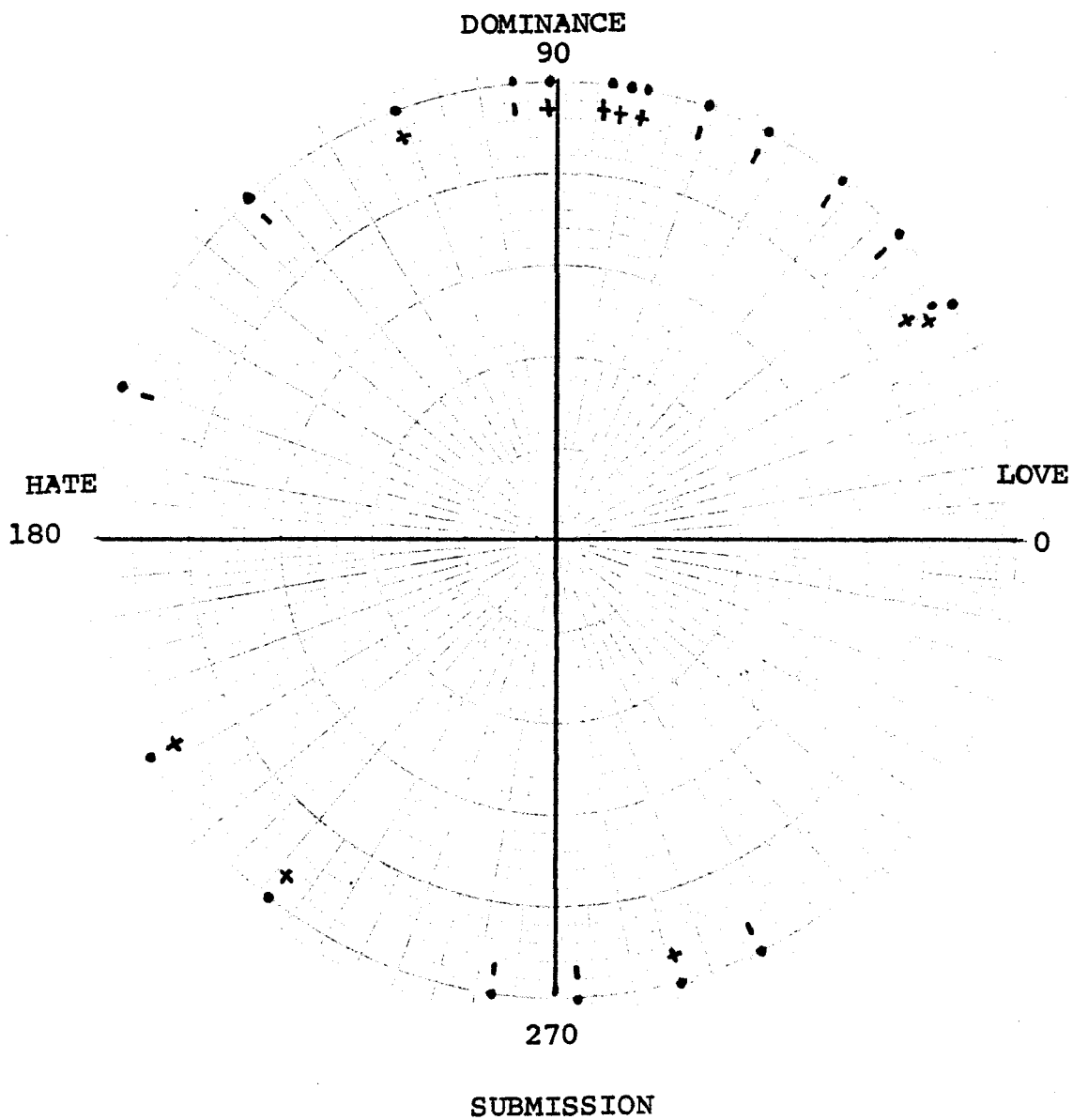
Figure 9. Af Scale Circular Plot: Group A

77
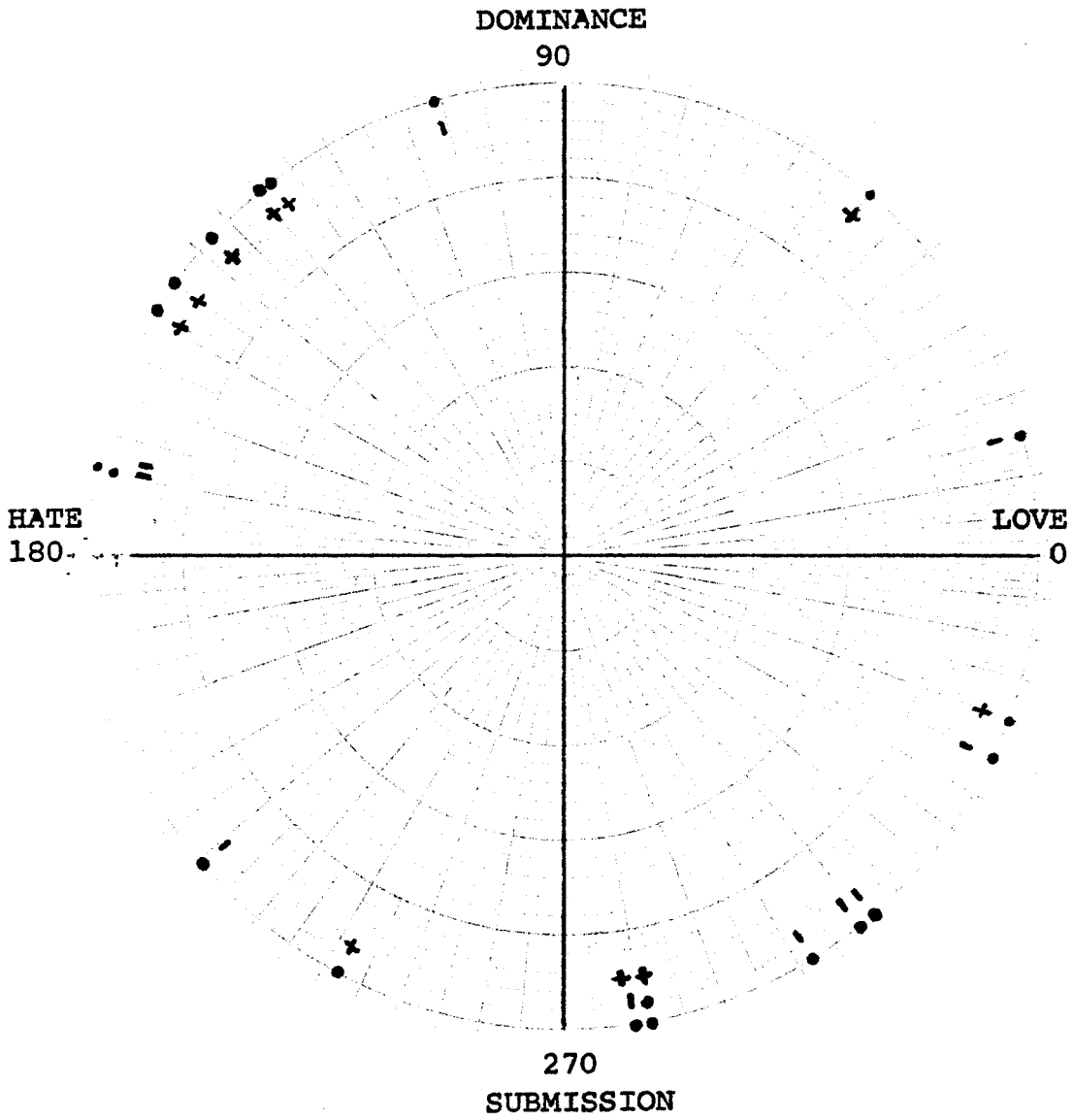
Figure 10. Ag Scale Circular Plot: Group A

78
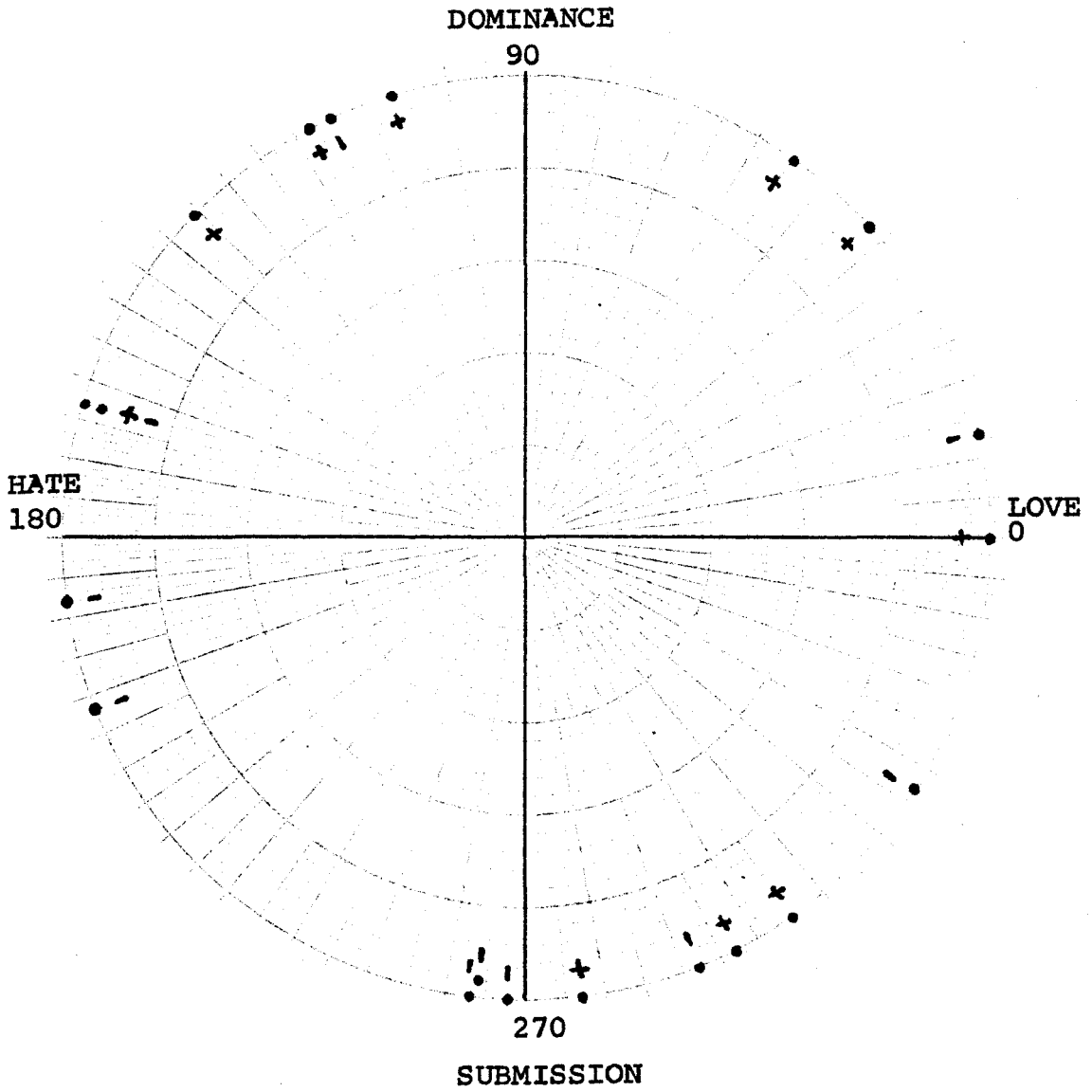
Figure 11. Au Scale Circular Plot: Group A
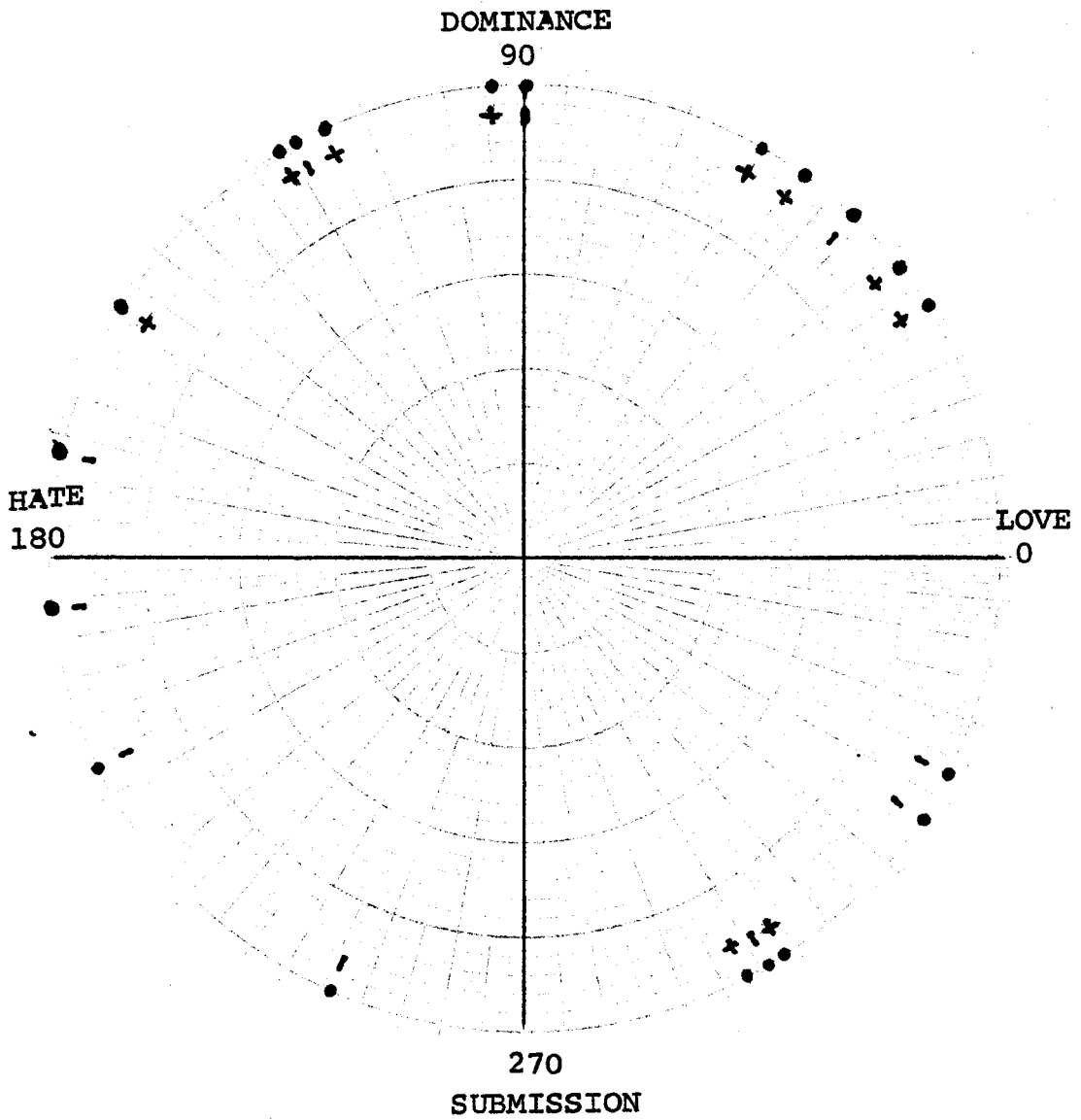
Figure 12. Ch Scale Circular Plot: Group A
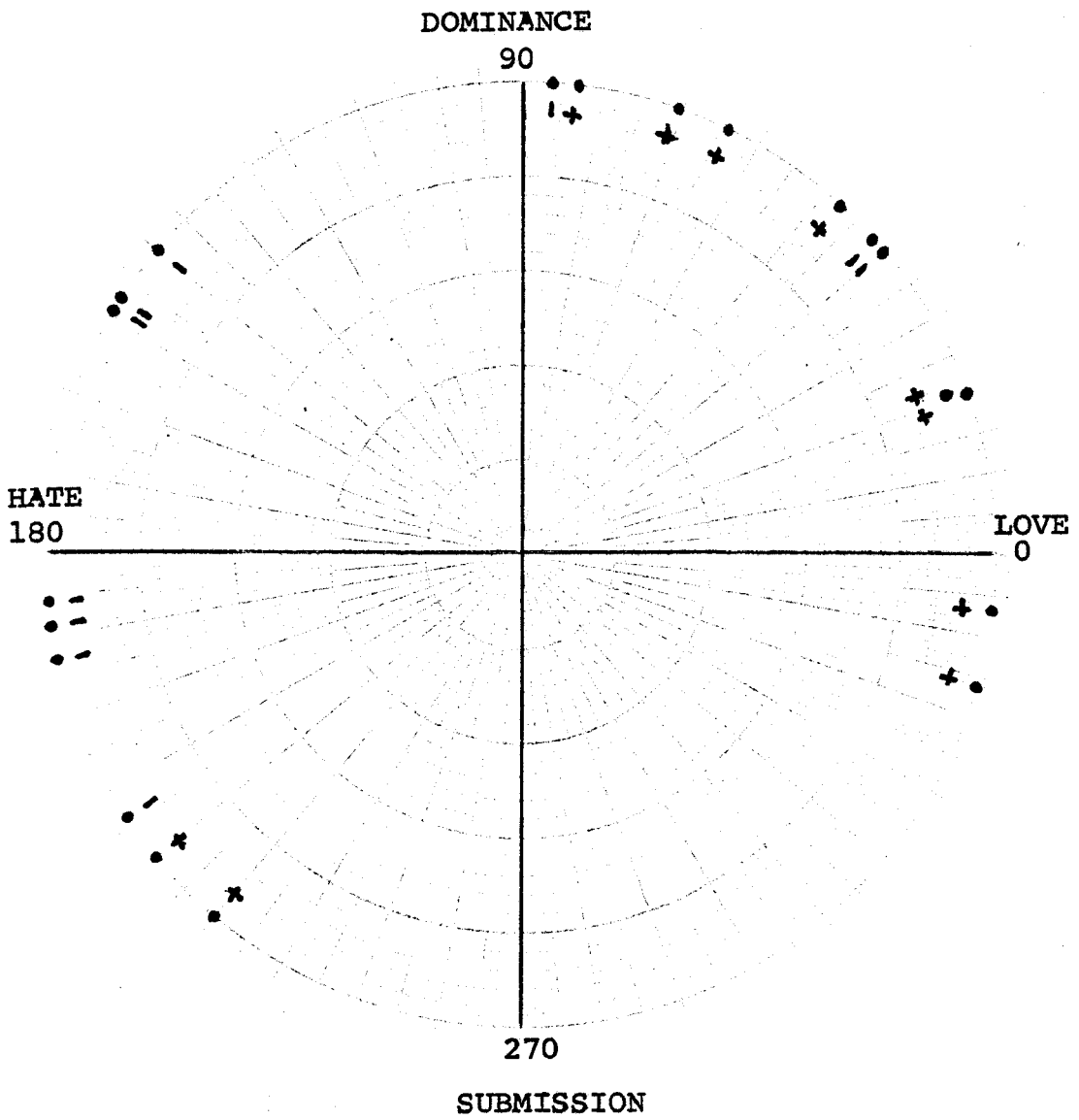
Figure 13. Cs Scale Circular Plot: Group A
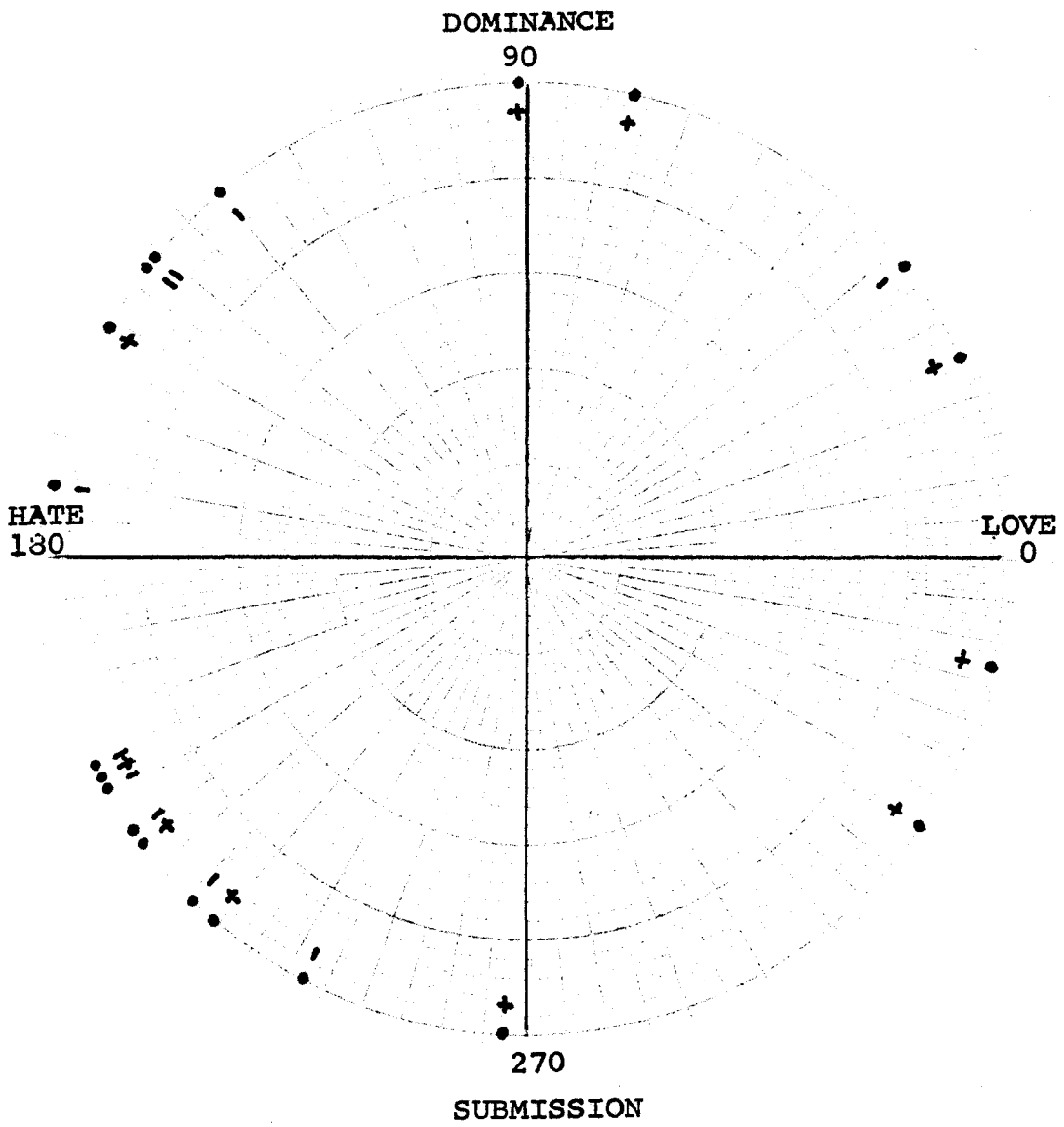
Figure 14. De Scale Circular Plot: Group A

82
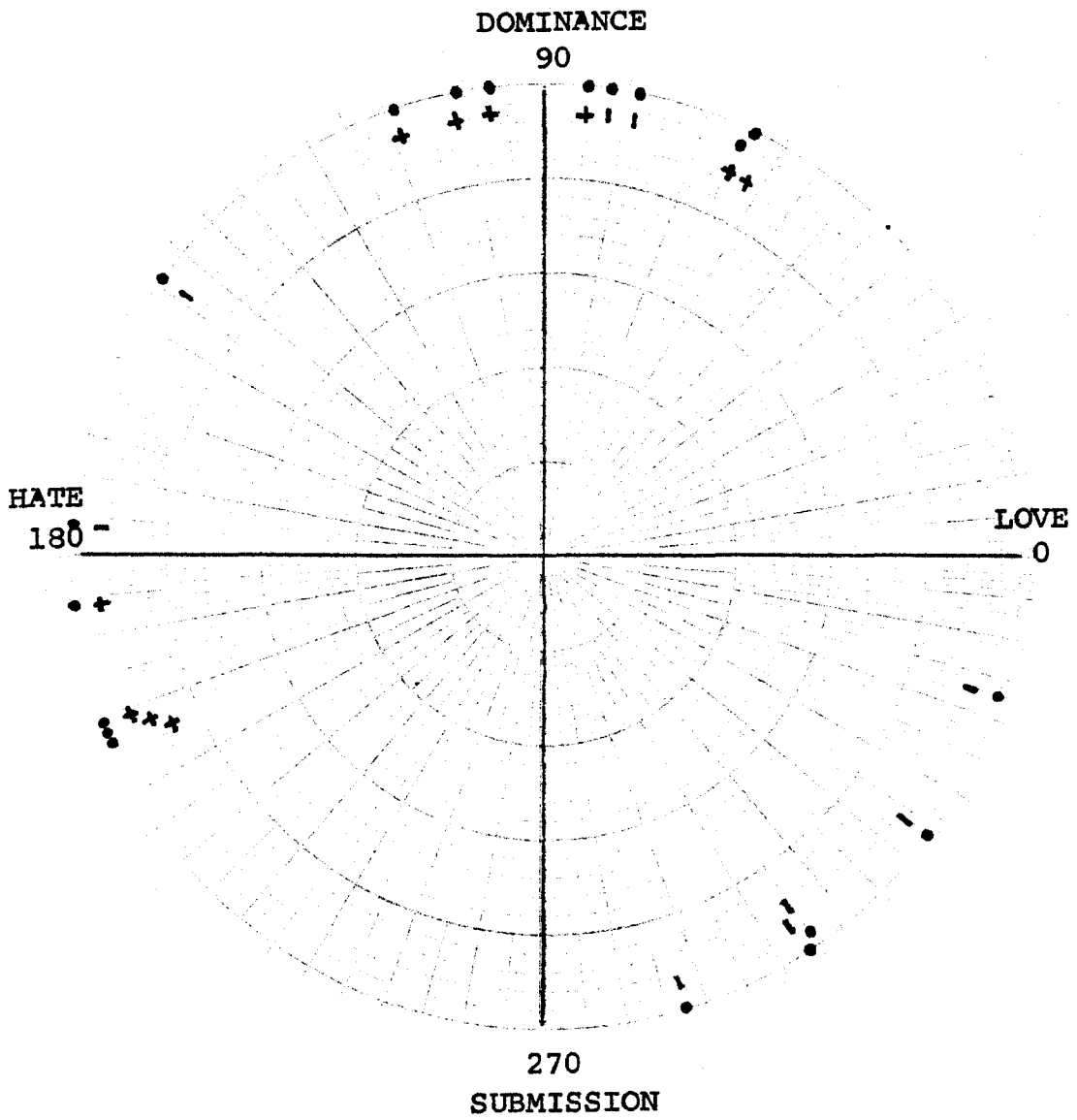
Figure 15. Do Scale Circular Plot: Group A
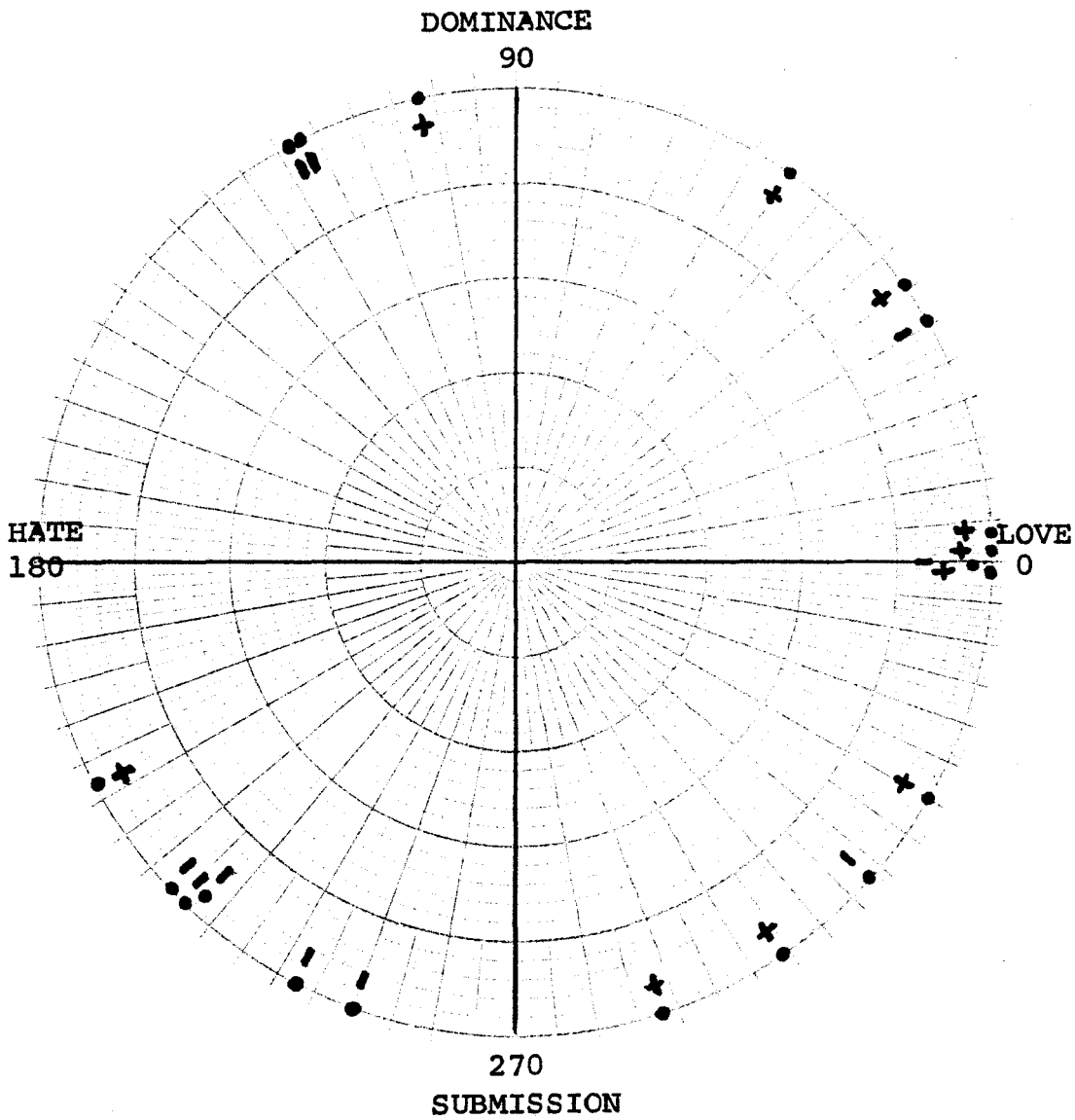
Figure 16 . Dy Scale Circular Plot: Group A
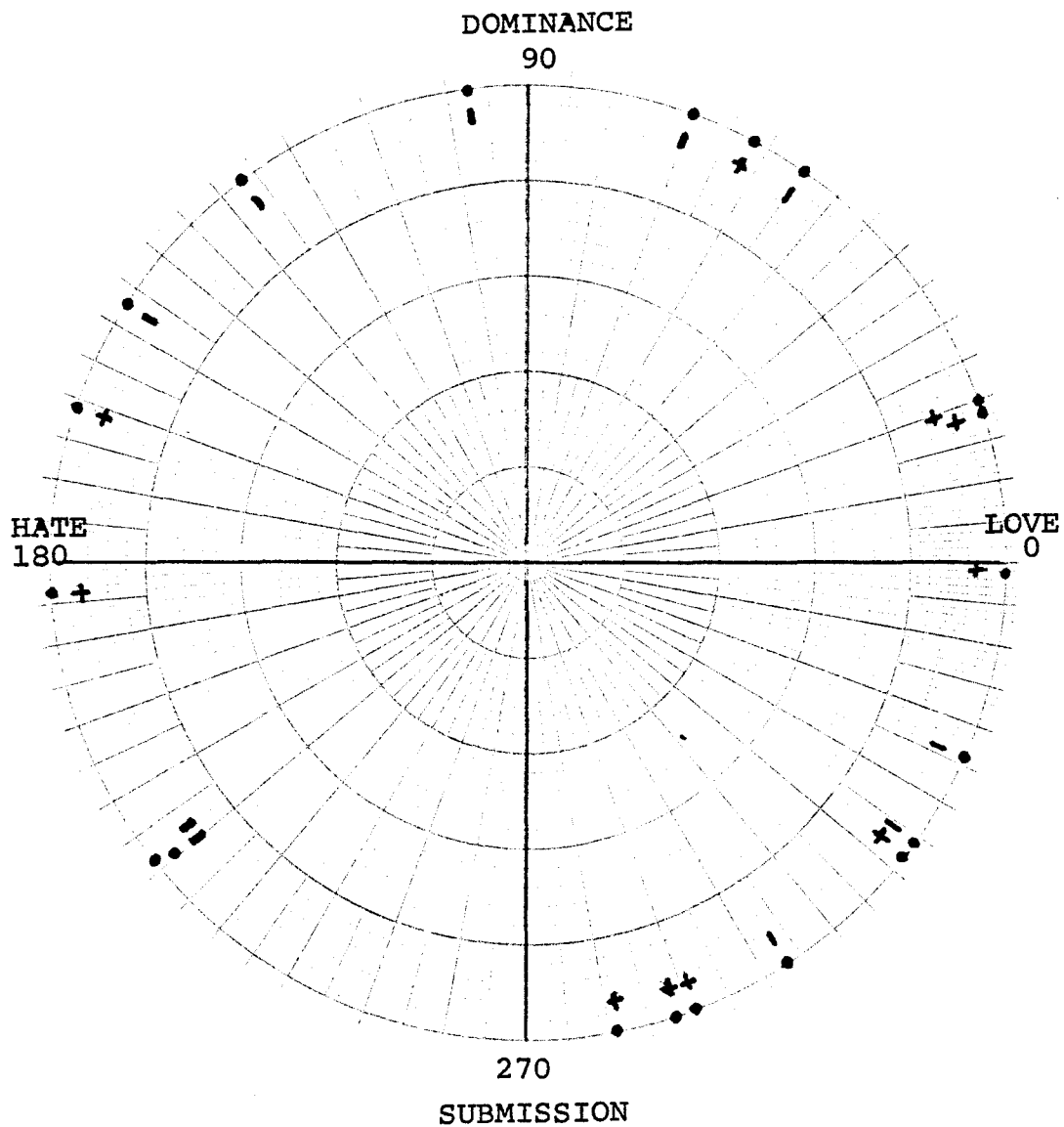
Figure 17 . En Scale Circular Plot: Group A

85
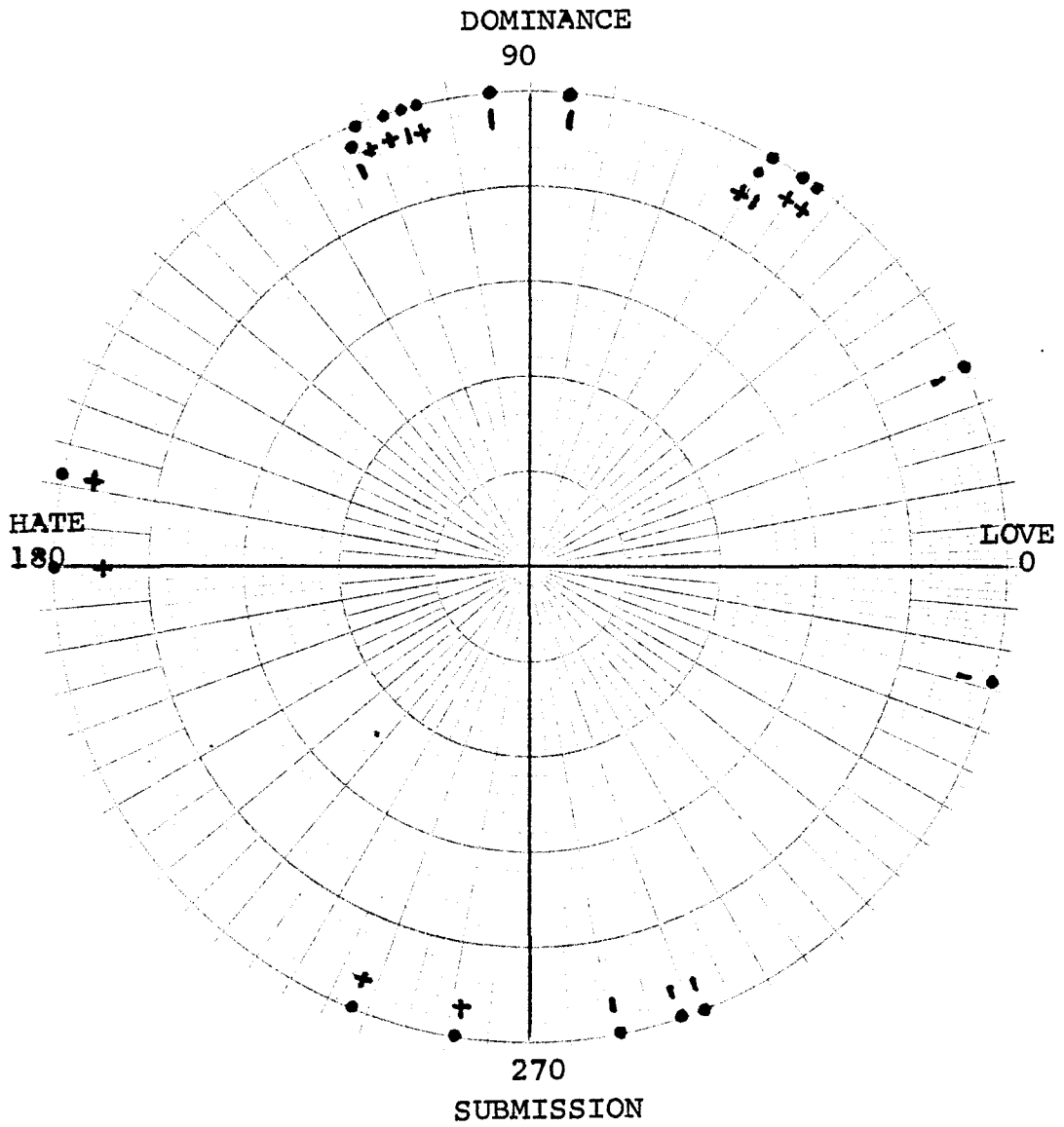
Figure 18 . Ex Scale Circular Plot: Group A
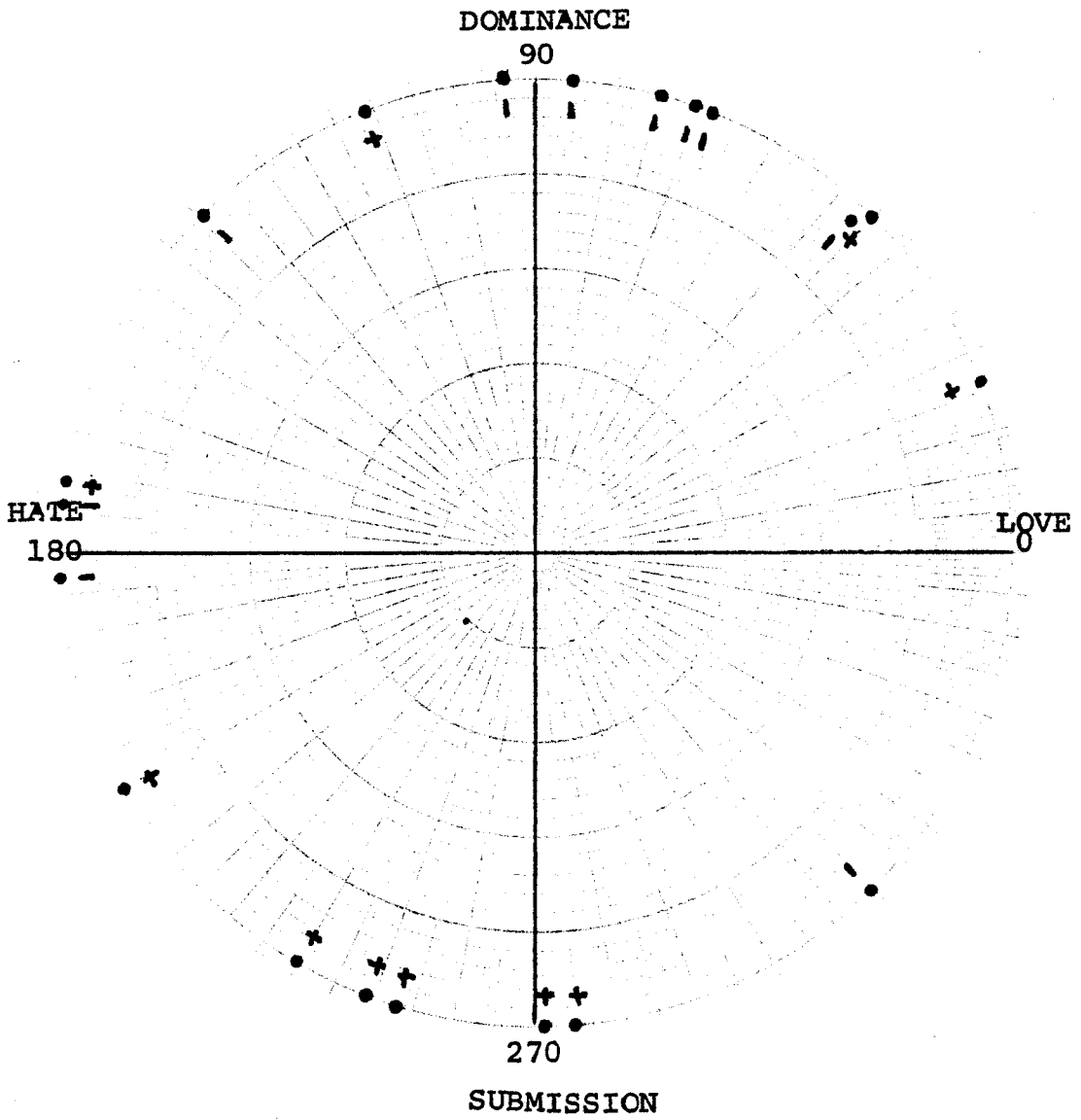
Figure 19 . Ha Scale Circular Plot: Group A
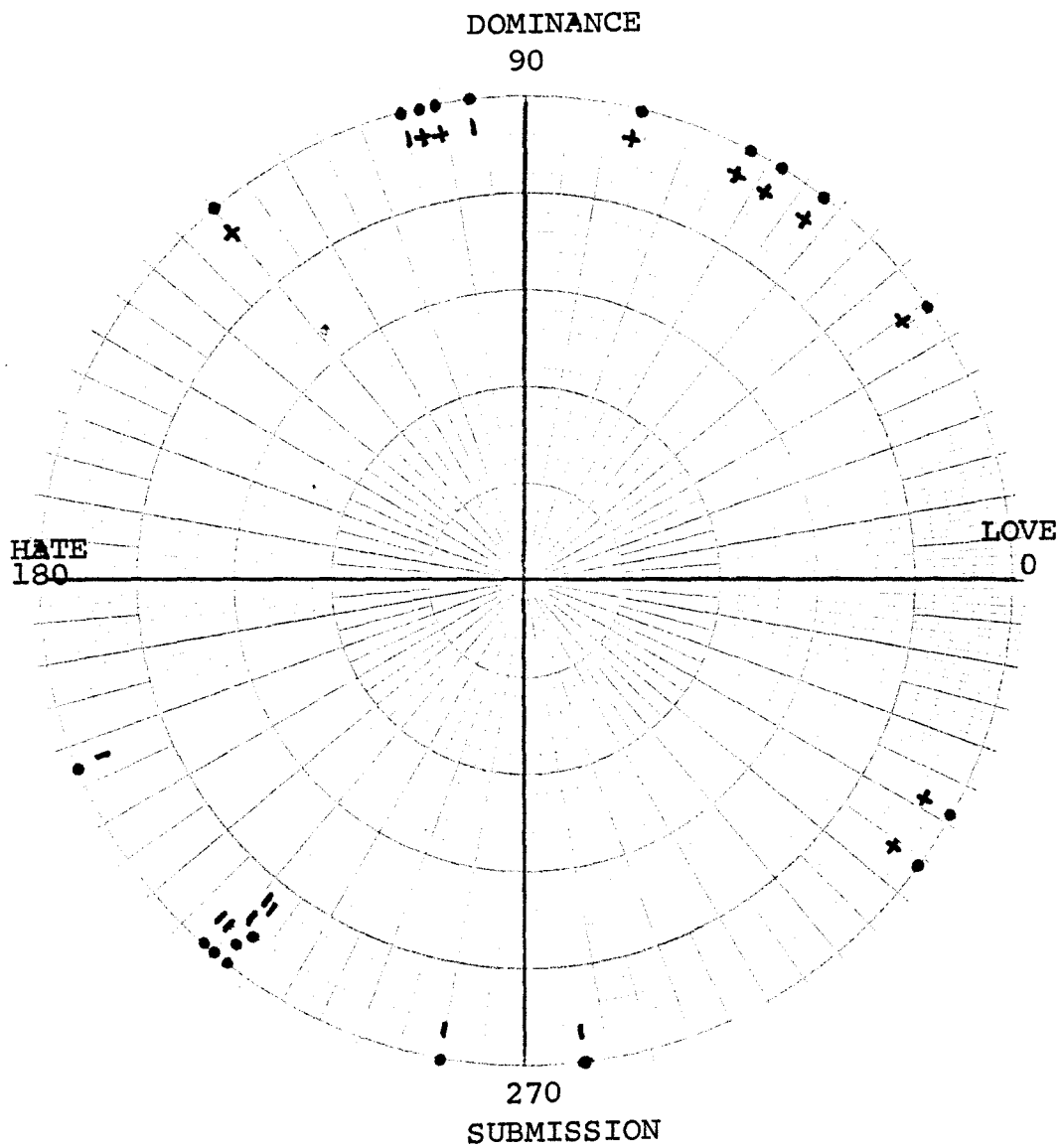
Figure 20. Im Scale Circular Plot: Group A
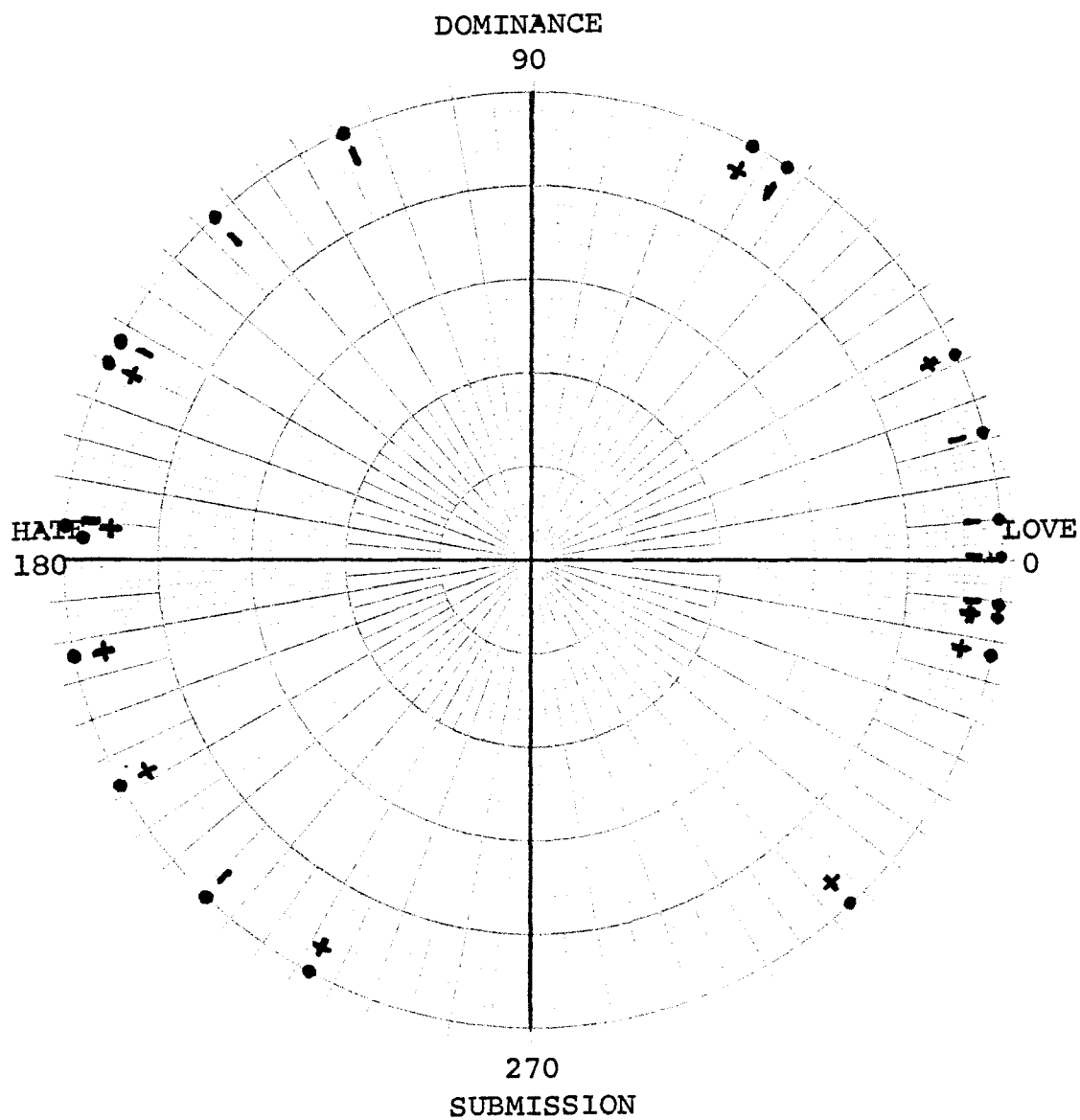
Figure 21. In Scale Circular Plot: Group A
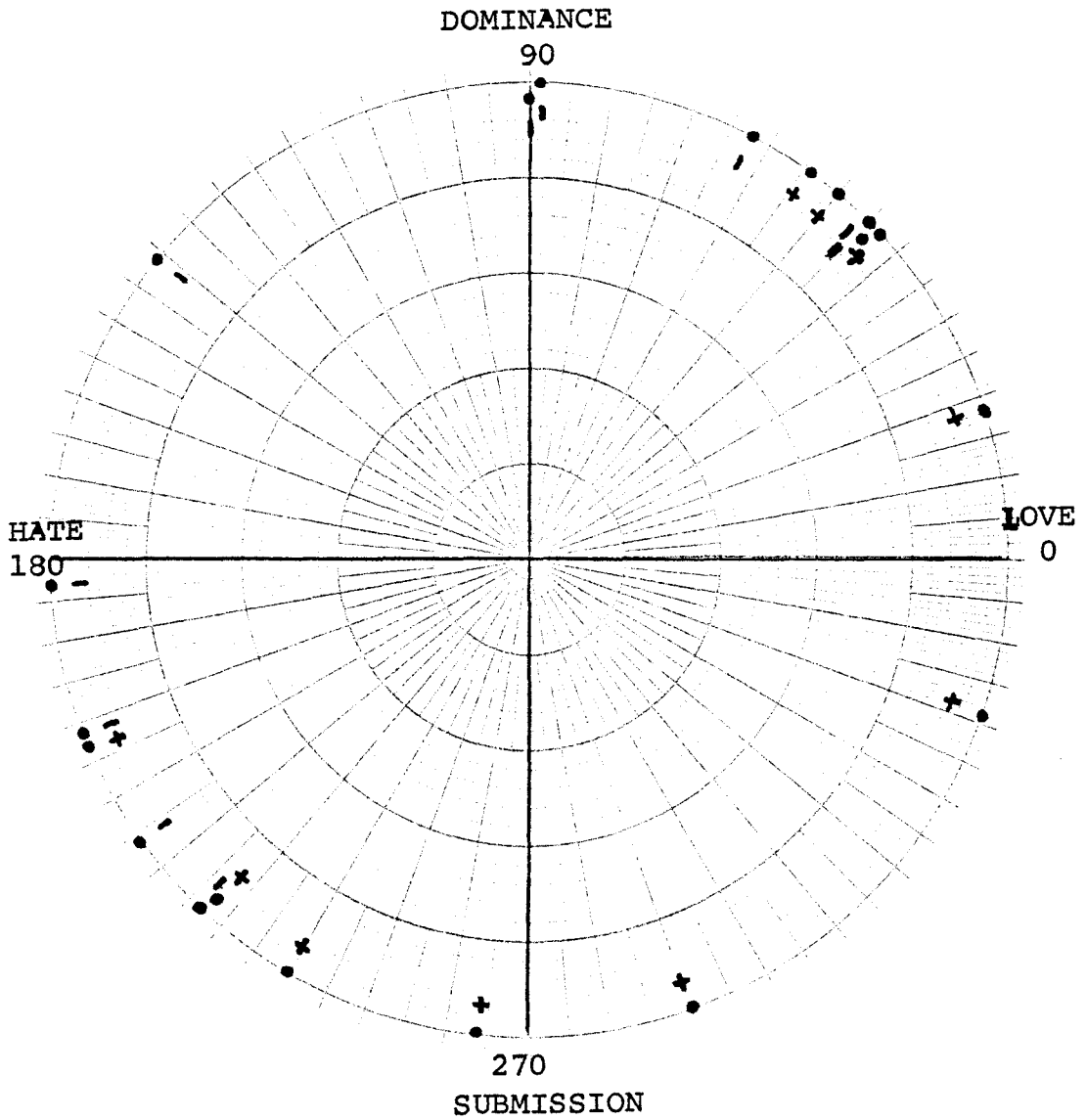
Figure 22. Nu Scale Circular Plot: Group A
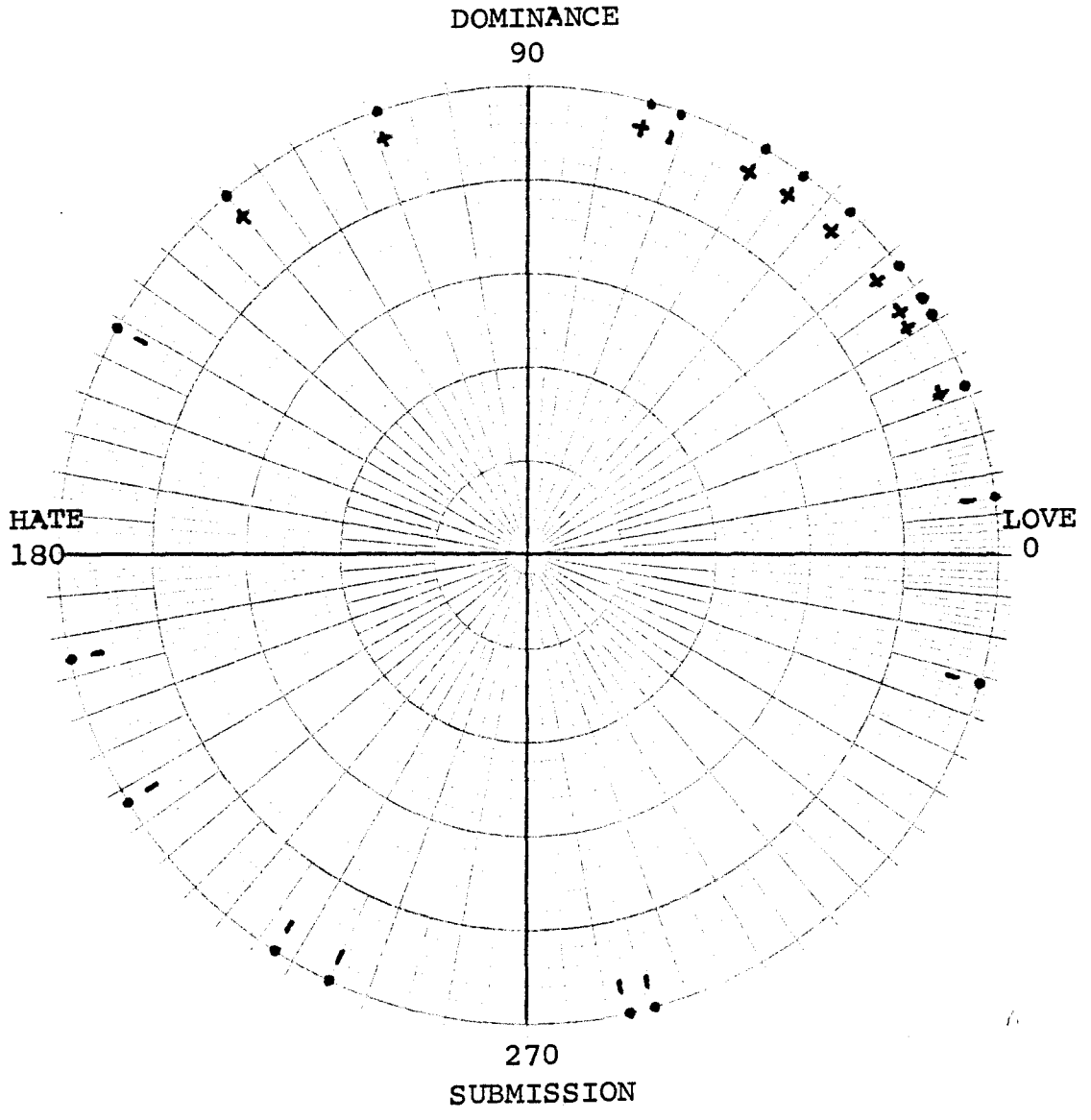
Figure 23. Or Scale Circular Plot: Group A
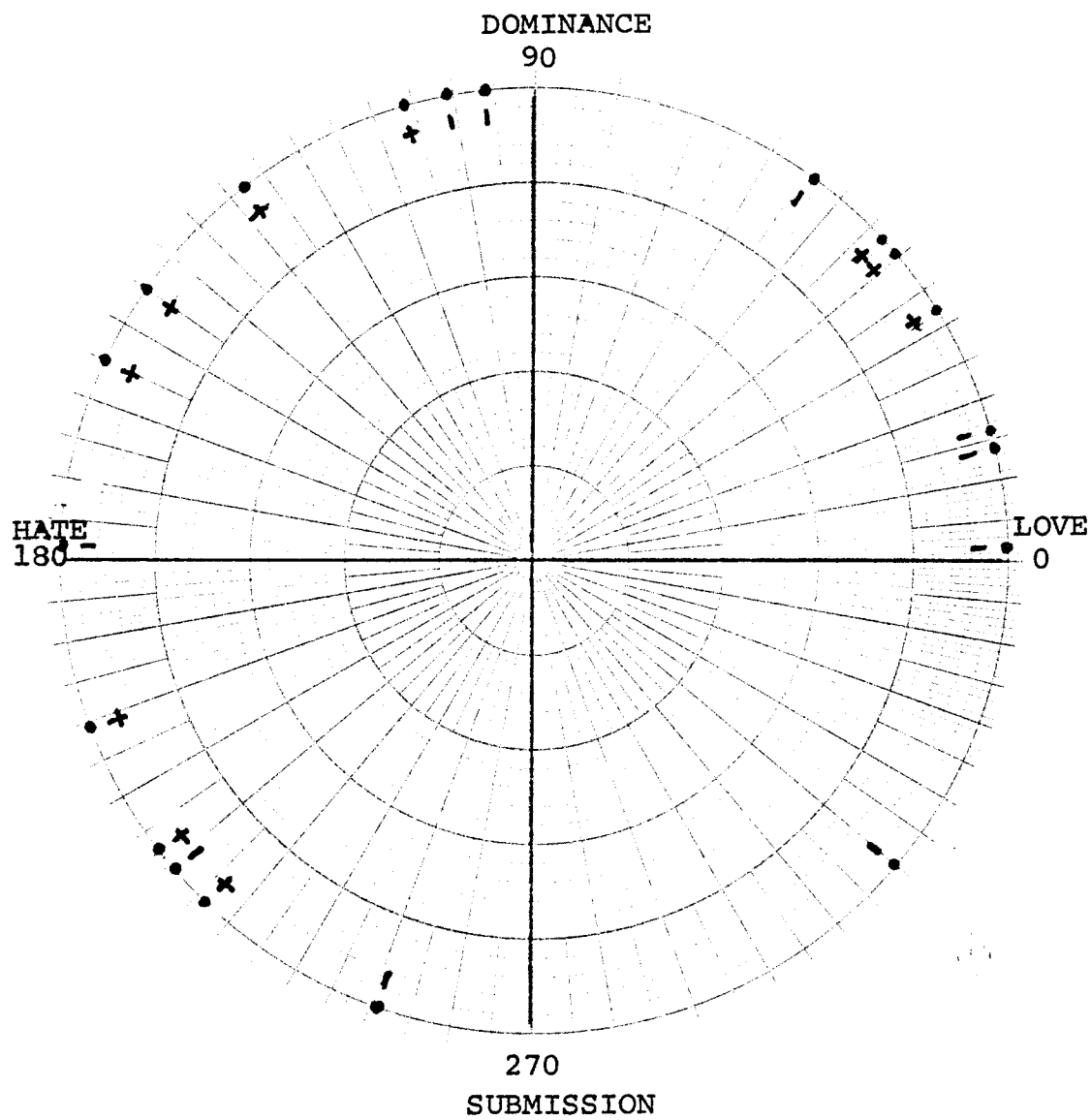
Figure 24 . Pl Scale Circular Plot: Group A
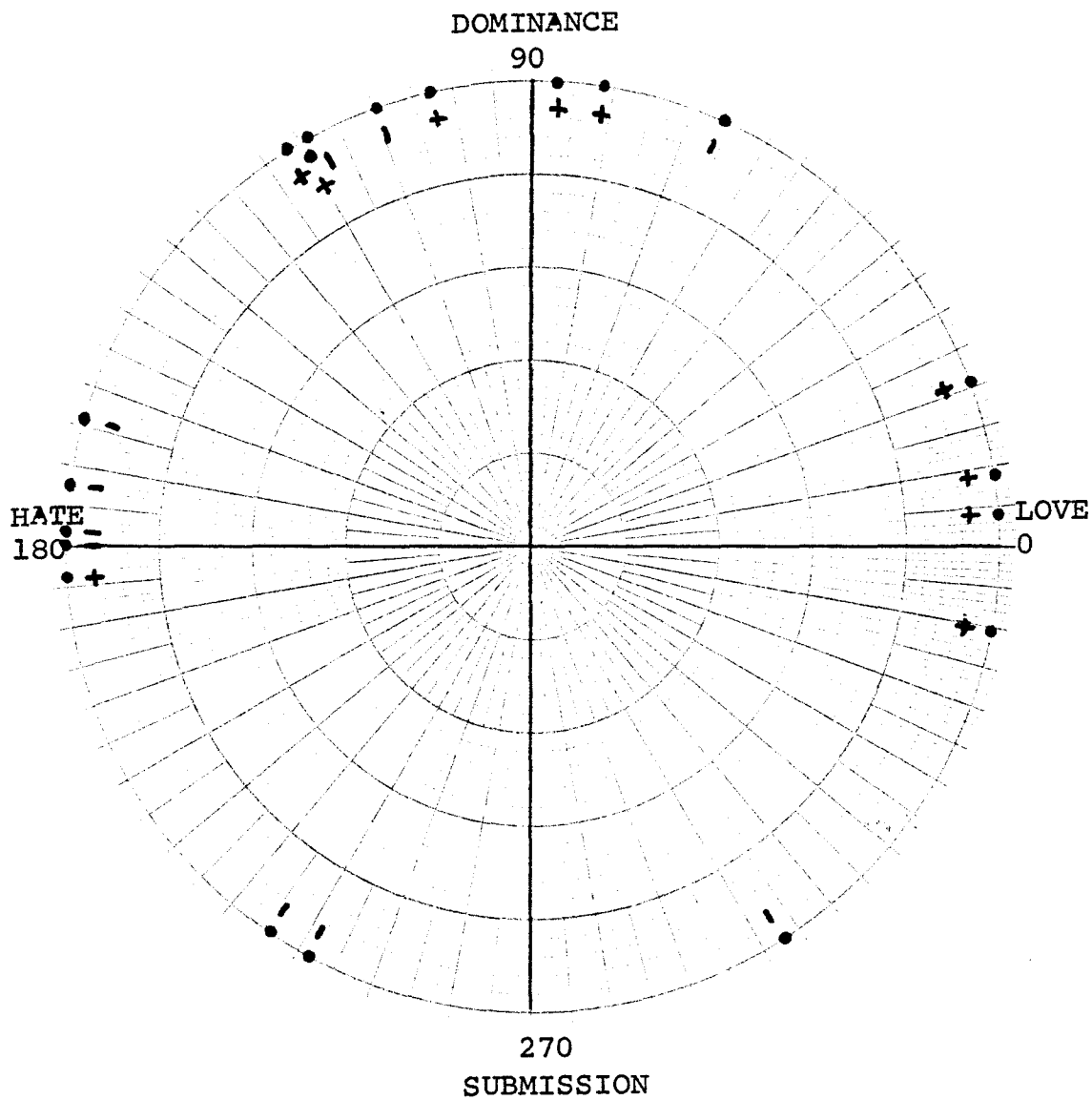
Figure 25. Se Scale Circular Plot: Group A
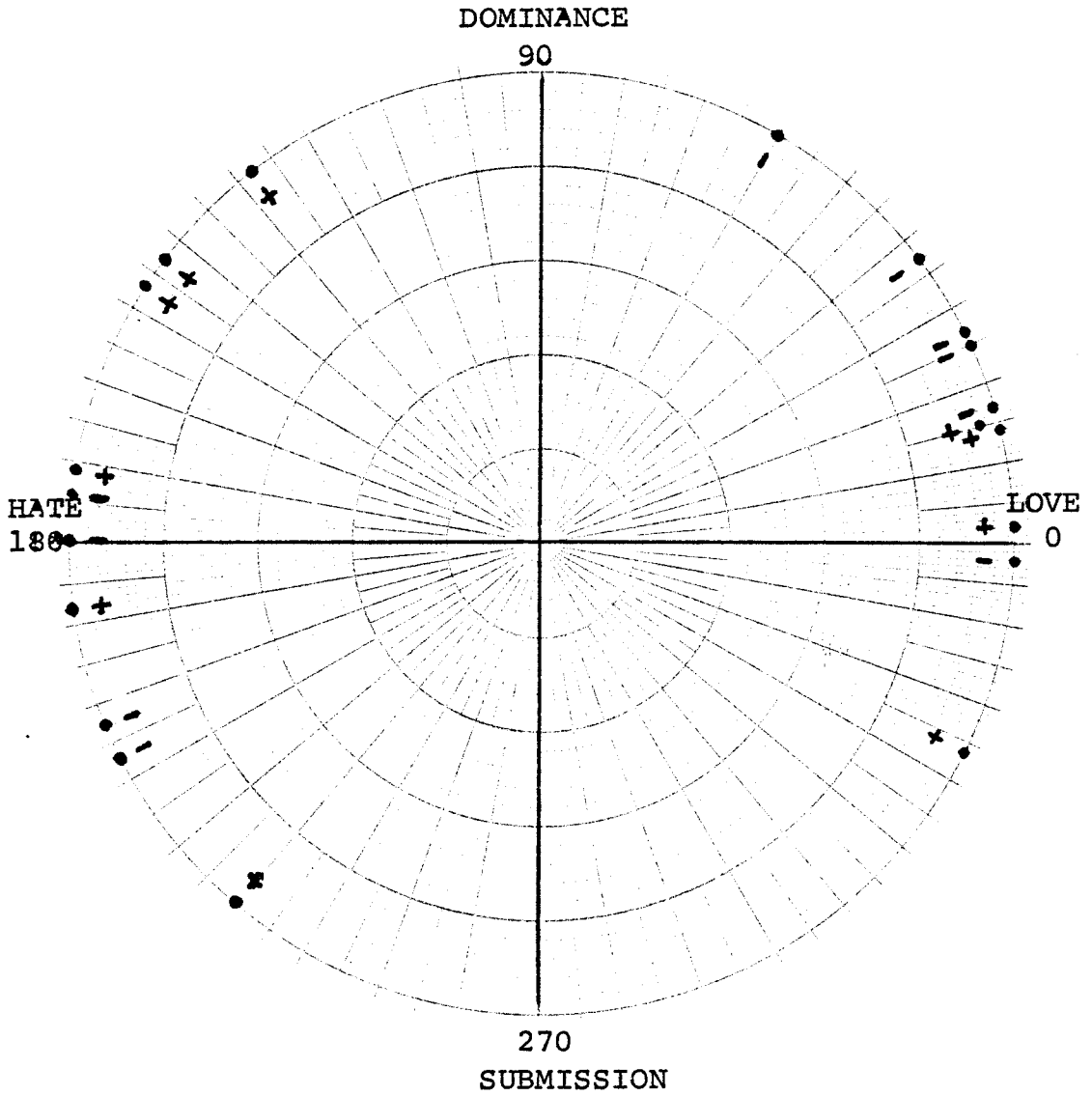
Figure 26 . Sr Scale Circular Plot: Group A
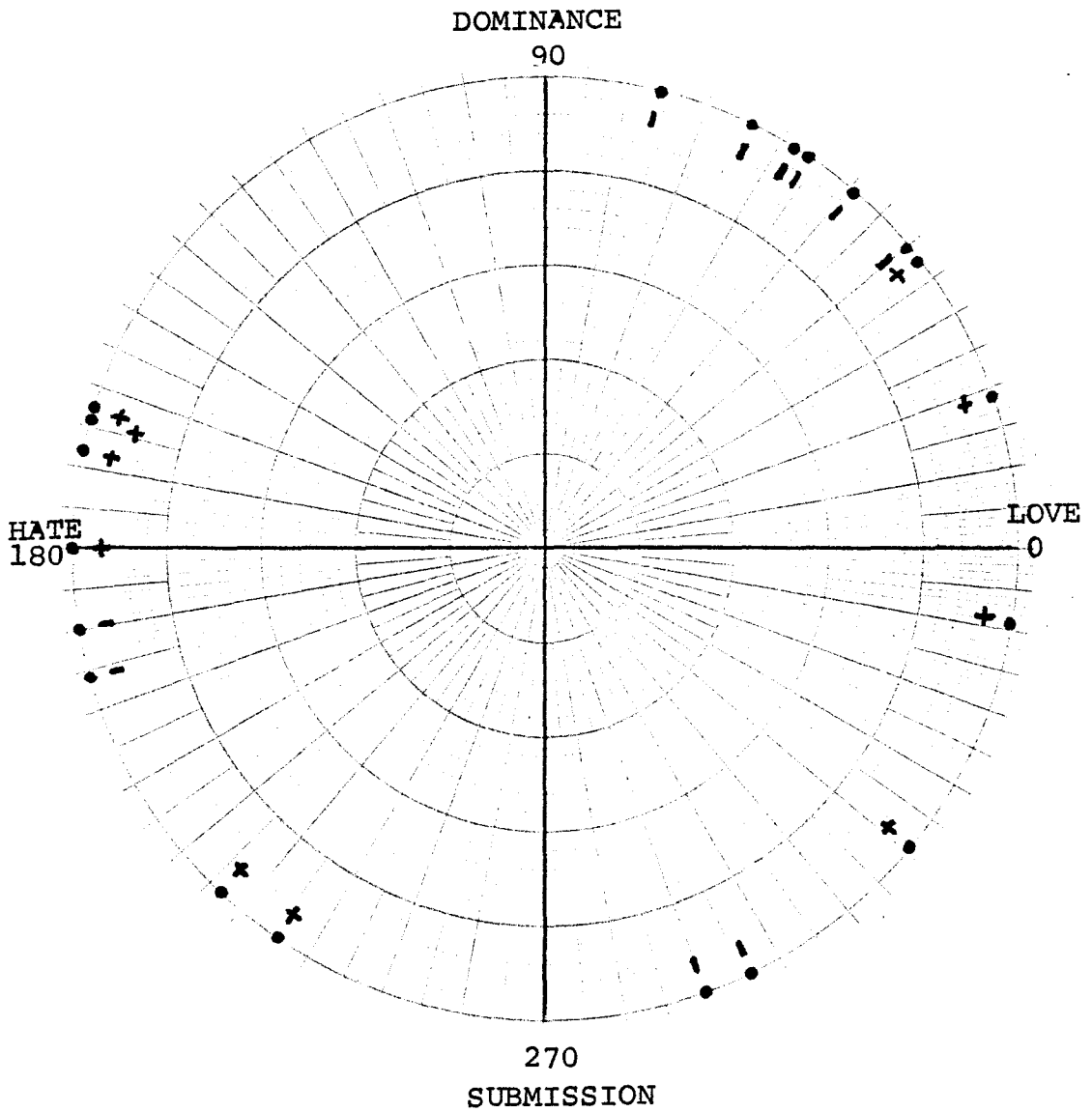
Figure 27 . Su Scale Circular Plot: Group A
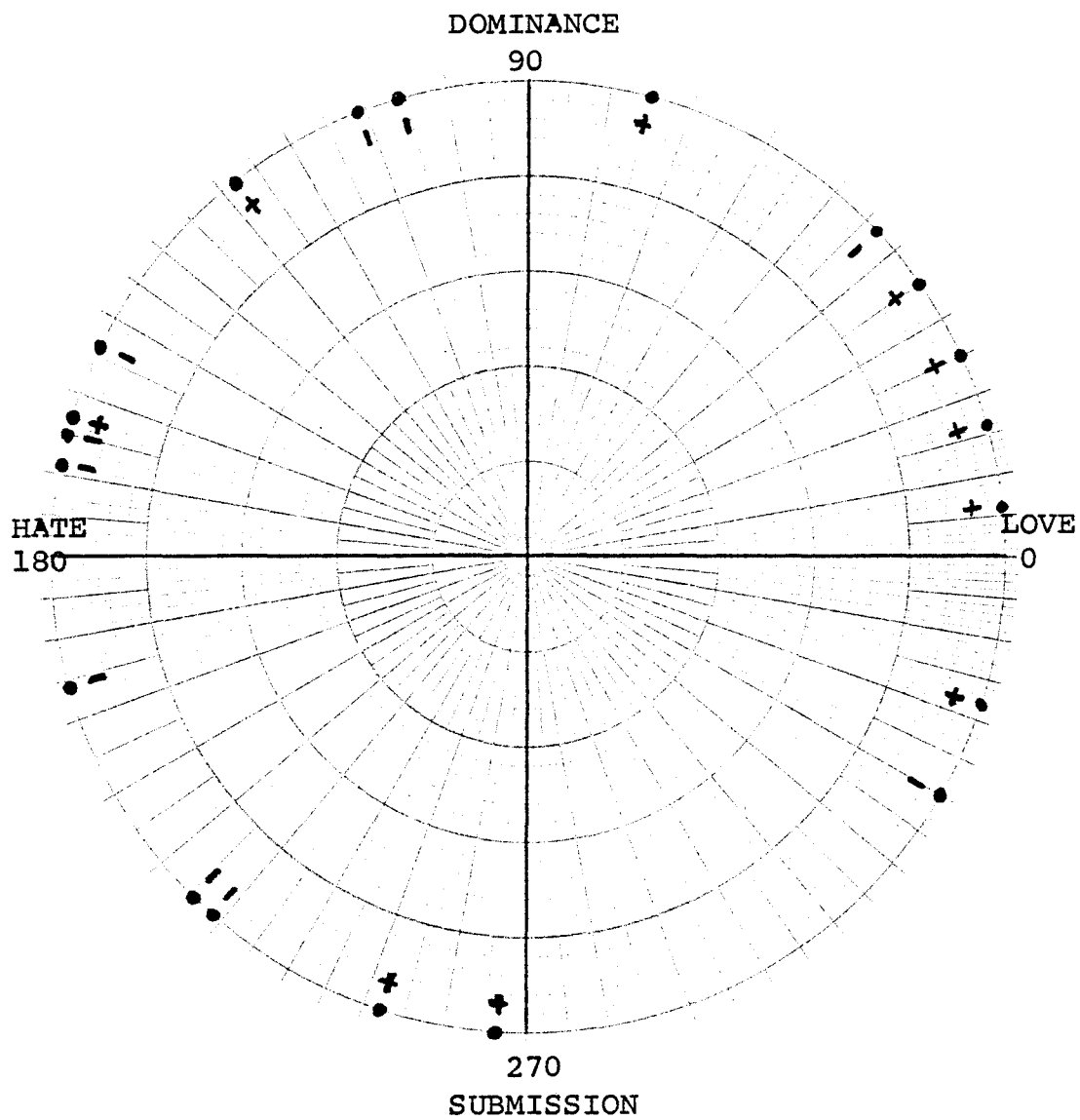
Figure 28. Un Scale Circular Plot: Group A
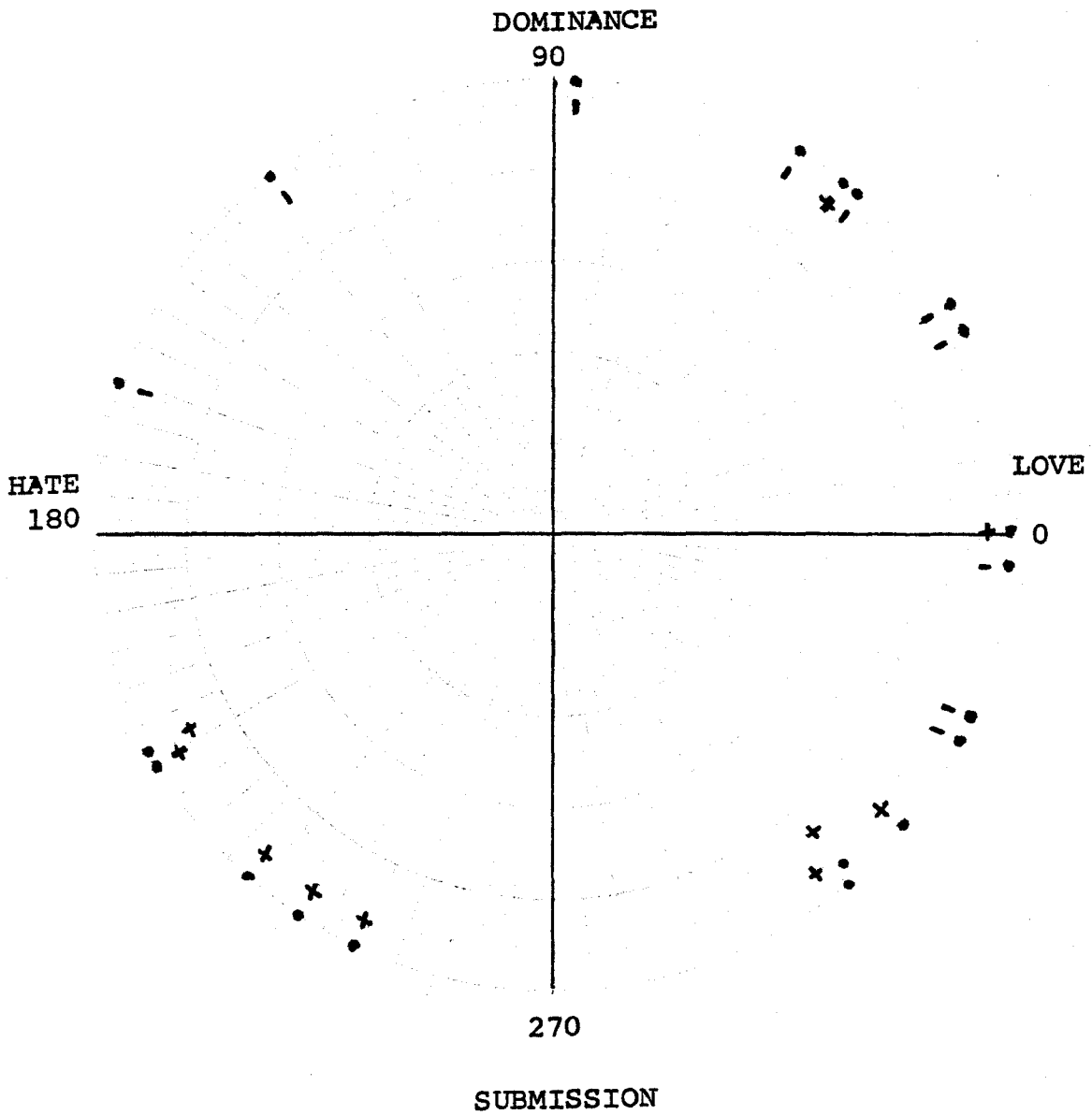
Figure 29. Ab Scale Circular Plot: Group B
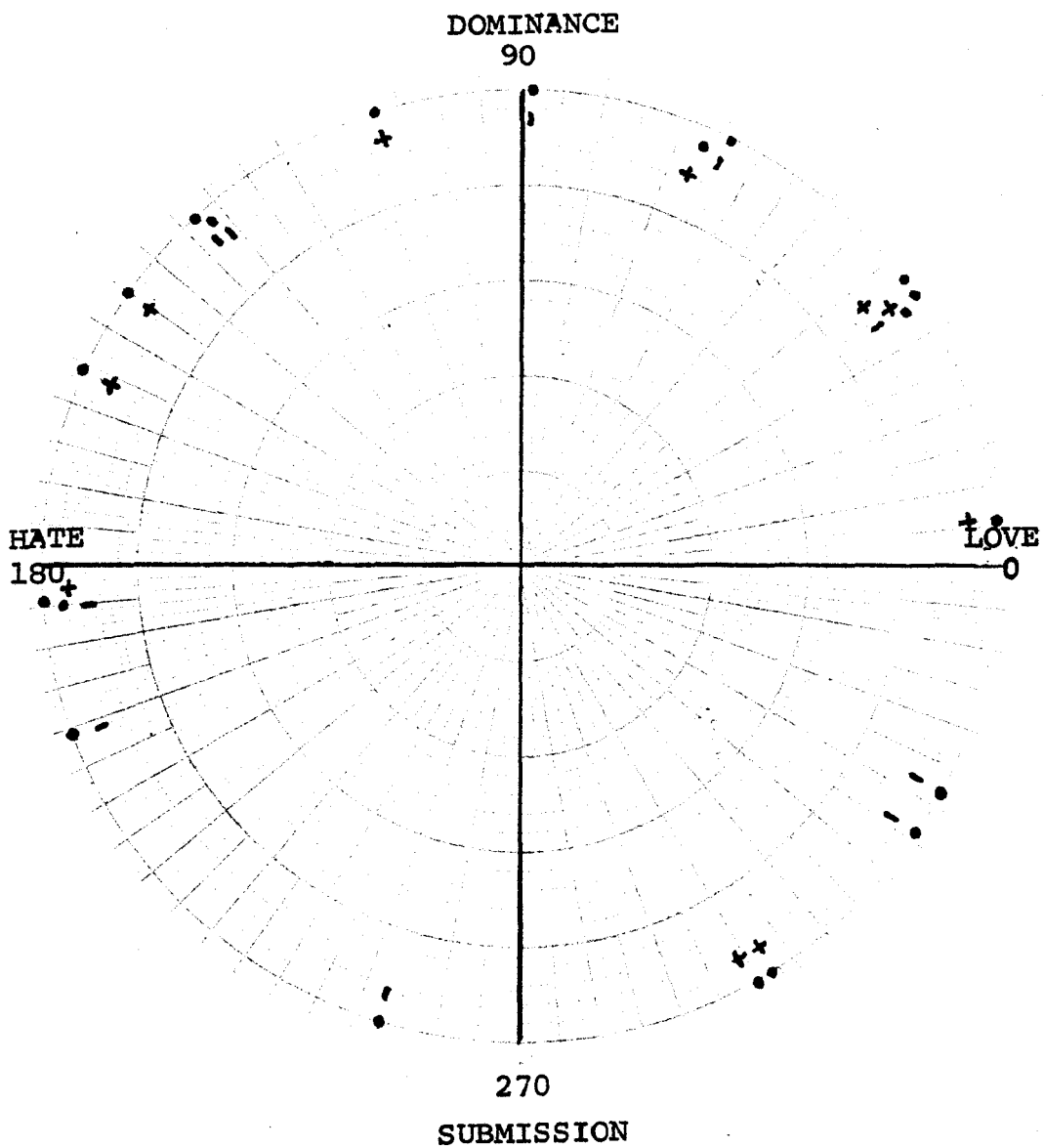
Figure 30. Ac Scale Circular Plot: Group B
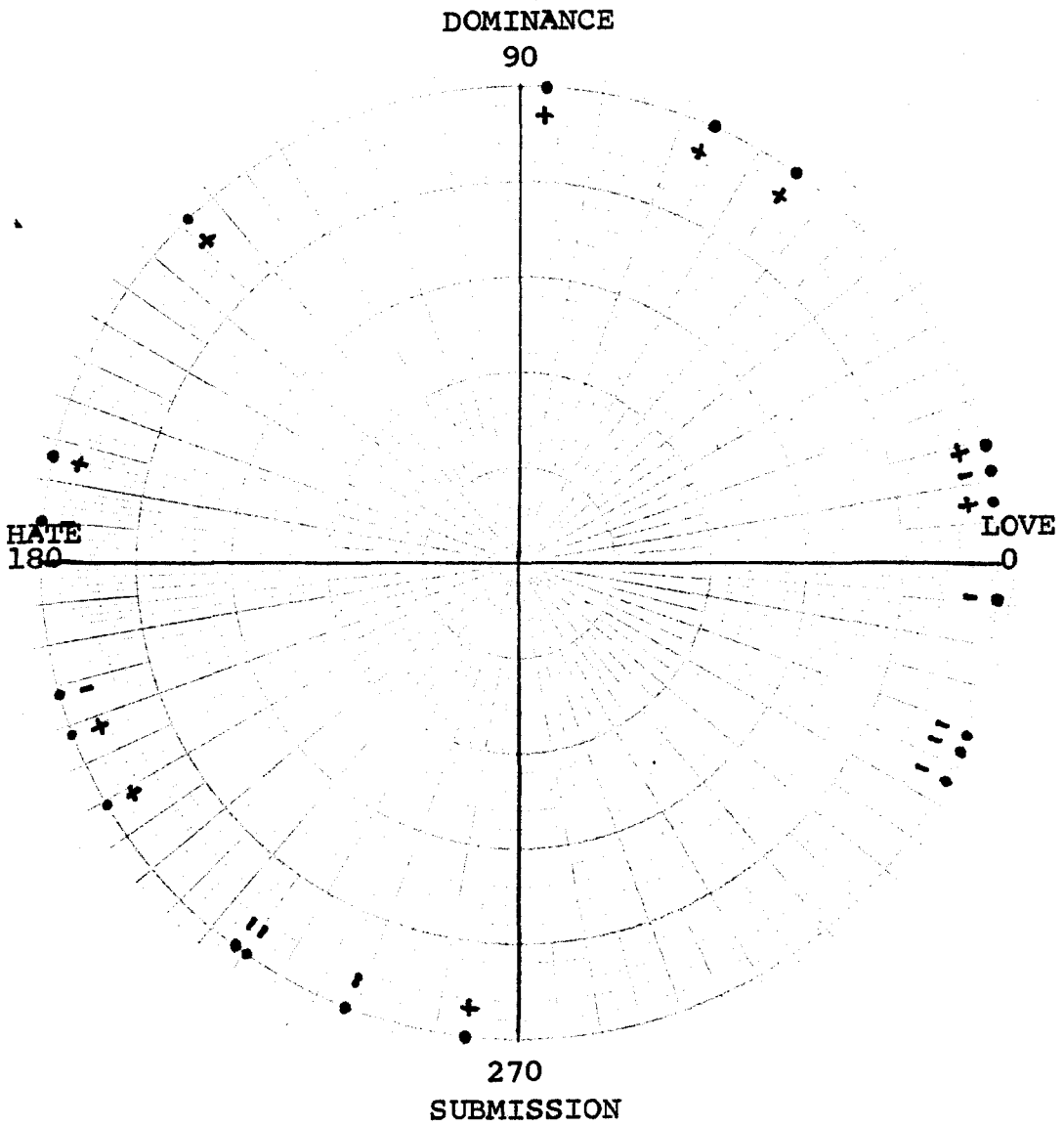
Figure 31. Af Scale Circular Plot: Group B
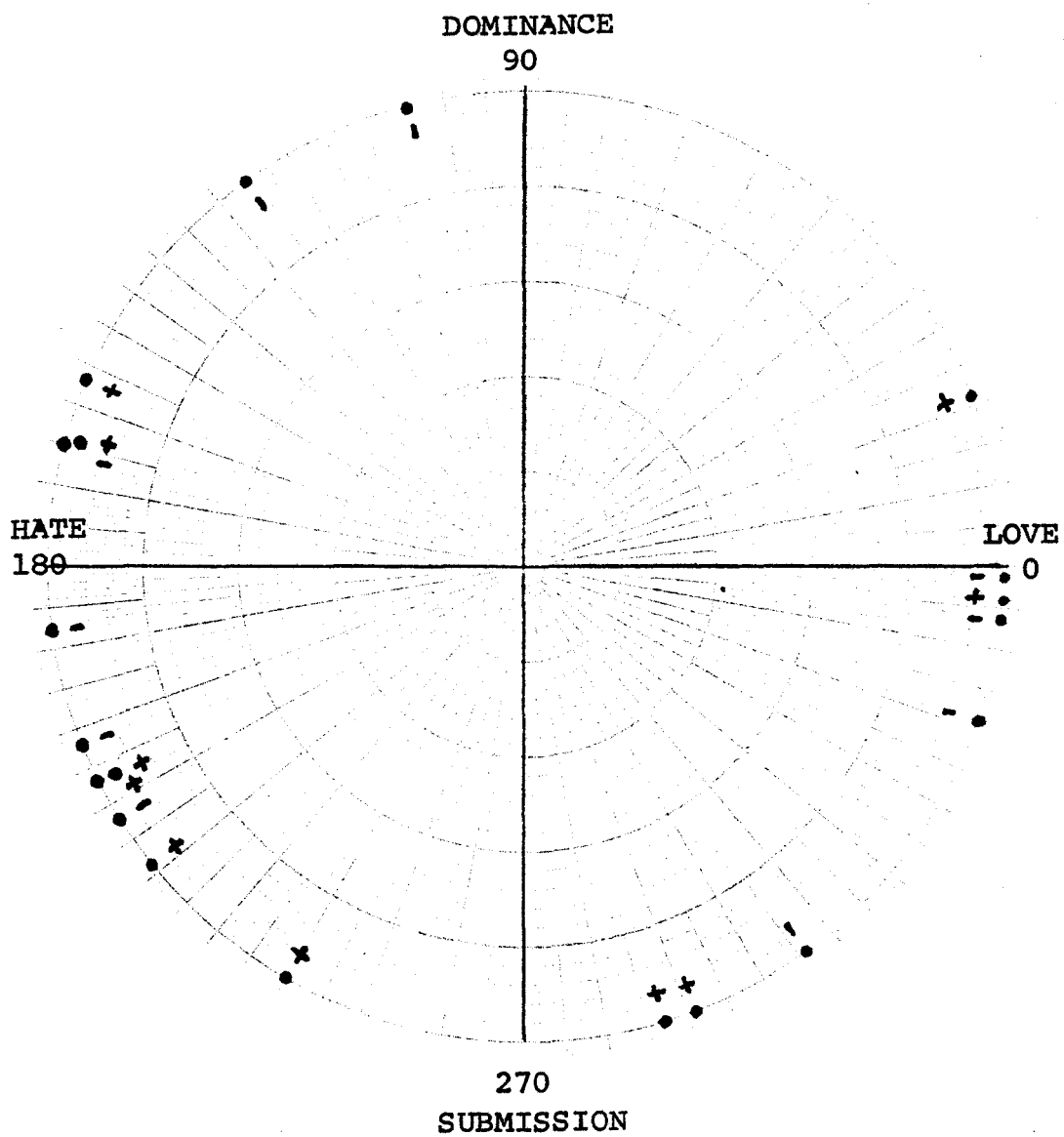
Figure 32. Ag Scale Circular Plot: Group B
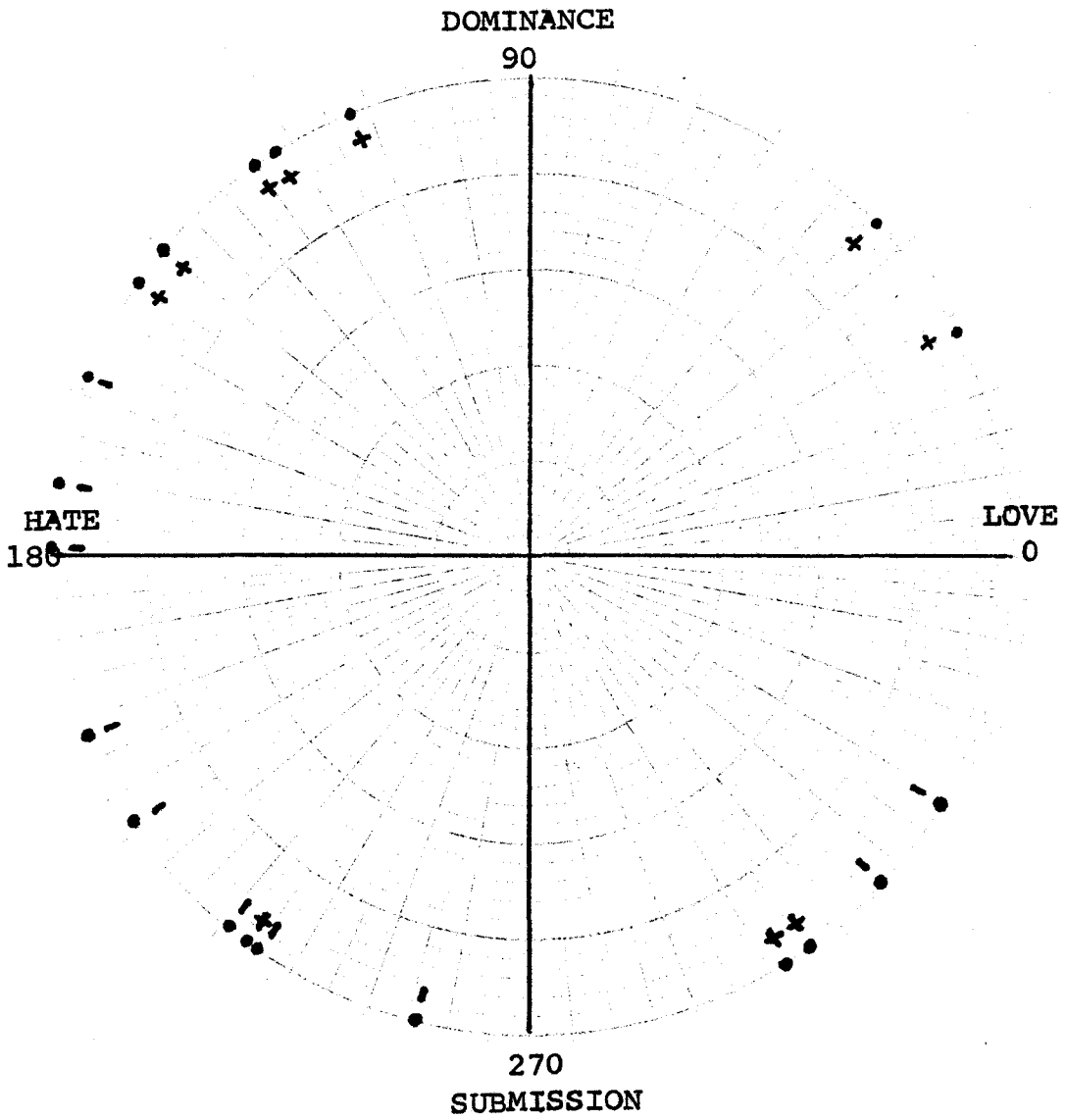
Figure 33. Au Scale Circular Plot: Group B
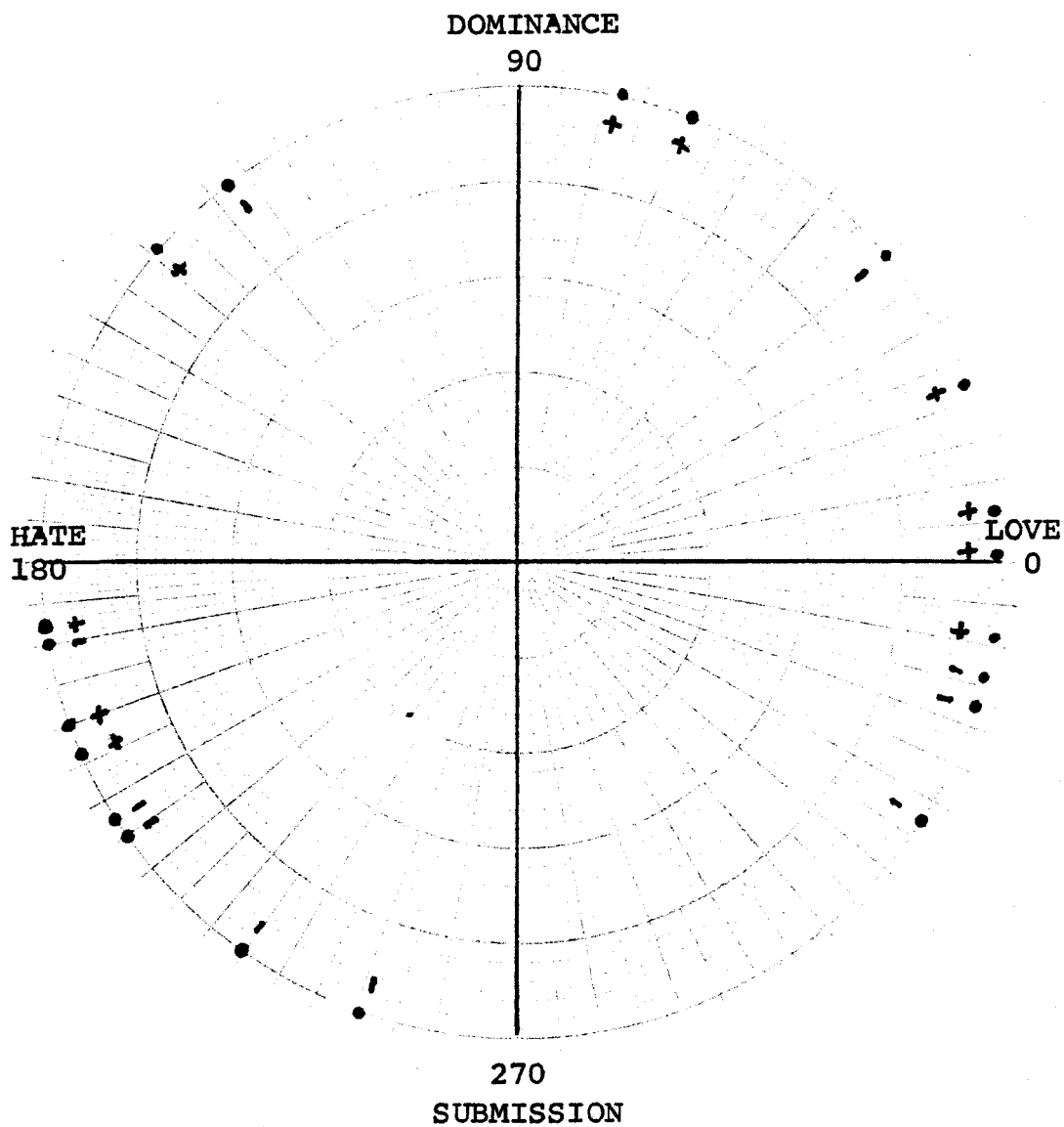
Figure 34. Ch Scale Circular Plot: Group B
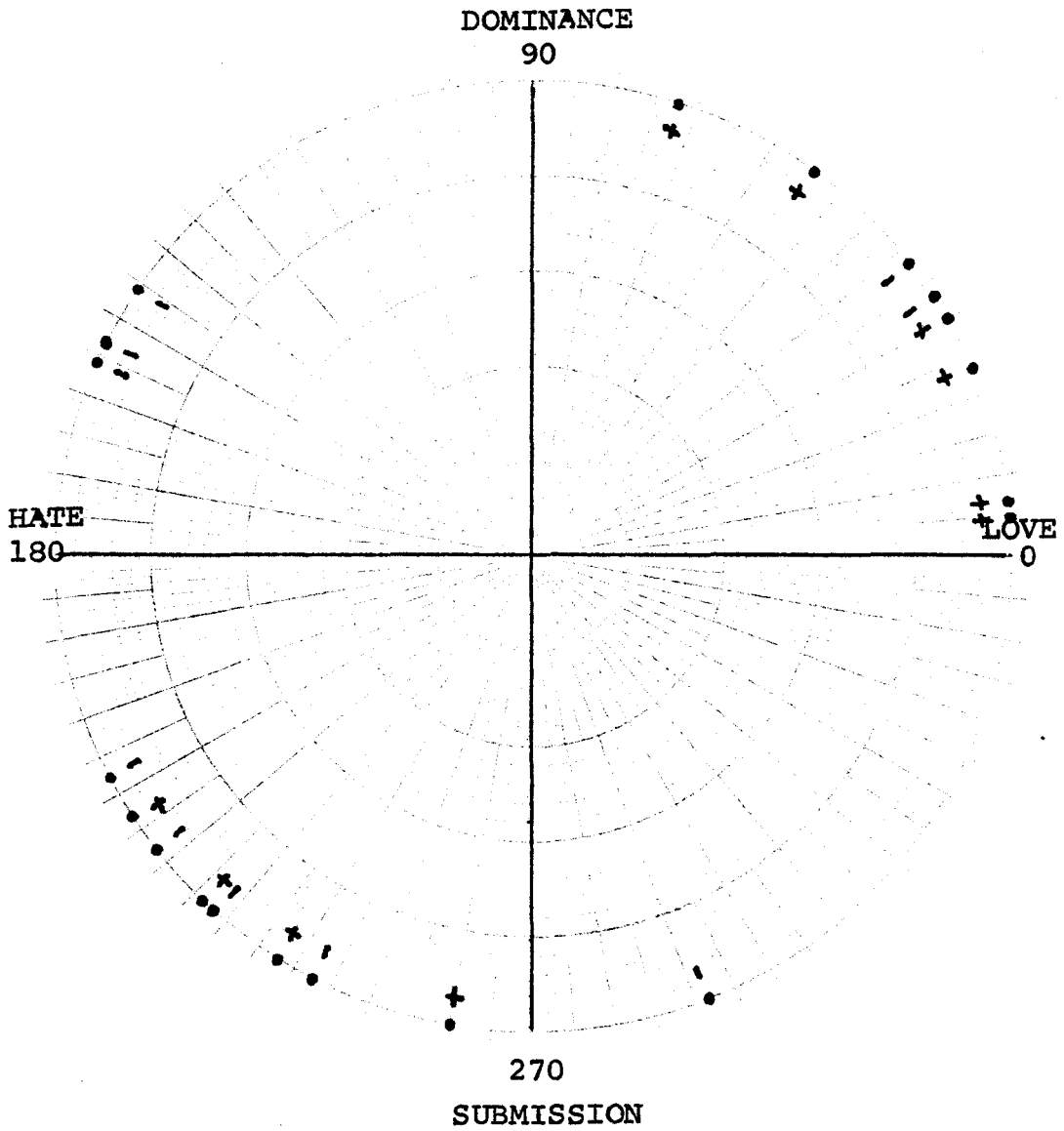
Figure 35 . Cs Scale Circular Plot: Group B
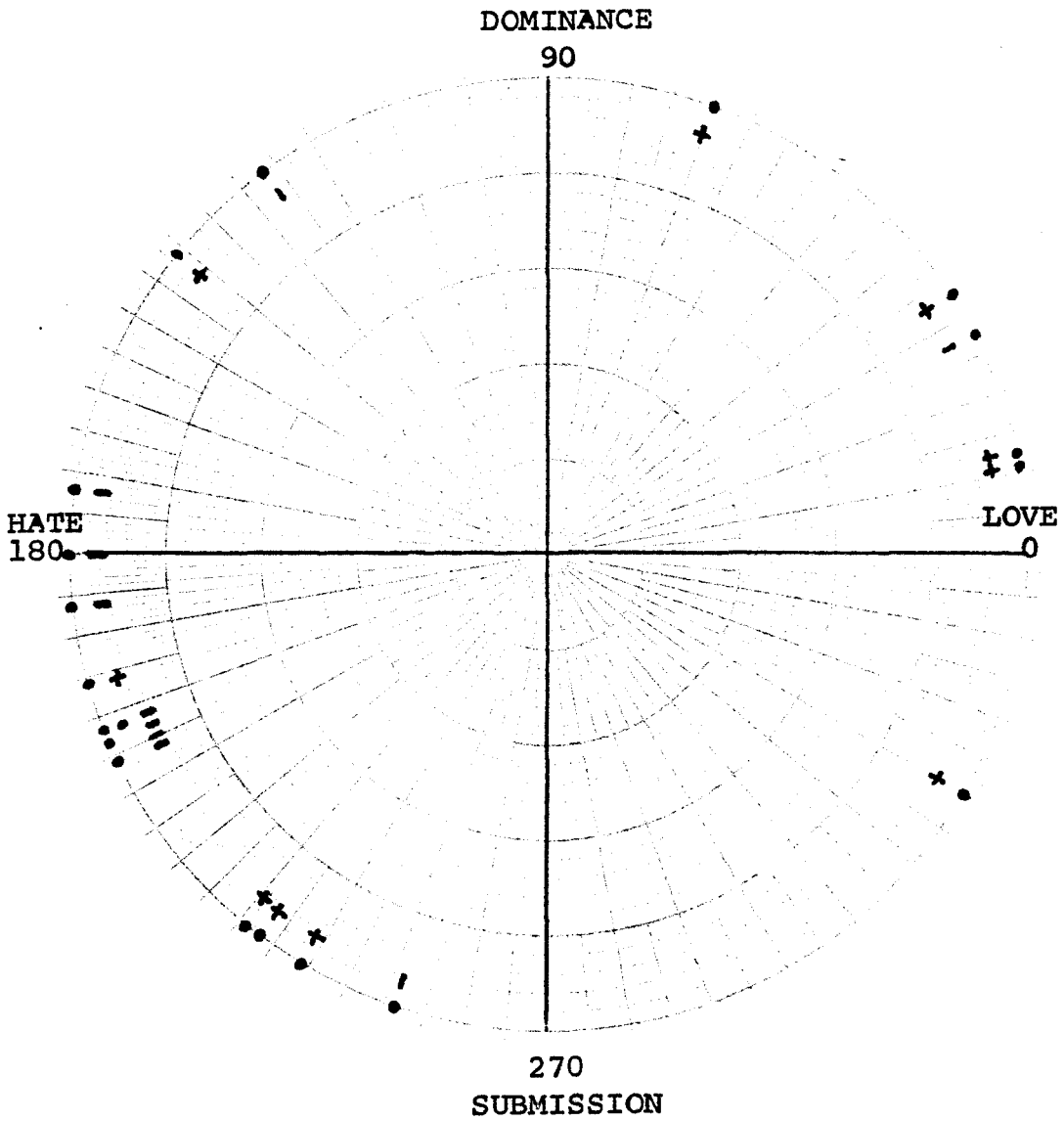
Figure 36. De Scale Circular Plot: Group B
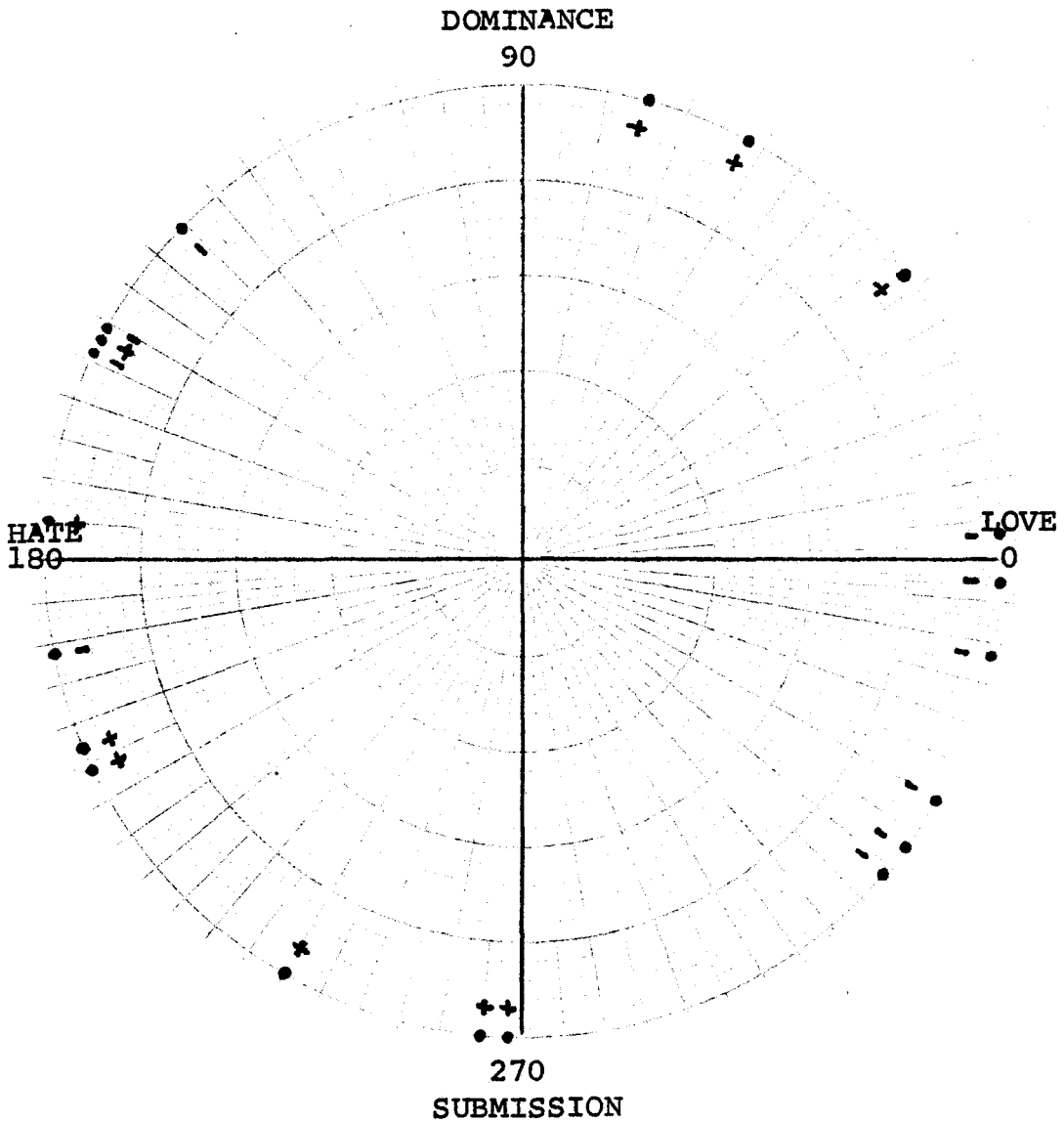
Figure 37 . Do Scale Circular Plot: Group B
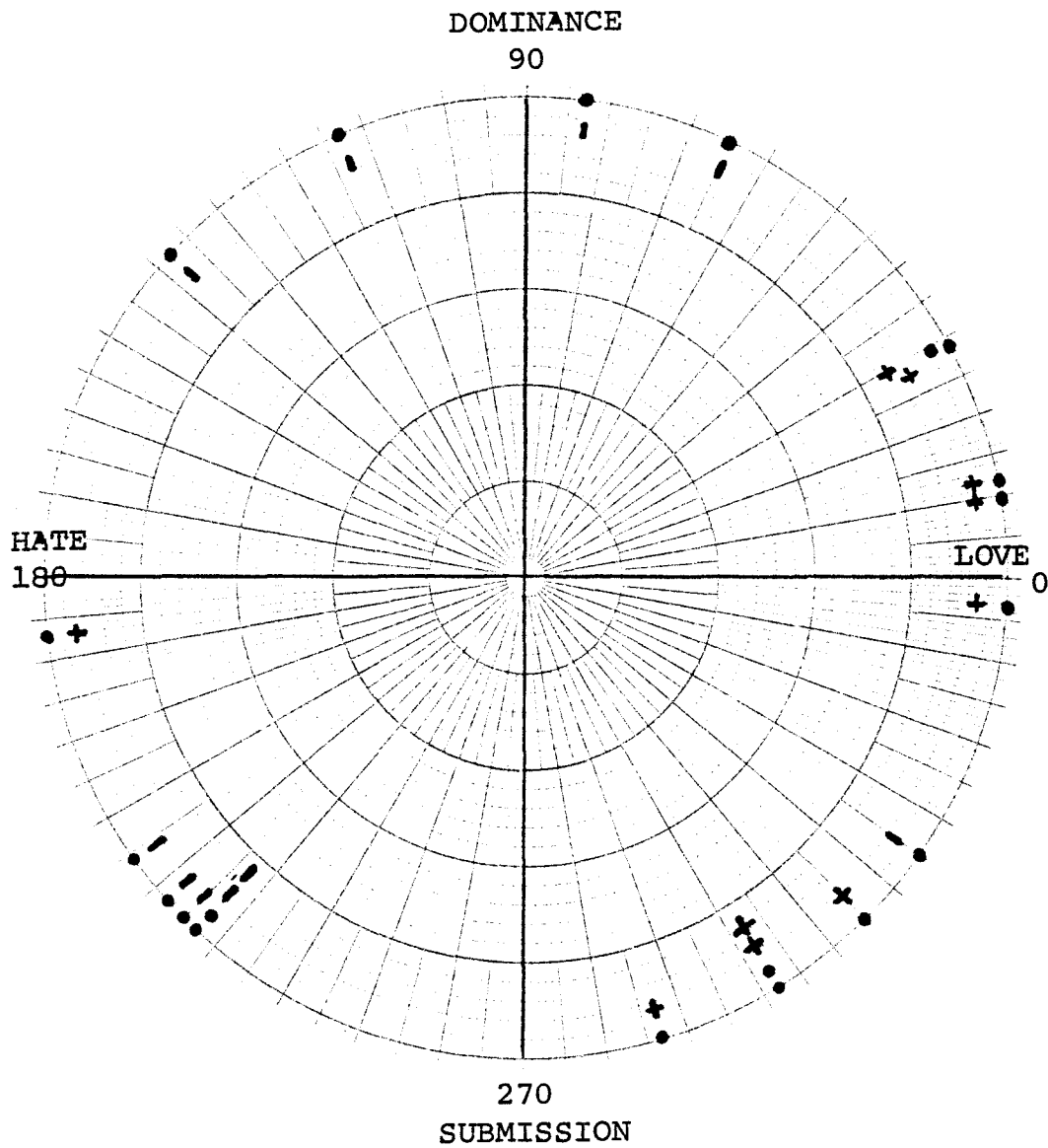
Figure 38. Dy Scale Circular Plot: Group B
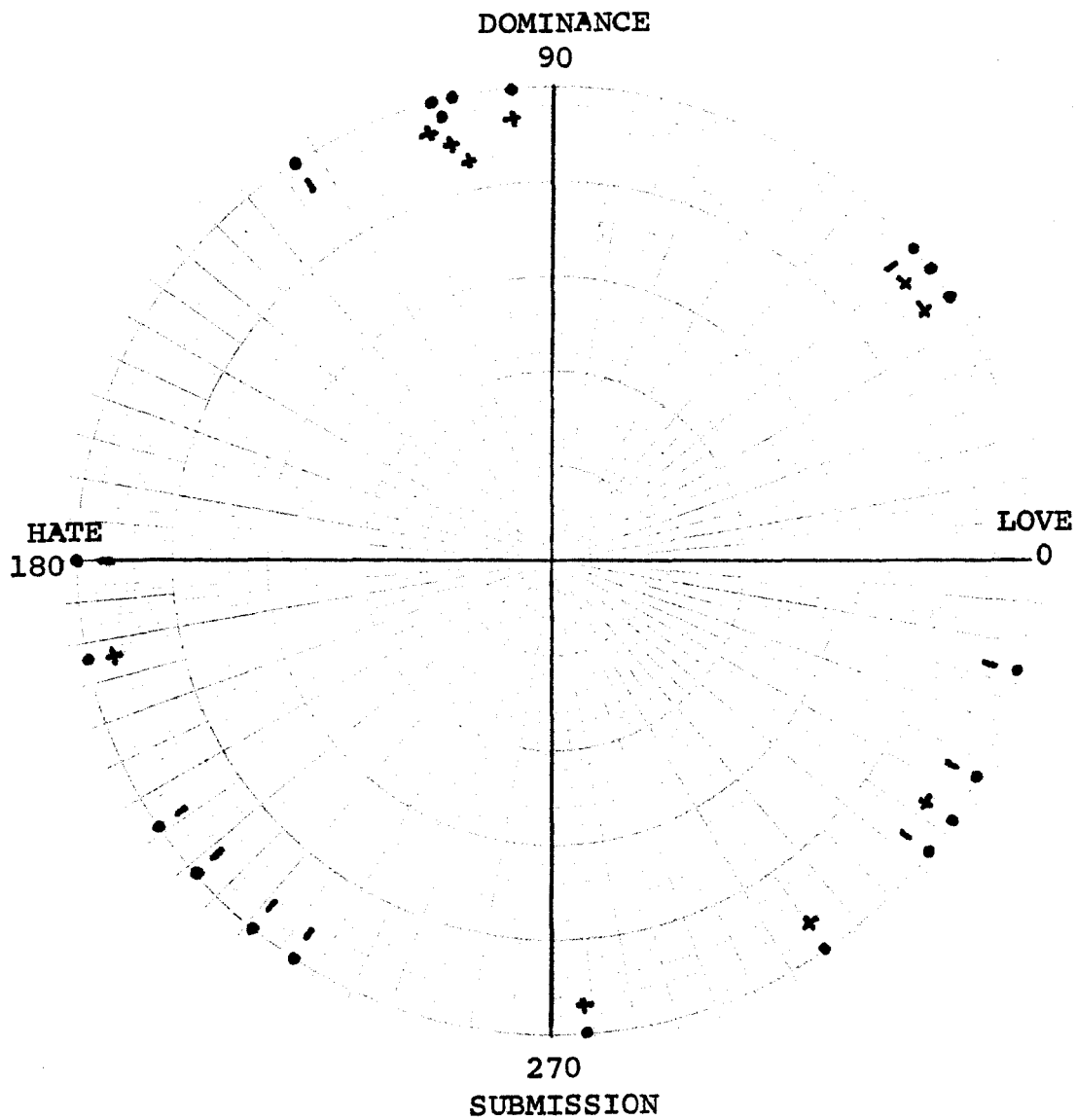
Figure 39. En Scale Circular Plot: Group B
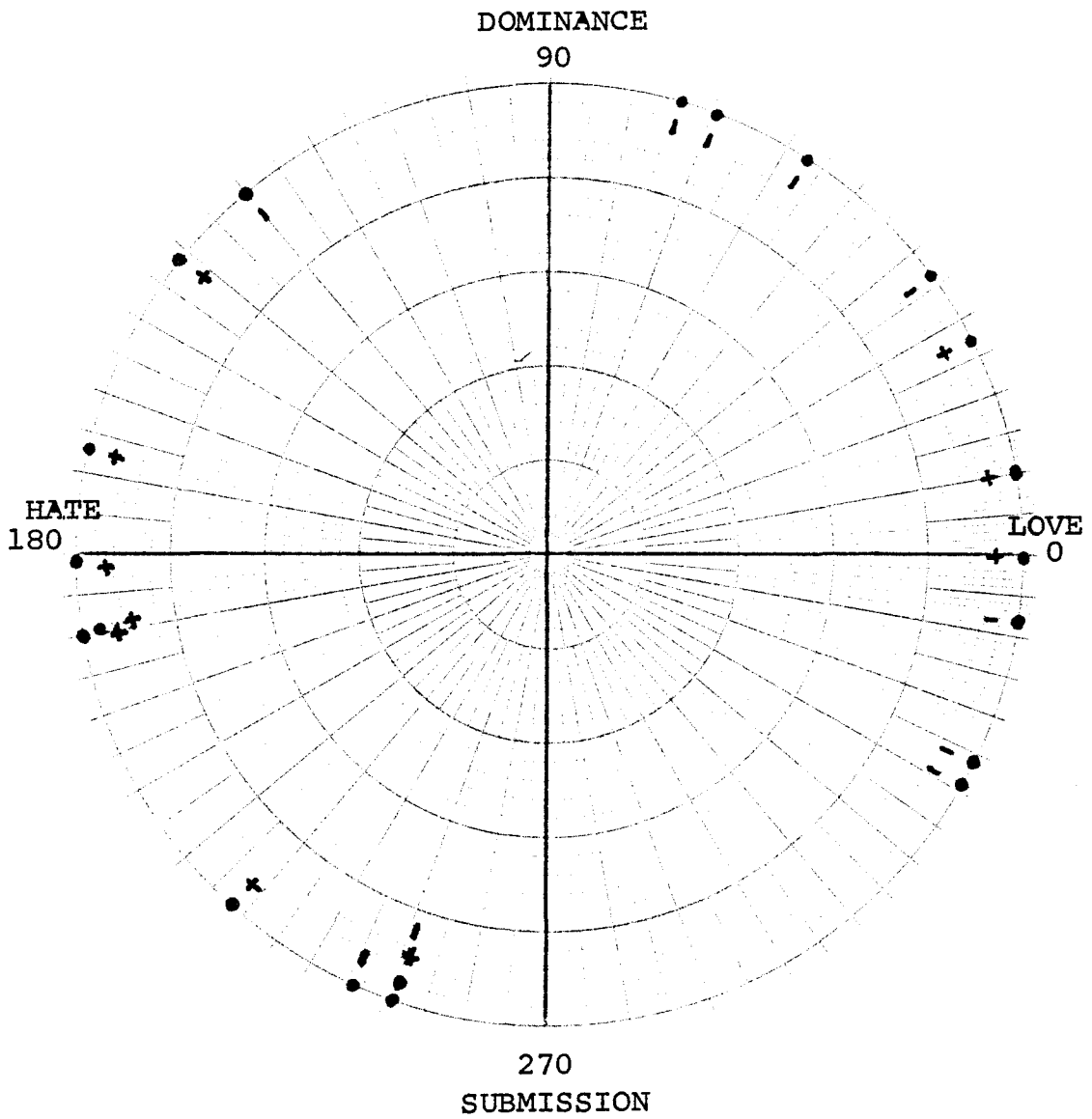
Figure 40. Ex Scale Circular Plot: Group B
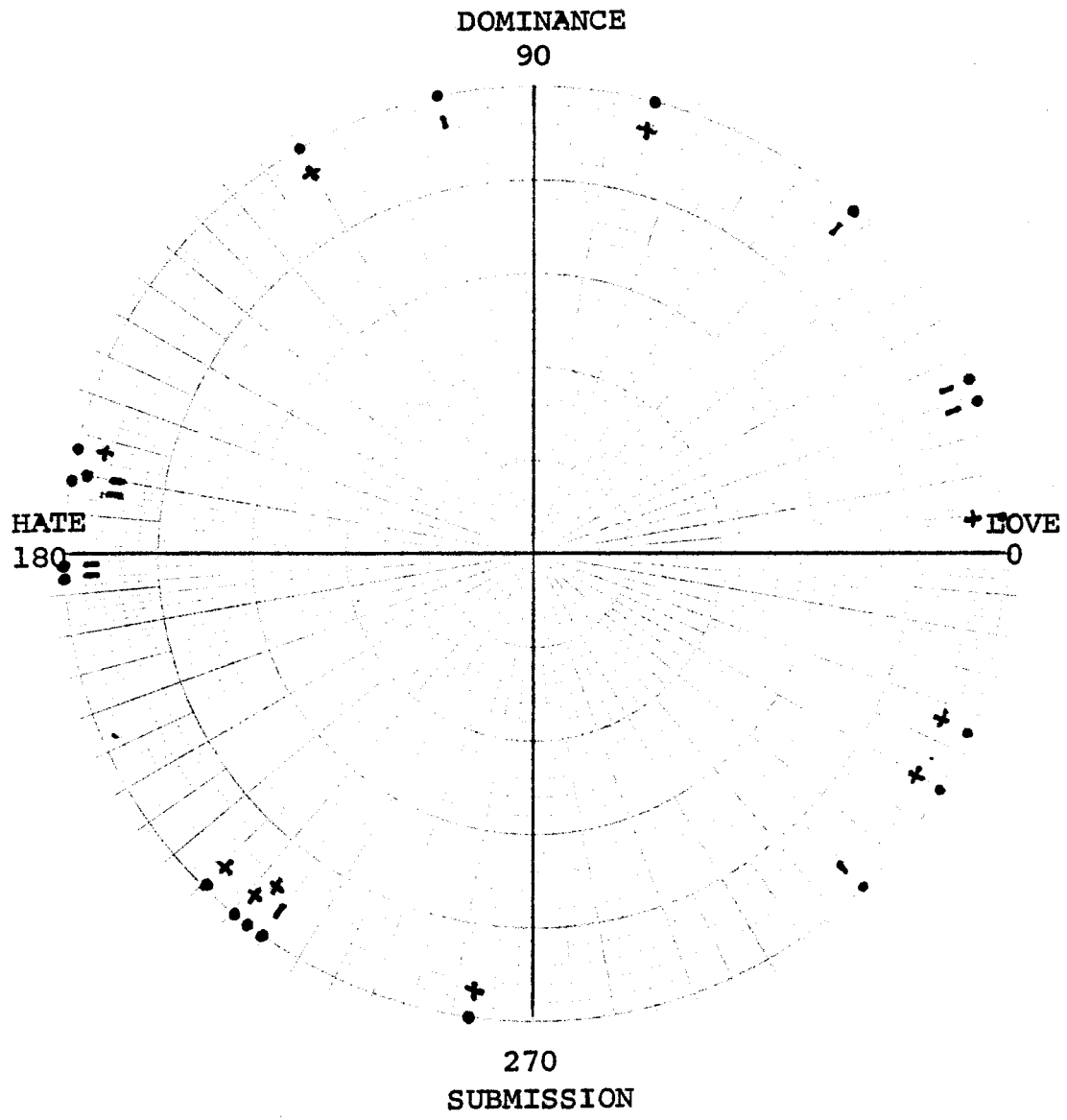
Figure 41. Ha Scale Circular Plot: Group B
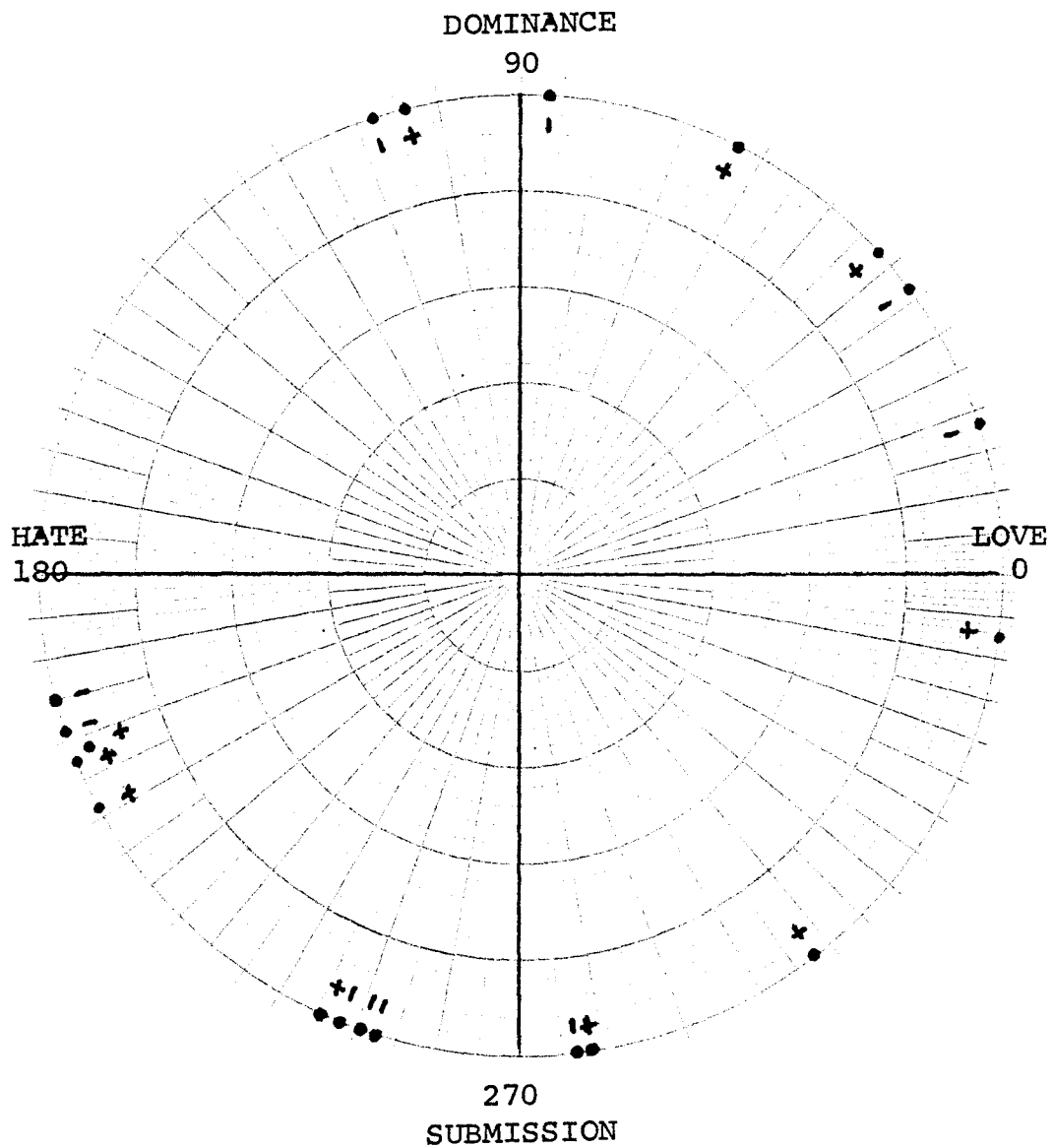
Figure 42. Im Scale Circular Plot: Group B
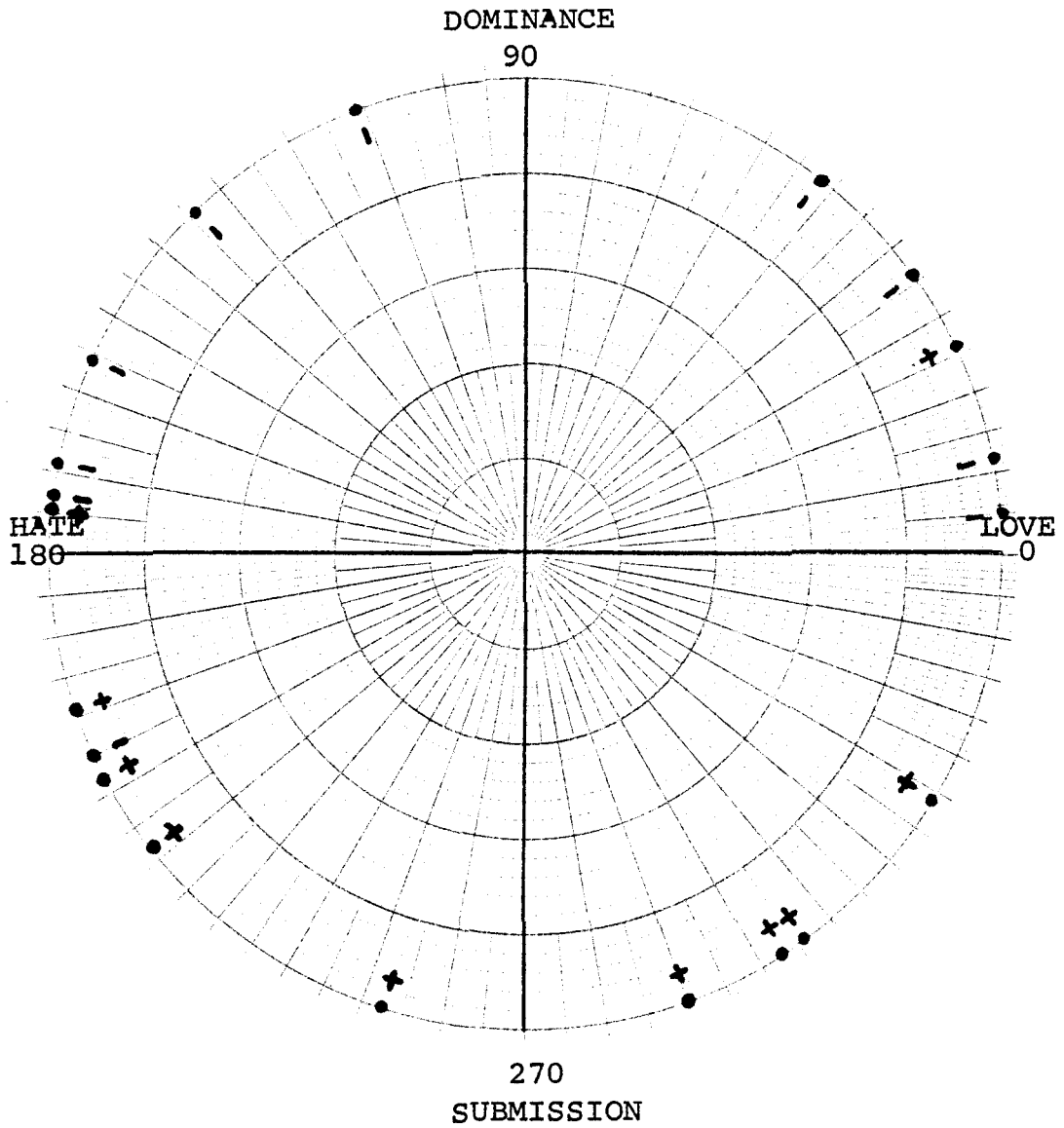
Figure 43 . In Scale Circular Plot: Group B
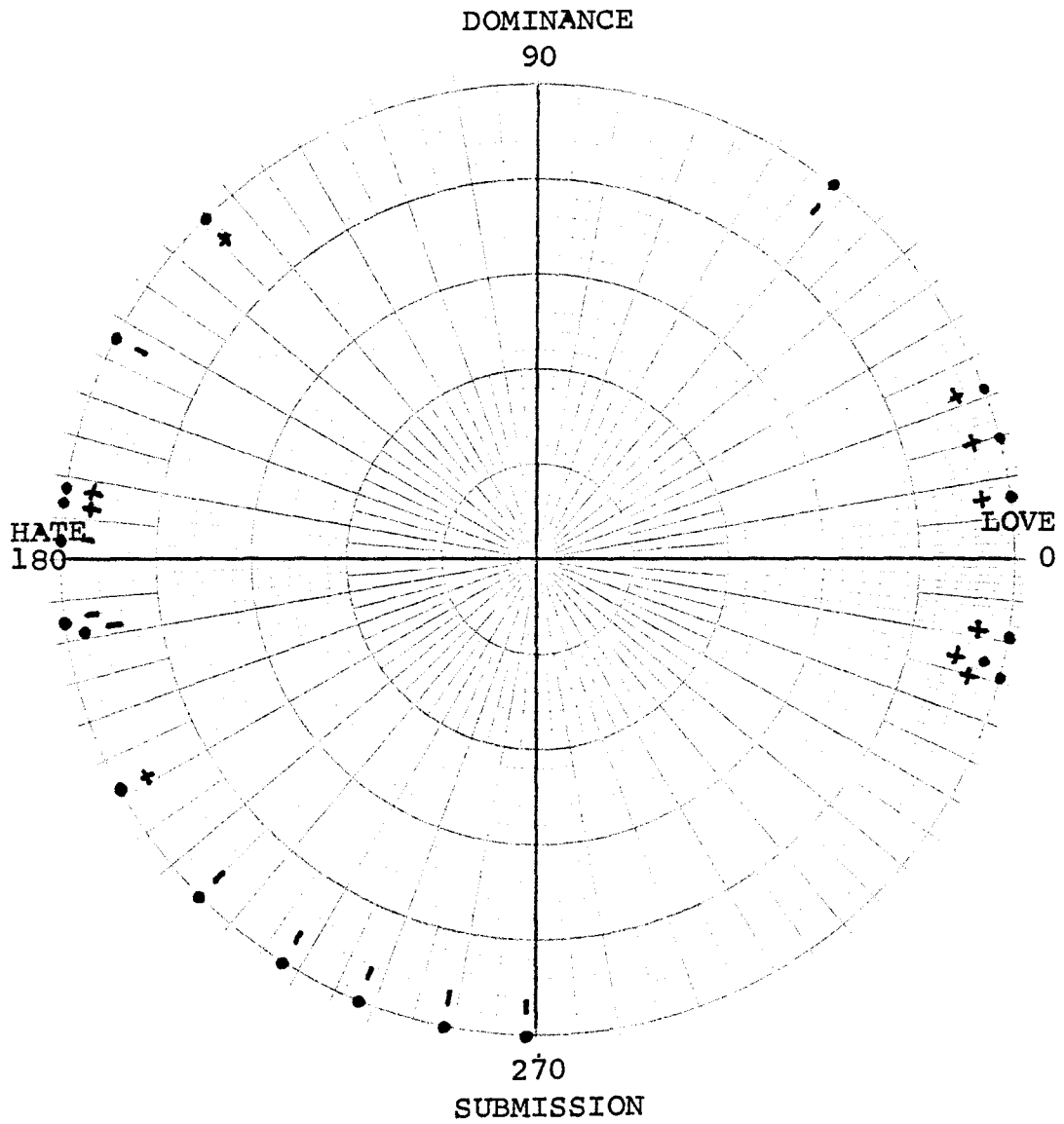
Figure 44. Nu Scale Circular Plot: Group B
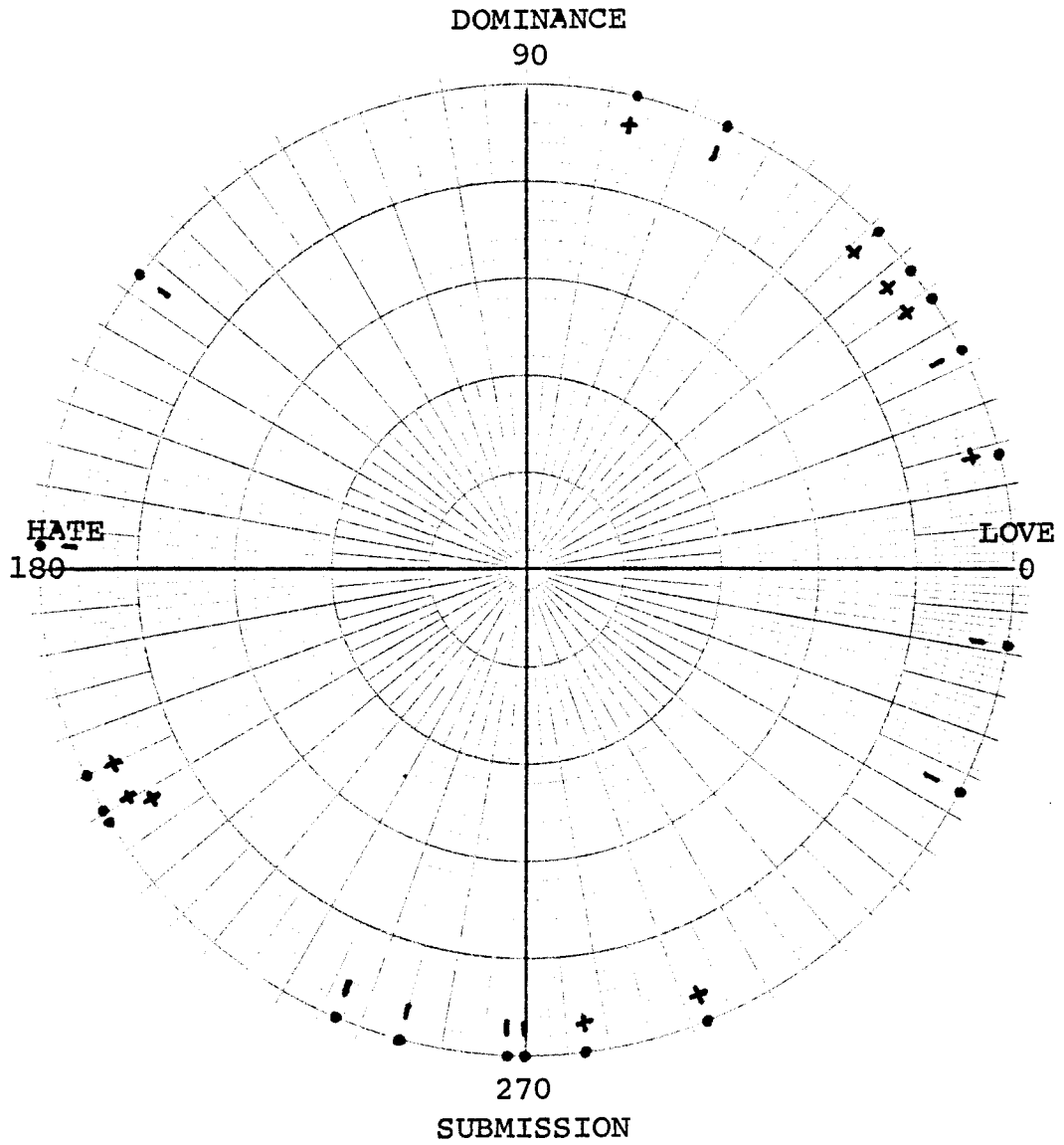
Figure 45. Or Scale Circular Plot: Group B
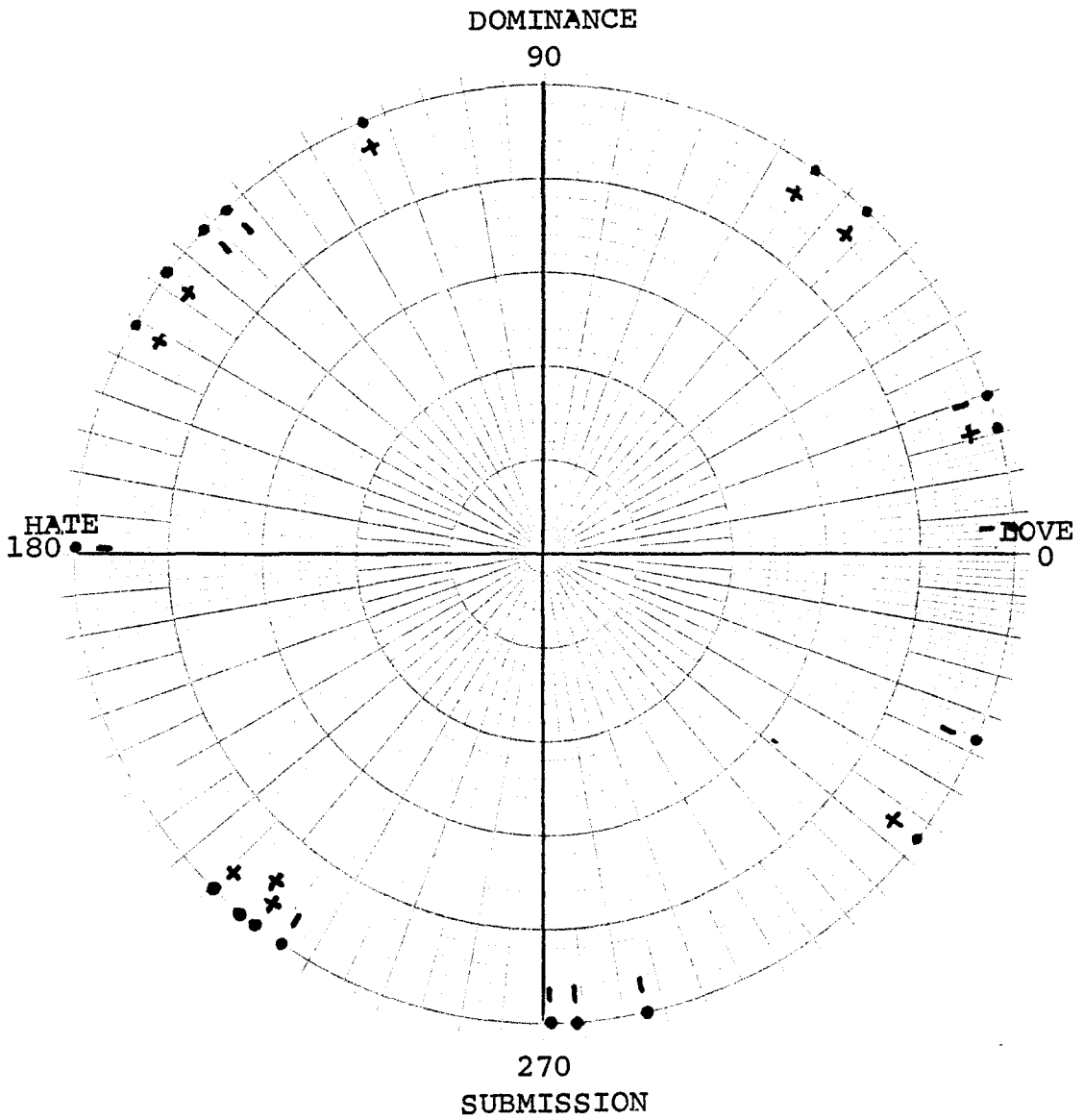
Figure 46. P1 Scale Circular Plot: Group B
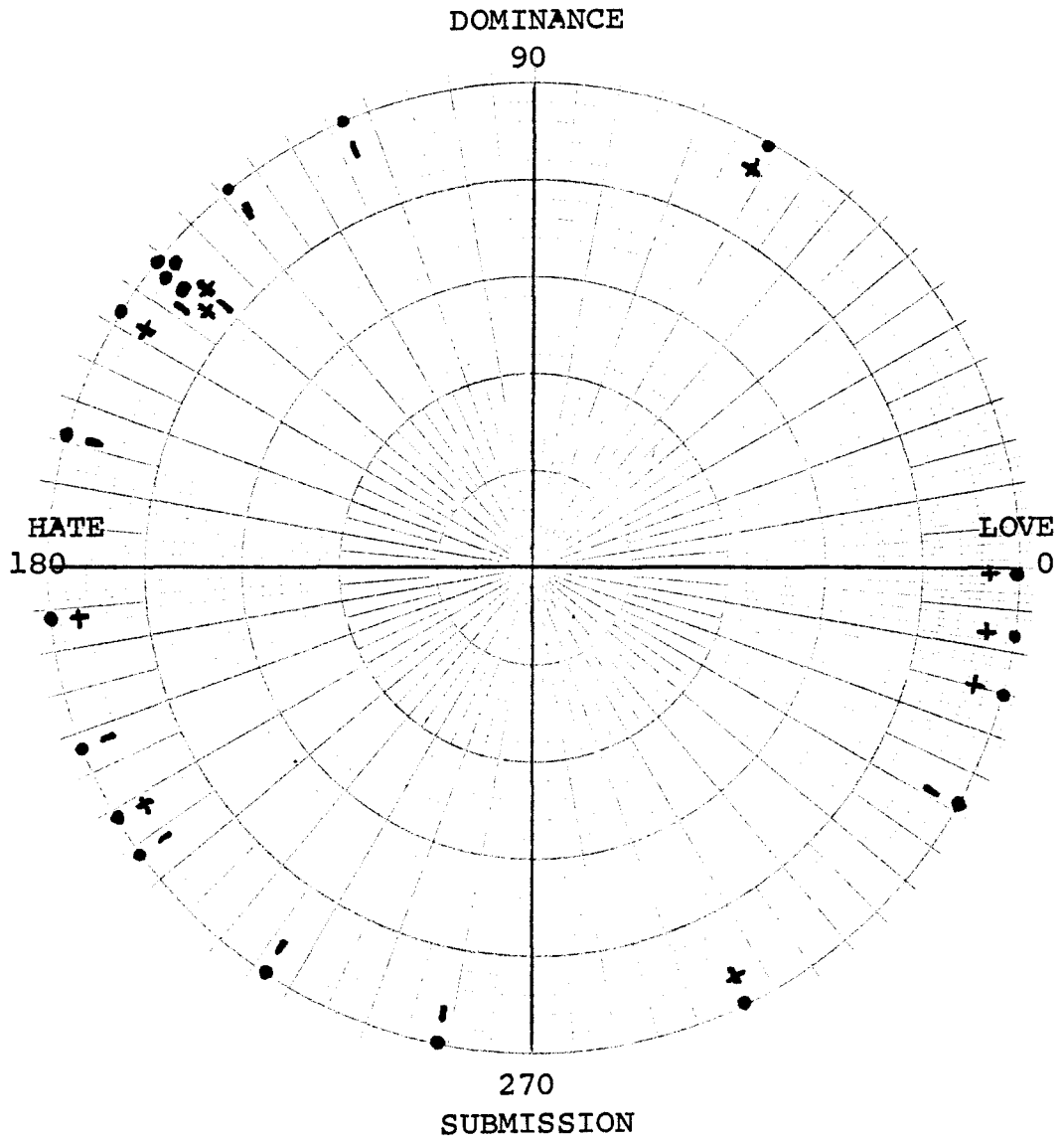
Figure 47. Se Scale Circular Plot: Group B
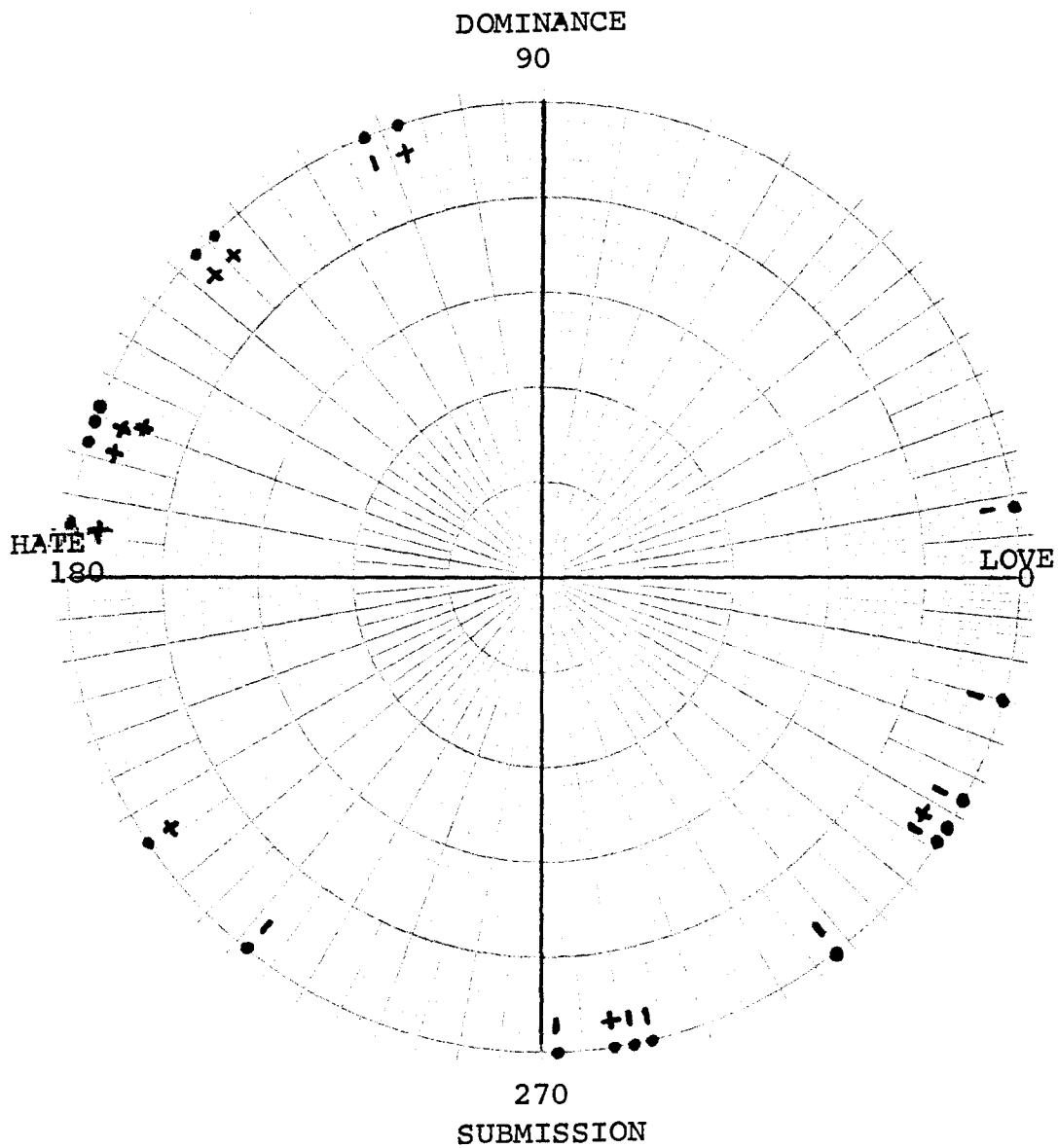
Figure 48. Sr Scale Circular Plot: Group B

116
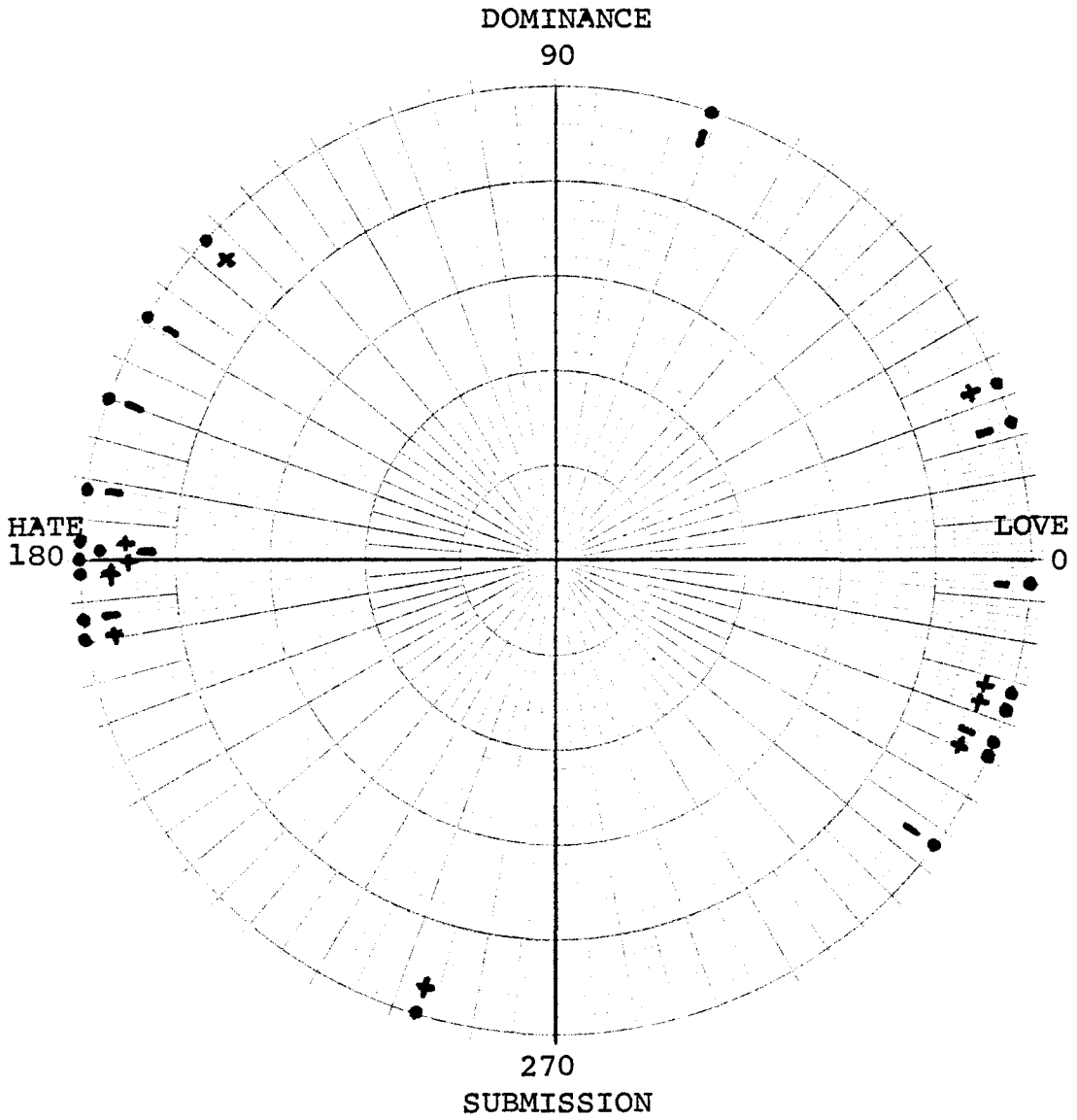
Figure 49. Su Scale Circular Plot: Group B
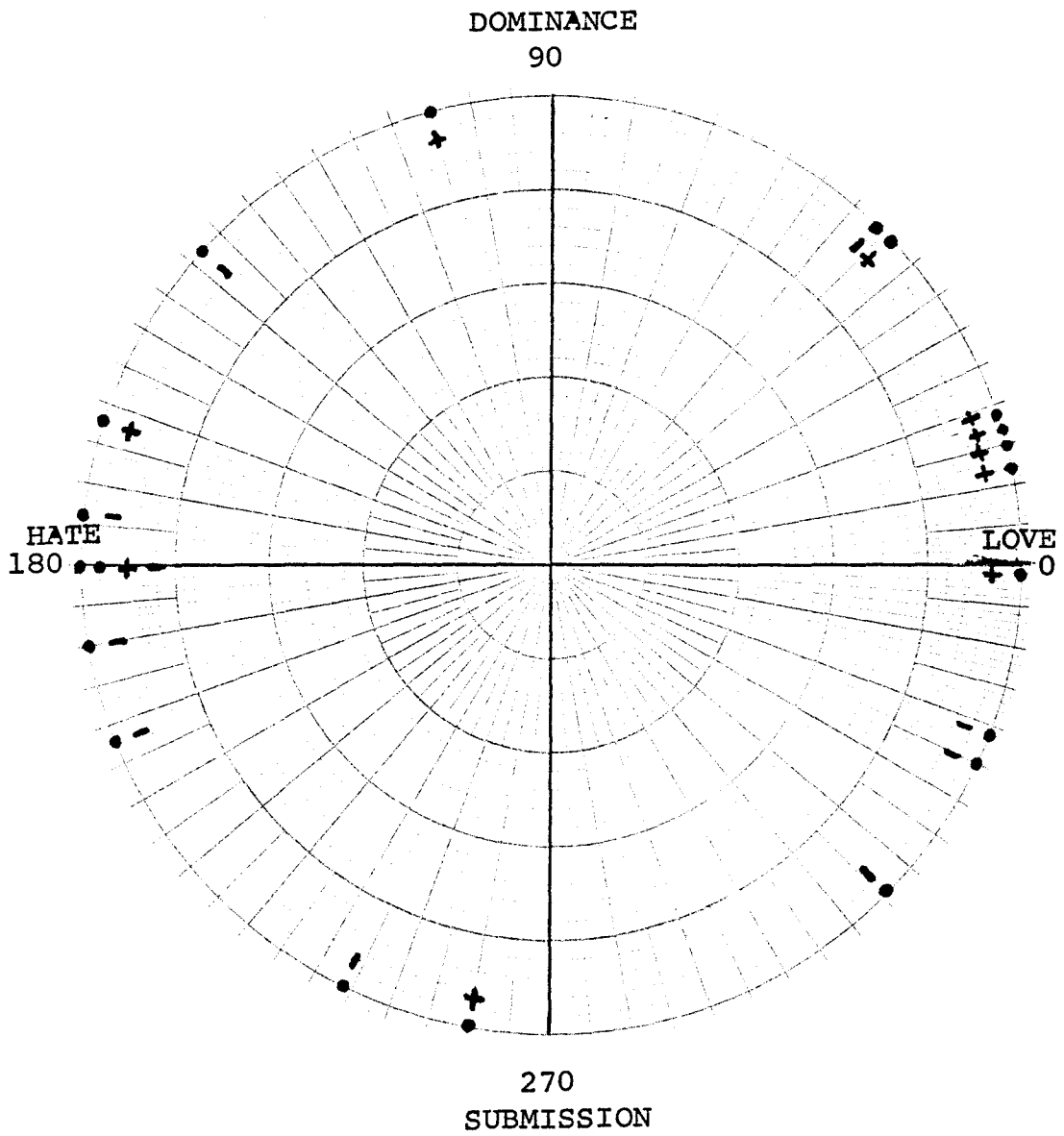
Figure 50. Un Scale Circular Plot: Group B

Item	Scale	Angle: Group A	B	Statement
-427	Do	79.8	357.5	I don't have a forceful or dominating personality.
323	Or	60.0	227.3	I spend much of my time arranging my belongings.
-316	De	242.0	180.0	I don't mind answering questions about my family or friends when applying for a job.
-440	Dy	359.0	65.2	Many things make me feel uneasy.

If the negatively scored items are reflected 180 degrees, the item-angles would plot in the opposite poles or on one of the H-L or S-D dimensions.

The composite results of the K-S Two Sample Test, the differences in the angular ranking of items into the circumplex, and the scale placements into the two-dimensional plane between the two groups of subjects lead to rejection of the fourth null hypothesis (there will be no significant differences between the item placements to the circular model by both samples of subjects).

Resultant Vectors

The sum of the individual item mean scores in both the H-L and S-D dimensions were used to form the bivariate pair for which a resultant vector was obtained for Group A subjects shown in Table 20 and Table 21.

Table 20   119

Sum of the Means Per Scale: Love-Hate Dimension

	Ab	Ac	Af	Ag	Au	Ch	Cs	De
Total:	2.089	4.762	2.151	-1.117	-0.593	3.032	-0.929	-4.315
Corrected Total:		4.843	2.092	-1.217		2.882		

	Do	En	Ex	Ha	Im	Nu	Or	Pl
Total:	3.111	4.847	2.267	0.219	0.328	4.946	0.055	-0.364
Corrected Total:						5.026	4.915	-0.296

	Se	Sr	Su	Un	In	Dy
Total:	-0.244	2.489	1.654	-0.038	2.061	5.539
Corrected Total:	-.493	2.789	1.463			

Table 21

Sum of the Means Per Scale: Dominance-Submission Dimension

	Ab	Ac	Af	Ag	Au	Ch	Cs	De
Total:	1.568	9.279	7.408	0.554	-3.895	7.008	6.456	-0.600
Corrected Total:		9.220	7.613	0.714		7.239		

	Do	En	Ex	Ha	Im	Nu	Or	Pl
Total:	8.167	-2.762	9.532	1.902	8.452	5.532	3.709	4.496
Corrected Total:						5.592	3.307	4.698

	Se	Sr	Su	Un	In	Dy
Total:	6.088	3.215	2.748	2.851	4.579	-1.579
Corrected Total:	4.643	3.785	2.528			

The table shows the sum of the means per scale category and the "corrected" sum of the means in each dimension of the two-dimensional scaling procedure. The corrected sum of the scale-mean is the sum of item-means after deleting the means of the non-scaled items. Ordering the means in each dimension from highest to lowest indicate meaningful placement of the scales relative to the axes: Love-Hate and Dominance-Submission. The positive poles of the axes are Love and Dominance. In the Love-Hate dimension, Nurturance (Nu) leads the traits when rank-ordered from highest to lowest. In the dominance pole of the S-D dimension, the group of scale traits reflecting behaviors which imply "dominance" (rank-ordered) are: Exhibition, Achievement, Impulsivity, Dominance, Affiliation, Change, Cognitive Structure, and Nurturance. It is interesting to note the six scales at the submission pole: Autonomy (-3.895), Endurance (-2.762), Defendence (-0.600), Aggression (0.714), Abasement (1.568), and Harm avoidance (1.902). Table 22 lists the 20 trait scales in each dimension.

Table 22

Rank-Order of the Corrected Sum of Item-Mean Scores Per Scale Trait

Dominance-Submission		Love-Hate	
Ex = 9.532	Sr = 3.787	Nu = 5.026	Su = 1.463
Ac = 9.220	Un = 3.785	Or = 4.915	Ag =-1.217
Im = 8.452	Or = 3.307	En = 4.847	Au = 0.593
Do = 8.167	Su = 2.528	Ac = 4.843	Im = 0.328
Af = 7.613	Ha = 1.902	Do = 3.111	Ha = 0.219
Ch = 7.239	Ab = 1.568	Ch = 2.882	Un = 0.038
Cs = 6.456	Ag = 0.714	Sr = 2.789	Pl =-0.296
Nu = 5.592	De =-0.600	Ex = 2.267	Se =-0.244
Pl = 4.698	En =-2.762	Af = 2.091	Cs =-0.929
Se = 4.643	Au =-3.895	Ab = 2.089	De =-4.315

If the scales were plotted (using the sum of their item-names as the coordinates) into the plane of the two dimensions with the dominance-submission as the ordinate and love-hate the abcissa, the nurturance scale is almost precisely at the midpoint between dominance and love. Therefore, the items of this scale lend support to the notion of "loving-dominance" behavior patterns in interpersonal relationships.

The twenty-two resultant vectors plotted into the two-dimensional circular model is shown in Figure 51. The figure shows the 15 PRF scales (Cs, Se, Pl. Un, Im, Ha, Ex, Af, Do, Ch, In, Ac, Su, Sr, Nu) clustering within 45 degrees of the ordinate (Dominance). Two scales (Dy, En) are within ten degrees of the love scale, Ag scale at 27 degrees and Defendence scale at eight degrees, respectively, toward the hate pole of the abcissa.

There appears to be a relatively meaningful ordering of the scales both in their dimensional distribution (i.e., dominance and love) and their circumplical distributions.

The 22 scales did not plot uniformly in circular order according to the circumplex model. Thus, the fifth null hypothesis (the personality trait scales as defined by the PRF will not plot uniformly according to the circumplex model) is not rejected.
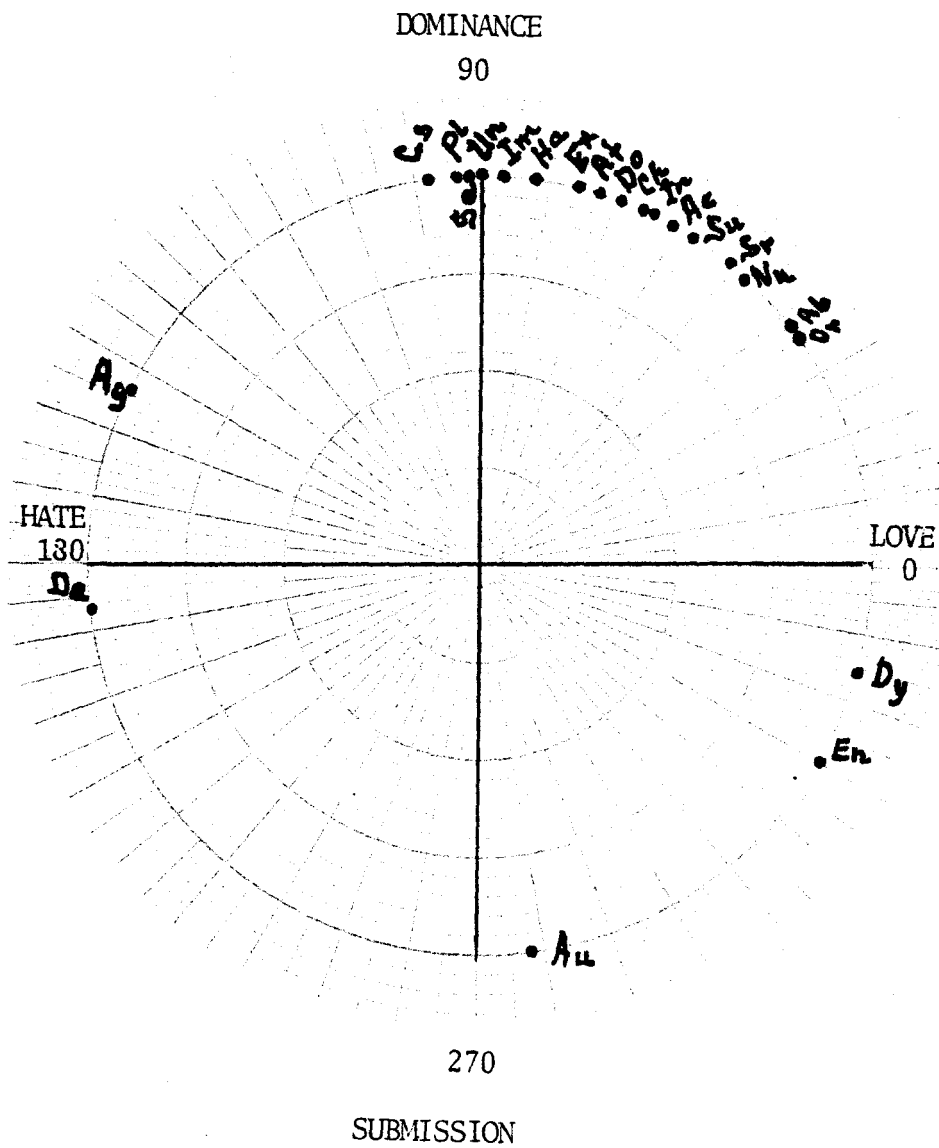
Figure 51. Resultant Angles of the 22 PRF Scales: Group A

CHAPTER V

DISCUSSION

The primary purpose of this study was to apply and validate the
utility of the circumplex model in the direct-item scaling of per-
sonality variables. Additionally, the study used a two-dimensional
double scaling procedure to illustrate the two-dimensionality of
interpersonal behaviors.

Rejection of the first two null hypotheses affirms the applicabi-
lity of the procedures as previously investigated by McCormick (1977),
Russel (1979), and Wiggins (1979). Despite the differences between
the populations used in this study, almost all of the PRF items were
precisely scaled into either of the two dimensions: love-hate and
dominance-submission. Thus, the procedures lend support to the two-
dimensionality of a real circumplex used by researches in various
empirical studies (Druckman, 1979; Olson, et.al., 1979; Russel, 1979).

Utilizing the Kolmogorov-Smirnov Test of significance and the
t-test on individual item score means in judging appropriately scaled
items provide for a better test construction at the item-level. The
items so chosen are homogeneous and accurately measure what they are
reportedly supposed to measure. Hence, the direct-item, double-scaling
procedures used in this study are useful in constructing assessment
tools and can serve as "reference points for the classification of
variables in personality and social psychology" (Wiggins, 1979, p. 395).

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The circular ordering of the items of the PRF lends support to the assertion that interpersonal behaviors form a lawful order. However, the total items of the PRF do not necessarily measure the entire domain of interpersonal behaviors as evidenced by the presence of discernible gaps in the unit circle. Hence, the third null hypothesis was rejected. McCormick and Kavanagh (in press) and other researchers who have done empirical studies of the circumplex (Wheeler, 1980) claim that sufficient or "necessary-adequate" number of appropriately scaled items would demonstrate the meaningful relationships of interpersonal behaviors which form a circular-order-relations with no beginning and end.

Circular plots of the PRF item angles (See Figures 4, 5, 6) show minor gaps in the unit circle and some items occupying the same points in the circle. It is plausible that the gaps represent missing items which measure other personality traits not measured by the PRF, and that items having the same locus in the circle measure "overlapping" traits or trait continuum.

The significant differences between the mean scores of the two populations in this study affirm the fourth hypothesis: there will be differences in the scaling of the items by both groups of subjects. It is inferred from the data that such differences warrant the need for cautious use of personality assessment tools and other standardized tests for purposes of prediction. The PRF in its five formats is used in diversified settings which may invariably involve subjects with differing cultural backgrounds. Cultural, ethical norms and mores, and psychological make-up form the core of personality (Wiggins, 1973).

Thus, the need to consider the socio-cultural differences of subjects in the administration and interpretation of results obtained by measurement tools. One example is the author's using the PRF-AA, by consultation from experts in the field of Psychology and Guidance and Counseling, to study the relative effects of the new graduate program in nursing on students' personality and performance. The tool was used in conjunction with Rotter's I-E locus of control (Rotter, 1966) and other tools. Although the graduate program study is not yet completed, the results of this study would be instructive in analyzing the data of the aforementioned study. The specific implication is the need to investigate the score differences within and between students who are native born Americans and non-native born Americans.

The two groups of subjects in this study are unique (all female nurses) which call to question generalizing any inferences made beyond the two populations. However, the strength of the procedures and the construct validity and reliability of the PRF give some credence to the recommendation that selected PRF scales can possibly be used in prediction studies. Additionally, norming of the PRF-A included ninety-seven (97) female nurses (comprising the largest single group within the 1002 female population) in a first year Bachelor's nursing program at the University of Calgary, Alberta, Canada (Jackson, 1974, p. 33). Thus, the subjects used in this study have some "similarities" with the majority of the female population used to norm one of the PRF inventories. Nonetheless, cultural differences, social norms and styles of interpersonal transactions still differ and must be assessed.

One of the most interesting findings of this study is the scaling

of more items into the love-hate dimension by Group B (subjects for whom English was not the native language) in contrast to the scaling of most items into the dominance-submission dimension by Group A. Assuming that the procedures are accurate and useful, the question is, do nurses in the second sample of subjects particularly those from the Philippines, exhibit behavioral patterns which are more love-hate directed and/or consider love-hate to underlie interpersonal transactions rather than dominance-submissive directed? Does this study help elucidate the apparent difficulty of this group of subjects in passing the professional licensing examination in the United States? Replicating the procedure and using selected scales of the PRF may provide valid answers to the questions.

In converse, the similarities between the two populations relative to the perceived meaning of the scaled items and the content scales (traits) support the relevance of the PRF as a tool which may be used in the study of nurses' professional and interpersonal transactions. For example, trait scales which were appropriately scaled by both populations which are considered "desirable characteristic traits of nurses" may be used. These selected trait scales may be used to examine the communality of traits among nurses in specific clinical specialty areas such as psychiatry, maternity, pediatric, medical nursing and so forth. The findings can then be used to study the relationships of these "common traits" in nurses and their lengths of hospital employment. Such studies might shed some light on the problem of shortage of nurses (Nichols, 1981, p. 3) in every type of health care delivery system. Further, a study may be launched using selected PRF

scales which correlate highly with other inventories such as the Bentler Psychological Inventory, California Psychological Inventory, Comrey's Personality Scale, Interpersonal Style Inventory, and the Strong Vocational Inventory (Jackson, 1974; Lorr, et.al., 1977). Such selected scales may yield a more precise assessment of personality traits of nurses which can be used for purposes of prediction. Specifically, studies may be done to examine the relationships between characteristics of nurses and their practice role, their length of practice in a particular field of nursing, and the quality of the process and outcomes of care they provide. Such studies may lead to the resolution of the discontent and warfare in the research methodologies used in accountability and quality assurance studies (Cantor, 1978; Chance, 1980; Given, et.al., 1970; Hegyvary and Haussmann, 1976; Phaneuf and Wandelt, 1976).

The fifth null hypothesis was not rejected. Its nonrejection implies two-faceted outcomes. First of all, the PRF scales placements as determined by the double scaling procedures and the two dimensions used in this study affirm the two-dimensionality of interpersonal behaviors. Although most of the scales cluster at the dominance-submission dimension, five scales distribute into the love-hate dimension. Thus, the two-dimensionality of interpersonal behaviors is exhibited by the data. Secondly, the angular scale placements which were not uniformly distributed according to the circumplex model indicate either one or all of the following possibilities: (1) insufficient number of homogeneous items for a particular scale or scales, (2) inadequate representation of the interpersonal domain, (3) effects of

the two-dimensional labels used in scaling the items, and (4) complexity of the PRF items.

It has been claimed that an adequate number of items is a requisite of the circumplical ordering and meaningful relationships of interpersonal and social transactions (Wiggins, 1980). The homogeneity of items (McCormick and Kavanagh, in press) is also asserted as another necessary condition for the meaningfully ordered interpersonal behaviors. As such, the necessary and sufficient conditions for trait scales would yield resultant vectors which are uniformly distributed according to the circumplex model. If such requirements are indeed tenable, then the nonuniformity in the circular ordering of the PRF scales may be due to the inadequate number of appropriately scaled items for a particular scale and/or the lack of trait scales that truly measure the entire behavioral repertoire of individuals.

Another point in question is the possible effects of the dimensions love-hate and dominance-submission in the scaling of the items. The meaning of these terms can differ between individuals and social groups. However, these two bipolar terms have been used successfully in empirical studies which demonstrate the two-dimensional real space of the circumplex. Yet, it is plausible that if other terms are used, e.g., extroversion-introversion and affiliation-aggression, differently ordered resultant vectors of the PRF scales may plot uniformly according to the circumplex model.

Lastly, the PRF items may have been perceived as "too complex" to be interpreted meaningfully by the subjects. Verbal reports of approximately one fourth of the subjects regarding the items for the

negative pole of the scales which were at times "confusing" to them
may have influenced the circularity and uniform distribution of the
scales. Additionally, the scaling procedures used in this study are
subject to the effects of unidimensional scaling procedures such as
the errors of central tendency, truncation and the time required of
subjects in the double scaling of the 440 items of the PRF. In con-
junction, a question may also be posed regarding the utility of the
radex in the analysis of the data. If the PRF do measure interpersonal
behaviors which are complex or if the scales are of the same kind but
differ only in the degree of their complexity, then the radex may be
more instructive in making inferences on the data of the study.

In a radex-circumplex model, the variables are considered a mix-
ture of elementary components which cannot be arranged in a rank-order
of simple to complex (Nunnally, 1978, p. 533) and/or may differ in
kind or complexity (Gutman, 1954). The variables, therefore, may form
simplexes. Variables of the same kind which differ only in the degree
of complexity represent a simplex and can be arranged from the least
to the most complex hierarchy. The question then becomes: are the
variables/scales of the PRF of the same kind but differ only in the
degree of their complexity? If they are, then the scales may be
arranged from the least to the most complex hierarchy. Conversely,
if the PRF scales are of the same degree of complexity but differ
among themselves only in the phenomena they measure, then they cannot
be rank-ordered. However, a circular order of equal rank is imputed.
These circularly ordered scales (variables) which have no beginnings
and no ends are called circumplex. For the case of tests or variable-

clusters differing simultaneously both in <u>kind</u> and <u>degree of complexity</u>, then the general structural relationships is the Radex (Gutman, 1954). This implies a radial expansion of complexity. Therefore, the discernible features of the radex are clusters of point components within the circle. Hence, should the radex be a better model than the circumplex for analyzing the meaningful relationships of the PRF scales? Jackson and Helmes (1979) contend that the interpersonal domain of personality is complex. Thus, a two-dimensional plane circumplex cannot adequately represent the entire domain of interpersonal and social behaviors. It is therefore recommended that the vector length of each PRF item and the resultant angle of each scale be examined and correlated with its resultant vector length. The derived relationships would possibly lead to more meaningful inferences.

It is interesting to note that items which have been scaled into the same point in the unit circle by both populations show differences in their vector lengths. The "intensity" of the meaning of items have been attributed as functions of the vector length. The implication is that the differences in the intensity of the meaning of items be studied so that individual differences as well as group differences can be more accurately assessed.

It is anticipated that this study which explicated the utility of the direct-item, double-scaling procedures used and the further validation by the other studies in progress (four measures of self esteem by Thomas, MMPI by Smoley) will create a "logical tree of strong inferences" (Platt, 1964) which should be nurtured by every scientific discipline. Indeed, the circumplex model may prove to be a better

model than the latent or path analysis models (Bergen, 1980) used

in the structural analysis of many complex and interesting behaviors

(i.e., "identifying the personal characteristics of successful students"

(Jako, 1980, p. 463)).

SUMMARY

The applicability of the direct-item nine point method of scaling selected personality variables into the circumplex model was demonstrated. A double scaling procedure, one in each of the dimensions (love-hate and dominance-submission) was used to scale the meaning of the statements of the Jackson Personality Research Inventory (PRF-AA) by a sample of subjects whose native language is English and another sample of subjects whose native language is not English.

Additionally, the validity of the bipolarity and two-dimensionality of interpersonal behaviors as previously demonstrated by extant research was supported.

The first and second null hypotheses that the samples of English-speaking subjects and the "non-English" speaking subjects will not scale the items of the PRF in the circular plane as determined by the love-hate and dominance-submission dimensions were rejected. This finding demonstrates the applicability of the scaling procedures in this study. Further, it validates the procedures used by McCormick (1977).

The third null hypothesis that there will be no discernible gaps in the circular frequency distributions of the averaged item responses by either the English-speaking subjects and the "non-English" speaking subjects was also rejected. Its rejection calls for further examination of the adequacy and representativeness of the PRF-AA items as measures of the interpersonal domain.

The fourth null hypothesis that there will be no significant

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differences between the item placements to the circular model by both
samples of subjects was rejected. Hence, the study raises the rather
serious question relative to the utility of using personality tests in
assessing personality traits of subjects differing in socio-cultural
and professional role orientation.

The fifth null hypothesis that the personality trait scales as
defined by the PRF will not plot uniformly in circular order according
to the circumplex model was rejected. This possibly implies that the
PRF scales do not represent the entire domain of interpersonal behaviors.

The distributions of the PRF scales into either of the two dimen-
sions (love-hate and submission-dominance) are consistent with findings
from factor analytic studies of interpersonal transactions.

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Appendix A

TABLE 8

Frequency Distribution of the Nine-Point Scaling Procedure for the 440 PRF Items on the Hate-Love Dimension by the English-Speaking Subjects (First Row of Numbers) and the Non-English-Speaking Subjects (Second Row). K-S: * = p $\geq$ .01; ** = .05$\leq$ p > .01

| ITEM | HATE | | | | | | | | LOVE |
	-4	-3	-2	-1	0	1	2	3	4
** 1.	*15	25	36	12	5	3	2	1	
	* 8	16	24	12	9	9	13	8	1
* 2.	* 1	3	11	4	31	21	11	11	3
	* 4	12	9	7	14	23	15	13	3
* 3.	* 1	1	4	2	70	4	2	8	7
	* 5	8	4	5	30	5	12	12	19
4.	* 8	23	32	11	17	2	5		2
	* 9	18	16	13	13	13	13	2	3
5.	*	7	9	8	8	26	28	9	5
	8	19	15	11	13	9	16	8	1
* 6.	*		1	5	12	11	26	35	9
	** 3	6	12	2	1	14	19	35	8
** 7.	* 8	21	22	20	16	5	4	3	1
	* 2	4	14	15	12	9	23	17	4
8.	*16	34	19	8	9	5	7	1	1
	* 6	16	14	22	9	19	7	2	2
* 9.	* 4	10	15	14	35	14	6	2	
	9	10	15	20	15	9	13	7	1
*10.	* 1	8	19	39	19	5	5	1	1
	* 4	16	16	16	16	10	12	8	1
11.	* 3	11	10	13	46	9	5	1	1
	** 6	17	13	10	12	18	17	5	
12.	* 1	3	10	16	33	23	7	5	1
	1	8	10	14	16	14	22	11	1
*13.	* 1	1	7	5	10	14	18	11	2
	5	13	3	8	12	15	25	14	1
*14.	* 1	10	14	31	32	5	6	1	
	* 1	10	15	22	10	14	13	12	1

TABLE 8

(Continued)

ITEM	HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*15.	*	2	2	2	17	22	31	17	7
	** 1	7	10	5	17	14	23	14	5
*16.	*	8	8	6	37	16	13	8	3
	* 2	12	10	9	16	12	20	13	4
*17.	*	2	3	1	8	16	35	25	9
	* 2	8	7	4	4	14	26	28	5
18.	* 4	13	21	30	20	5	3	4	
	** 6	8	16	10	17	13	16	9	1
19.	* 1		5	8	42	18	10	13	1
	**	7	7	4	6	15	25	26	9
*20.	* 5	12	17	31	20	5	6	1	2
	* 2	17	10	15	18	16	14	5	2
**21.	*	3	1	2	24	22	22	16	8
	*	6	7	14	14	11	21	25	1
**22.	* 2	2	2	4	8	23	26	20	13
	*	6	11	9	10	12	22	21	8
23.	* 1	16	21	32	16	5	6	2	1
	* 5	16	11	18	17	12	22	21	8
24.	* 6	22	17	18	27	2	2	4	
	* 8	17	18	11	15	12	9	5	1
25.	* 7	4			78	1	2	3	
	*22	18	5	5	35	3	5	2	
26.	*		1	9		11	29	36	14
	* 2	4	9	7	3	11	24	26	14
*27.	* 9	17	21	30	8	6	6	1	1
	* 5	19	15	14	10	10	9	13	5
*28.	* 6	19	14	20	25	7	5	4	
	* 5	12	17	19	10	12	18	4	1
**29.	* 5	3	6	9	12	13	20	22	8
	* 1	13	7	8	11	15	25	12	1

TABLE 8

(Continued)

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ITEM		HATE						LOVE	
	-4	-3	-2	-1	0	1	2	3	4
30.	* 4	9	9	16	19	21	15	5	1
	* 1	12	13	9	11	15	25	12	1
**31.	* 1	3	2	3	26	20	19	16	9
	* 1	5	9	8	8	12	23	11	10
**32.	* 3	10	20	29	25	6	4	2	1
	* 1	13	15	18	11	17	17	8	
33.	* 2	3	3	9	38	13	14	9	8
	* 1	4	9	5	8	14	18	27	14
*34.	* 1	11	22	20	18	8	8	11	1
	* 5	6	16	9	13	14	19	14	1
**35.	* 1	11	10	12	34	10	5	4	2
	* 1	15	11	12	16	11	19	11	1
36.	* 1	2		11	24	25	23	9	4
	* 1	5	10	5	9	14	19	19	8
*37.	* 3	8	11	16	43	11	6		1
	* 2	11	17	11	25	11	16	6	
*38.	*	4	1	12	19	25	19	14	6
		8	3	9	9	13	21	27	10
*39.	*	7	8	14	30	23	12	5	1
	* 1	2	8	10	11	15	22	26	4
*40.	*	3	2	2	11	24	33	19	5
	* 1	4	9	4	4	11	35	22	9
**41.	* 12	7	21	26	22	2	5	3	2
	* 9	19	19	9	12	10	15	6	
42.	*	1	1	3	8	22	32	22	10
	* 1	3	7	11	9	10	22	26	11
*43.	* 6	13	22	26	26	2	5		
	* 7	15	22	13	10	7	10	4	1
**44.	* 8	14	23	26	19	3	6	1	
	* 4	22	20	7	7	22	13	5	
45.	*	3	2	4	1	25	22	32	10
	* 2	11	5	10	2	11	28	21	10

TABLE 8
(Continued)

ITEM	HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
* 46.	* 1		1	5	23	32	21	14	2
	*	6	8	8	10	18	28	15	6
47.	*	1	3	2	40	16	15	11	11
	* 2	5	11	6	10	17	15	25	9
* 48.	* 14	17	10	16	15	1	5	1	
	* 4	14	18	9	12	17	16	5	1
* 49.	* 4	6	15	15	14	24	16	4	1
	* 7	21	15	13	3	17	15	6	2
* 50.	* 4	14	15	25	13	9	6	12	2
	* 3	12	16	17	4	11	20	17	
* 51.	* 6	25	29	23	17	3	2	3	
	* 4	19	23	12	10	8	17	4	1
52.	* 9	15	13	14	35	10	2	2	
	* 19	22	10	9	12	11	11	5	
* 53.	* 2	7	9	26	29	15	8	4	
	2	11	15	10	9	21	25	6	1
* 54.	* 2		3	2	32	35	15	7	4
	2	8	5	9	8	13	41	13	1
* 55.	* 4	7	10	16	36	20	6		
	* 4	20	21	20	6	7	11	11	
56.	* 4	8	2	24	14	22	6	2	
	* 4	15	16	10	13	10	25	5	2
57.	* 4	8	15	21	29	8	0	4	2
	* 1	12	12	10	10	12	27	5	
* 58.	* 1	13	15	14	34	20	1	2	
	1	19	13	10	11	16	14	13	3
59.	* 1		6	6	15	32	25	13	2
	* 4	12	11	8	10	14	25	13	2
60.	* 10	8	6	9	26	13	17	7	2
	* 9	12	15	10	15	15	15	3	6
* 61.	*	7	6	13	43	17	9	5	
	* 3	7	12	18	12	16	21	8	1

TABLE 8
(Continued)

ITEM	HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*62.	* 9	20	17	18	29	5	1		
	*24	24	14	8	18	4	2	2	1
*63.	*	2	6	8	48	18	9	6	3
	* 4	10	11	10	15	18	12	17	3
*64.	8	20	29	18	16	5	3		1
	11	21	21	13	15	3	10	6	
**65.	*		2	5	14	20	29	18	12
	* 4	4	5	5	13	20	26	18	5
66.	*	2	1	5	5	17	33	20	17
	* 2		8	9	6	26	23	21	3
**67.	* 1	6	15	27	20	9	10	10	2
	*	6	9	15	9	7	27	22	3
68.	* 4	18	27	19	21	4	5	1	
	* 3	10	18	16	14	15	8	11	2
69.	*11	7	3	6	37	11	11	9	4
	16	24	8	3	16	11	7	8	2
*70.	* 2	2	7	3	7	30	30	15	4
	* 4	8	8	10	7	20	33	9	1
*71.	* 3	14	16	22	20	9	7	7	3
	** 5	13	17	16	11	8	15	11	4
*72.	* 8	24	16	18	20	7	6	1	
	**10	18	17	10	11	12	13	6	1
73.	* 2		3	5	3	14	23	33	17
	* 1	7	8	4	2	9	22	28	18
**74.	* 4	10	14	19	20	22	8	3	
	** 5	14	13	16	8	17	17	9	
*75.	*	4	3	7	42	13	17	12	2
	* 3	6	15	9	7	10	27	17	5
*76.	* 3	10	13	10	48	9	6		1
	5	9	16	11	12	17	21	9	

TABLE 8

(Continued)

ITEM	HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
77.	* 4	9	17	30	21	9	4	5	1
	* 6	21	13	11	4	10	14	18	3
78.	* 7	15	19	30	13	6	5	2	2
	** 9	20	20	11	6	7	16	9	
**79.	* 6	8	19	26	23	11	3	3	1
	* 3	12	16	15	13	18	13	7	2
** 80.	*	4	1	4	22	33	25	9	2
	* 1	4	10	10	14	22	27	8	4
* 81.	* 3	2	5	4	12	20	31	16	7
	* 9	18	8	4	9	18	14	15	5
* 82.	* 5	15	19	12	34	6	4	2	3
	* 17	21	17	12	9	10	3	6	4
** 83.	* 2	3	19	13	35	17	8	2	1
	* 15	5	14	13	11	14	11	12	1
84.	* 4	5	6	3	11	22	22	20	6
	* 8	7	8	10	6	14	27	17	3
* 85.	* 5	8	13	17	46	5	4	1	
	* 13	16	13	14	16	15	11	1	
* 86.	*	3	1	1	11	19	35	22	8
	* 1	11	10	3	1	17	20	28	9
* 87.	* 5	15	14	24	33	3	5	1	
	8	26	15	12	3	12	16	6	
88.	* 5	16	21	22	19	10	4	1	2
	** 7	21	20	9	7	14	13	9	
* 89.	*	6	8	10	19	28	18	9	2
	* 4	8	5	13	6	22	26	15	1
* 90.	* 1		6	5	31	19	19	16	3
	* 1	8	11	6	9	20	19	23	2
* 91.	* 4	7	1	6	47	11	16	4	4
	6	15	12	8	16	15	12	8	2

TABLE 8

(Continued)

ITEM			HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
**	92.	*	12	13	13	19	38	3		1	
		*	11	16	11	13	17	20	9	2	
*	93.	*	9	13	6	8	15	27	10	9	3
			12	16	8	14	9	23	12	6	
*	94.	*	1	2	3	1	25	21	27	16	4
		*		14	10	9	8	18	28	9	3
**	95.	*	1	14	11	35	21	9	8	1	
		*	9	9	21	11	14	13	20	2	
**	96.	*	7	27	31	20	10	2		2	
		*	7	18	8	18	10	10	14	11	1
*	97.	*	1	5	4	9	10	2		2	
		*	5	6	20	13	9	10	13	16	7
	98.	*	2	5	4	4	23	16	28	15	3
		*	1	17	15	7	11	12	24	8	2
**	99.	*	2	6	7	26	39	10	7	2	1
		**	4	16	18	11	15	19	12	5	
	100.	*	4	6	18	10	15	29	13	5	
		*	7	21	12	15	9	18	11	5	
*	101.	*		3	2	6	23	23	22	18	3
		**	1	8	11	5	12	19	24	15	5
*	102.	*	1	7	20	31	27	10	4		
		*	3	19	12	16	3	17	16	10	1
*	103.	*	1	4	6	15	28	21	18	6	
			3	8	9	14	15	18	18	8	1
*	104.	*	1	2	8	9	28	20	21	11	
		*	1	11	14	14	9	16	17	14	2
	105.	*		2	8	9	22	31	20	6	2
		*	2	7	5	18	13	19	22	10	4
	106.	*		16	32	31	11	6	3	1	
		*	3	19	21	8	11	14	16	6	2

TABLE 8

(Continued)

ITEM	HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*107.	*	2	3	3	47	17	13	10	3
	** 2	6	5	7	6	18	22	24	10
*108.	* 2	10	14	24	26	9	8	5	2
	* 3	9	15	10	6	15	17	22	3
**109.	* 2		2	3	21	18	30	15	8
	* 3	7	6	10	10	17	23	20	2
110.	* 1	2	2	6	8	24	30	19	7
	* 1	6	10	7	4	9	29	26	6
*111.	* 4	10	3	6	16	25	14	17	4
	2	7	14	6	7	17	24	20	3
**112.	* 2	13	20	22	32	5	3	1	2
	* 5	15	19	16	13	17	8	7	
113.	* 1	1	1	4	56	7	6	13	11
	* 3	4	6	2	9	13	25	21	12
**114.	*	2	4	12	37	21	11	8	3
	* 1	9	11	2	17	8	24	21	6
**115.	* 6	19	30	18	11	4	6	4	2
	* 9	18	17	14	7	3	18	10	4
*116.	* 6	15	13	26	25	7	2	4	
	* 5	16	17	12	2	15	11	15	3
**117.	*	1	1	2	15	21	32	18	9
	1	6	8		9	7	33	28	8
118.	* 2	3	6	6	40	19	13	7	3
	** 2	8	6	8	9	21	25	14	4
*119.	*	2	2	8	23	18	20	17	10
	* 1	6	4	2	5	11	23	30	18
*120.	* 3	2	9	4	39	19	17	7	
	* 7	9	11	13	16	17	17	10	
*121.	*	2	2	8	42	25	12	6	3
	4	9	8	8	6	15	27	17	6

TABLE 8

(Continued)

ITEM		HATE −4	−3	−2	−1	0	1	2	3	LOVE 4
** 122.	*	3	9	19	27	21	10	5	5	1
		7	15	12	9	11	18	14	13	
* 123.	*	3	14	16	17	28	11	10	1	
	*	6	13	19	21	6	11	18	2	3
* 124.	*		5	5	8	34	23	17	7	1
	*	3	11	11	20	5	12	24	13	1
125.	*	5	7	17	30	21	12	8		
	*	1	10	19	18	8	10	19	12	1
** 126.	*	8	10	9	19	33	5	9	3	3
	*	6	17	10	16	13	11	19	5	2
127.	*	5	1	7	15	41	13	11	3	2
		4	13	14	9	19	9	17	12	2
128.	*	1	1	3	5	13	19	32	20	6
	*	1	11	7	6	12	23	26	11	3
* 129.	*	2	7	15	14	45	11	4	2	
	*	7	12	21	24	9	13	11	1	1
* 130.	*	5	2	9	6	27	27	17	5	
	*	8	7	4	18	14	22	17	4	
* 131.	*	8	7	11	21	40	5	6	1	1
	**	11	13	15	12	16	12	14	6	1
** 132.	*	3	17	15	22	22	12	7	2	
	*	4	16	15	18	8	19	14	5	
** 133.	*	4	2	7	6	20	28	28	12	2
	*	2	7	7	5	6	23	26	20	3
** 134.	*	2	2	2	2	23	18	25	18	7
	*	2	14	10	8	6	13	18	20	5
* 135.	*	15	7	8	16	46	2	3	1	
	*	6	16	13	14	15	15	13	5	1
136.	*	18	20	20	19	17	3	1	2	
	*	8	20	19	9	15	12	13	4	

TABLE 8

(Continued)

ITEM	HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
* 137.	* 8	14	22	10	17	23	3	2	1
	* 16	13	11	9	2	17	19	9	1
* 138.	* 3	11	8	16	30	8	14	7	3
	* 6	14	17	11	5	14	18	10	5
* 139.	* 13	22	26	16	12	6	2	3	
	* 7	17	20	16	8	10	19	3	
140.	* 17	23	25	9	9	4	4	7	2
	* 13	26	14	7	5	12	12	10	1
141.	* 2	3	3	3	13	41	25	7	3
	* 1	8	11	8	6	18	28	16	3
* 142.	* 1	1	2	3	37	25	21	9	1
	1	5	9	14	16	18	21	14	2
* 143.	** 3	10	15	15	45	9	2	1	
	* 5	15	18	18	6	16	18	2	
144.	* 2	3	5	8	14	25	33	7	3
	* 3	17	13	9	7	21	19	9	1
* 145.	* 1	3	8	10	19	16	15	6	2
	* 2	11	13	11	13	15	19	11	3
* 146.	* 2	6	12	11	32	25	8	4	
	* 5	13	20	12	6	16	18	7	1
* 147.	*	4	1	8	16	20	30	17	4
	* 8	9	7	15	7	17	18	16	2
* 148.	* 4	15	11	8	24	12	14	9	2
	* 23	16	9	10	3	13	16	5	4
** 149.	* 2	13	10	25	34	10	3	1	2
	5	19	22	15	7	13	11	8	
** 150.	* 10	30	18	22	6	5	3	5	1
	** 11	14	19	9	11	9	15	11	
* 151.	* 1	1	4	7	42	20	15	7	3
	* 4	3	11	7	6	10	18	30	11

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
* 152.	*	2	8	10	23	20	11	9	6	1
	*	1	7	9	4	8	16	18	34	3
* 153.	*	1	3	3	1	11	15	30	23	12
	**	11	7	9	4	3	10	29	23	3
* 154.	*	1	3	8	10	14	17	26	20	1
	*	3	10	8	10	7	18	27	11	5
* 155.	*	2	7	19	29	15	16	8	4	
		5	18	9	11	3	17	24	12	1
* 156.	*	3	2	5	4	12	20	31	16	7
	*	9	18	8	4	9	18	14	15	5
* 157.	*	12	6	16	22	36	2	5	1	
	*	5	20	15	14	10	11	16	7	2
* 158.	*	15	3	4	5	68	2	1		1
	**	23	9	6	7	20	10	12	6	1
* 159.	*	1	3	3	3	48	18	10	9	4
	**	3	7	12	12	16	9	19	15	7
* 160.	*	2	6	13	26	19	10	11	8	5
	**	11	20	10	5	5	12	13	15	9
161.	*	2	6	13	26	19	10	11	8	5
	*	4	14	23	7	7	13	15	16	1
162.	*		3	2	3	3	18	40	20	11
	*	7	10	5	7	8	15	20	24	3
** 163.	*	1	4	11	12	13	21	21	12	5
	*	5	14	19	14	11	14	10	8	4
** 164.	*	3	4	8	13	24	16	14	12	6
	*	10	14	11	17	12	12	8	14	1
** 165.	*		6	10	18	41	8	9	7	
		6	11	25	15	6	14	16	6	
* 166.	*	1	13	17	21	26	10	7	2	2
	*	4	21	11	15	7	10	17	10	5

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TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
167.	*	6	13	20	21	14	10	7	4	3
	*	6	18	11	15	13	15	16	6	
* 168.	*	4	7	6	16	36	18	5	5	2
	*	3	11	8	21	22	11	15	8	
169.	*	2	4	9	20	20	20	14	8	3
		8	18	9	5	3	12	21	18	6
* 170.	*	3	8	8	7	47	13	6	4	2
	*	8	3	12	15	13	15	22	12	
171.	*	1	6	18	21	32	9	7	6	
	*	5	12	14	19	4	14	13	15	2
* 172.	*	2	5	11	7	41	20	11	2	1
	*	1	4	14	9	6	15	27	18	5
173.	*	1	2	3	10	9	20	31	21	3
	*	4	10	8	4	6	21	28	12	6
* 174.	*	2	8	8	11	40	17	10	3	1
	*	7	15	20	13	7	14	11	11	2
* 175.	*	3	3	9	8	15	25	27	9	1
	*	4	8	10	11	10	25	14	12	4
* 176.	*	5	6	9	7	54	11	6	1	1
	*	4	12	20	11	16	13	15	9	
177.	*	2	7	19	28	26	8	7	3	
	*	3	21	17	21	14	7	8	9	
** 178.	*	4	5	8	10	29	27	11	1	4
		6	8	10	8	16	6	20	19	7
179.	*	1	1	3	6	25	31	18	10	5
	*	5	5	4	6	7	21	25	18	6
180.	*		1	2	1	54	14	7	4	16
		4	6	7	8	10	11	13	14	24
* 181.	*	5	11	10	21	38	7	4	1	2
	*	13	24	17	12	10	9	11	3	1

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
* 182.	*		7	5	13	11	27	17	19	1
	*	13	20	10	14	11	10	12	8	2
183.	*		1	9	7	20	29	14	12	8
		1	7	12	11	6	23	15	22	3
184.	*	1	11	17	30	21	11	7	2	
	*	5	11	17	22	10	12	11	10	2
** 185.	*	3	23	17	19	24	5	1	5	2
	*	4	11	17	14	18	12	11	9	1
* 186.	*	1	6	14	26	24	19	7	3	
	**	7	12	15	15	12	15	17	6	
* 187.	*	3	4	9	24	38	9	6	4	2
	*	8	11	18	9	9	15	17	8	1
* 188.	*	3	2	4	15	19	31	14	11	
		7	18	17	12	12	8	17	7	2
** 189.	*		5	14	13	10	32	15	9	1
	*	8	9	18	16	9	15	15	6	3
** 190.	*	1	4	4	11	30	13	21	12	4
	*	1	6	15	10	15	23	16	12	2
* 191.	*	1	9	15	25	30	10	7	1	2
		5	19	23	19	5	10	14	5	
* 192.	*		6	5	3	11	22	27	22	4
	*	6	11	17	10	9	12	13	16	4
193.	*	3	10	9	8	19	11	20	14	6
	*	21	23	9	6	2	9	15	14	3
* 194.	*		5	6	11	18	23	26	6	3
	*	4	16	18	9	5	10	20	16	2
* 195.	*	3	16	32	22	18	3	4	1	1
	*	4	22	15	16	13	13	11	6	
* 196.	*	4	14	19	19	18	9	10	4	1
	**	8	19	13	14	6	7	13	18	2

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
197.	*	1	15	24	23	20	4	5	4	5
	*	6	18	16	16	8	13	14	9	
198.	*	2	1	1	4	14	20	25	26	6
	*	1	13	14	9	9	11	26	14	3
*199.	*	10	15	8	11	23	9	10	6	7
	*	7	19	14	2	10	8	9	10	11
200.	*	1	2	11	24	34	9	8	8	3
	*	2	9	19	5	5	19	27	9	5
201.	*	6	11	21	22	30	3	4	1	
	*	3	14	22	17	15	14	12	3	
202.	*	2	3	2	4	67	5	5	4	6
	*	12	11	7	7	25	7	14	15	2
203.	*		2	5	7	37	23	13	9	2
	*	1	13	12	5	17	12	17	20	3
*204.	*	1	8	21	27	17	11	9	5	1
	*	6	10	21	18	10	9	7	17	2
*205.	*	2	16	31	25	18	4	3	1	
		7	13	17	22	6	11	13	8	1
**206.	*		2	4	8	10	29	29	17	1
	*	2	8	11	7	5	19	30	13	5
**207.	*	1	4	16	16	14	25	16	7	1
	*	5	13	15	18	5	13	21	6	3
*208.	*	1	1	9	14	27	27	9	9	3
	**	4	5	8	17	9	15	23	15	4
*209.	*	6	12	14	8	30	13	8	6	2
		7	9	10	12	7	17	25	7	3
**210.	*	1	5	7	14	35	17	14	7	
	**	2	6	8	9	14	12	26	20	3
*211.	*	5	7	18	25	22	10	6	6	1
		2	17	11	15	4	16	19	13	3

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TABLE 8

(Continued)

ITEM		-4 (HATE)	-3	-2	-1	0	1	2	3	4 (LOVE)
** 212.	*	8	10	13	15	31	11	4	4	2
		9	18	9	15	7	14	18	8	1
* 213.	*		2	8	9	29	24	14	12	2
	**	3	9	14	9	5	18	20	16	5
214.	*	1	8	14	18	33	12	9	4	1
	*	7	16	14	8	8	11	20	14	1
* 215.	*	5	5	8	22	36	11	8	4	1
		11	9	15	10	6	18	14	11	3
* 216.	*	1	4	6	11	30	27	8	11	1
	*	2	13	15	15	6	16	17	11	5
217.	*	1	1	2	1	11	29	22	23	10
	*	2	7	7	4	7	10	36	20	7
* 218.	*	4	9	14	23	31	7	4	7	1
	*	6	10	18	13	8	12	19	10	3
219.	*		1	5	8	21	18	30	16	1
		2	11	14	12	6	16	13	20	5
** 220.	*	4	7	11	12	55	5	3		1
	**	2	18	17	11	26	8	9	4	2
221.	*	4	10	22	22	27	8	3	2	2
	*	5	30	15	12	11	7	13	6	
* 222.	*	2	6	11	28	21	28	12	1	
	**	5	17	19	18	7	15	11	5	2
* 223.	*	2		3	8	25	30	19	19	2
	*		6	9	8	9	17	24	18	6
224.	*	10	4	5	5	70	1	2		
	*	28	9	1	8	23	5	5	7	2
** 225.	*	6	19	18	28	9	8	7	3	2
	*	7	11	17	13	8	16	20	7	
* 226.	*	3	9	19	28	20	13	6	2	
		4	12	16	15	9	20	14	9	1

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*227.	*	5	2	4	13	26	22	14	13	1
	*	1	10	6	6	9	16	25	17	5
228.	*	5	21	15	23	24	7	4		1
		6	16	27	8	12	6	19	12	2
*229.	*	9	23	19	20	17	5	4		2
	**	6	21	14	12	10	13	13	5	2
230.	*		1	6	1	14	33	22	18	4
	*	5	4	7	4	6	15	24	24	10
**231.	*	1	1		7	13	22	27	21	8
	*	3	4	8	10	8	18	20	20	9
**232.	*	12	6	16	22	36	2	5	1	
	*	5	20	15	14	10	11	16	7	2
**233.	*	4	6	15	20	39	8	3	4	2
	*	5	17	15	13	12	9	17	8	2
234.	*	1	5	5	18	41	14	10	2	2
	*	4	14	19	11	17	9	14	6	1
235.	*	1	3	13	20	33	15	12	1	2
	*	6	15	15	15	7	11	19	11	1
*236.	*	2	8	18	30	26	9	4	2	1
	*	3	13	13	10	11	8	23	14	4
237.	*		6	7	5	21	19	14	22	5
	**	3	6	14	8	3	13	27	19	6
238.	*	5	10	14	14	30	10	7	7	2
		15	12	22	12	11	9	9	7	2
*239.	*	1	6	15	33	26	11	5	3	
	*	4	16	21	16	4	15	17	5	2
*240.	*	6	15	26	34	13	4	1		1
	*	9	15	20	16	10	13	11	6	
**241.	*	6	16	19	16	24	8	6	2	2
	*	9	13	23	14	8	6	17	8	1

TABLE 8

(Continued)

| ITEM | | HATE | | | | | | | LOVE | |
	-4	-3	-2	-1	0	1	2	3	4
* 242. *	1	4	7	19	25	18	17	8	1
*	2	11	14	9	9	10	23	15	4
* 243. *			2	3	13	16	30	24	12
*	4	10	10	7	10	15	23	12	5
* 244. *	4	8	6	24	20	20	10	5	2
*	6	18	10	12	11	12	15	12	2
* 245. *	1	2	8	28	20	16	15	6	4
	2	10	19	10	5	17	20	13	3
246. *	2	4	11	10	35	13	21	4	
*	5	16	17	11	11	14	14	8	1
** 247. *		1	4	1	40	18	13	17	6
*	6	5	7	8	7	9	17	27	14
* 248. *	3	1		4	15	37	27	12	1
	1	6	6	4	8	12	24	31	5
*249. *		2	10	20	23	19	14	8	4
	3	11	14	10	12	12	22	14	1
250. *	5	14	17	20	28	8	6	2	
*	5	13	20	13	7	9	12	20	
*251. *			1	2	6	9	11	21	50
*	2	9	9	3	4	8	16	30	19
*252. *		4	8	9	21	26	16	11	4
*	7	12	12	14	6	15	16	13	5
*253. *	4	6	10	14	15	16	17	15	3
*	8	9	12	15	12	17	15	11	
*254. *	1	7	10	25	33	13	7	3	1
*	2	11	17	17	5	15	24	6	1
**255. *	4	9	17	33	21	8	4	3	
*	8	13	19	10	6	10	18	13	2
*256. ** *	2	12	19	26	25	6	6	3	
**	8	11	21	11	13	12	14	9	

TABLE 8

(Continued)

ITEM	HATE −4	−3	−2	−1	0	1	2	3	LOVE 4
* 257.	* 3	14	16	16	39	7	2	2	1
	10	13	16	15	19	10	6	9	1
* 258.	* 2	3	4	3	27	22	25	13	1
	* 5	9	10	5	10	18	25	27	
259.	*	6	10	24	34	18	6	2	
	3	10	19	11	10	21	16	7	2
260.	* 2	8	10	15	16	15	15	6	3
	* 2	15	11	7	3	14	20	22	6
261.	*	3	2	6	30	30	20	9	
	*	7	14	6	2	18	25	23	4
262.	* 1	2	4	3	13	16	28	20	13
	* 2	8	10	6	3	10	24	28	8
263.	* 2	13	10	24	44	2	3	2	
	* 5	11	18	18	12	11	16	9	
* 264.	* 2	5	6	5	20	21	26	15	
	* 4	16	8	14	7	13	19	16	1
* 265.	* 9	6	5	18	57	2		1	1
	* 5	13	14	9	24	9	11	7	2
* 266.	* 3	3	8	12	15	25	18	8	6
	* 8	6	12	11	10	17	21	12	2
* 267.	* 5	11	18	17	13	13	7	6	9
	* 10	19	14	15	4	8	14	11	3
268.	*	1	6	7	38	19	20	7	2
	* 3	8	9	7	11	14	23	18	6
269.	* 13	23	16	10	27	4	3	2	1
	* 26	19	16	9	9	4	9	7	
270.	* 15	16	21	19	15	8	3	1	2
	** 10	30	8	16	9	11	11	5	
271.	* 8	10	12	17	28	18	6		1
	5	15	15	23	6	10	15	6	4

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*272.	*	2		1	3	21	25	27	15	6
	**	3	6	10	5	15	14	26	17	2
**273.	*	8	18	25	21	10	7	8	3	
	*	2	12	12	21	3	15	23	9	
**274.	*	10	24	24	19	10	8	3	2	
	*	6	19	13	23	8	7	11	9	1
*275.	*		3	1	8	22	29	27	10	
	*	3	8	8	5	13	16	18	21	8
*276.	*	2	3	2	7	19	30	18	17	2
	**	2	7	5	13	2	11	29	24	6
*277.	*	1	6	19	15	39	12	8		
	**	4	11	20	18	8	12	19	7	1
*278.	*	2	7	8	15	28	24	11	4	1
	*	8	10	16	12	8	13	19	11	2
279.	*	3	6	6	9	29	20	9	6	2.
	*	12	16	12	9	15	10	15	8	3
*280.	*	1	9	20	30	21	11	6	1	
		7	17	31	22	4	5	6	7	
**281.	*	2	11	17	22	28	9	9	2	2
	**	14	15	22	12	7	11	13	5	1
282.	*	5	5	1	4	17	19	27	16	6
	*	11	16	11	10	9	10	18	13	1
283.	*	2	1	9	10	30	22	15	5	3
	*	7	10	16	15	6	14	25	6	1
284.	*	2	6	18	38	20	12	2	1	
	*	7	14	18	15	6	17	11	9	3
285.	*	1	4	2	4	30	22	26	9	2
	*	1	5	9	6	6	13	40	15	5
286.	**	1	4	4	8	40	21	17	5	
		3	9	11	12	12	21	17	12	1

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TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	LOVE 3	5
* 287.	*		2	4	5	15	16	25	27	5
	*	4	8	7	13	15	13	18	17	4
* 288.	*	2		6	9	19	20	26	16	2
	*	3	9	10	8	10	23	21	13	1
** 289.	*	2	3	8	19	19	22	16	8	3
	*	2	5	12	12	10	16	22	19	1
290.	*	1	9	14	19	46	6	4	1	
	*	6	13	20	19	13	13	9	5	
291.	**	13	11	9	2	57	2	5		
	*	14	15	5	10	26	12	10	3	1
* 292.	*	3	1	3	2	15	24	23	23	6
	*	6	7	5	5	10	16	25	18	7
293.	*	4	8	11	17	16	13	13	11	5
	*	4	15	9	12	10	8	21	14	4
294.	*	3	12	17	35 .	21	4	6		1
	*	9	19	22	10	4	14	16	5	1
295.	*		1	2	3	9	26	27	19	3
	*	2	7	10	7	6	12	33	22	1
296.	*		3	8	17	9	31	10	9	2
	**	2	10	15	14	13	21	12	8	3
** 297.	*	1	2	13	16	23	27	8	7	1
		3	11	15	14	10	12	22	11	1
** 298.	*	3	14	6	12	23	15	14	12	1
	*	2	18	16	10	4	20	20	7	3
* 299.	*	1	11	7	21	24	13	9	4	
	*	3	15	15	10	10	20	21	5	1
300.	*	2	12	21	24	23	7	5	4	2
	*	4	18	19	23	16	8	7	3	2
301.	*	3	12	14	19	33	5	8	4	2
	*	5	12	19	18	8	8	20	6	2

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*302.	*		2	4	11	22	33	19	4	5
	**	2	4	12	14	6	19	24	15	3
303.	*	3	7	21	30	17	10	9	2	1
	**	5	11	14	17	12	13	18	9	1
**304.	*	4	8	10	23	28	13	8	4	2
	*	9	15	11	8	4	15	17	15	5
**305.	*			5	5	30	28	29	11	1
	*	2	8	8	6	8	11	22	23	9
306.	*		2	5	9	8	25	32	15	4
	*	1	7	10	9	8	16	19	18	8
*307.	*	3	6	14	19	42	7	6	3	
	**	4	16	21	15	6	12	19	5	1
308.	*	4	6	15	20	39	8	3	4	1
	*	5	17	15	13	12	9	17	8	2
309.	*	4	3	3	6	19	29	21	12	3
	**	1	12	8	5	6	13	20	31	3
*310.	*	3	11	13	35	26	5	2	4	1
	**	2	17	10	14	11	20	12	11	2
311.	*		2	13	18	32	20	10	4	1
	*	2	11	13	15	11	17	16	13	1
**312.	*		5	6	9	34	22	18	5	1
	*	4	11	11	11	4	17	27	11	3
*313.	*	1	2	1	3	30	22	21	13	4
	*	4	5	7	6	7	20	19	27	5
**314.	*	3	3	10	21	31	10	4	13	5
	**	8	8	12	6	14	8	11	12	16
*315.	*	12	9	16	24	20	6	5	6	1
	*	3	11	15	9	12	9	19	19	2
316.	*	6	11	15	20	23	9	8	6	2
	*	10	19	12	13	7	17	12	6	1

TABLE 8

(Continued)

ITEM		-4	-3	-2	-1	0	1	2	3	LOVE 4
*317.	*	1	5	14	18	18	25	13	4	2
	*	7	10	16	10	8	15	23	6	5
318.	*	3	7	13	37	22	8	5	2	2
	*	5	10	26	11	8	16	13	10	1
*319.	*	4	15	22	26	21	7	2	3	
	*	11	29	13	17	11	10	6	3	
*320.	*	1	1	5	3	27	34	21	7	1
	*	2	11	11	8	9	15	15	23	5
**321.	*	1	6	8	12	19	27	22	4	1
	*	9	13	19	18	5	16	9	9	1
*322.	*	1	4	10	12	20	20	21	10	2
	*	7	13	16	14	8	14	16	9	2
*323.	*		3	2	12	28	34	16	4	1
	*	4	7	11	19	10	23	14	8	2
*324.	*		5	6	5	35	14	19	14	2
		2	22	4	9	15	19	12	13	3
325.	*	1	1	11	16	41	17	8	3	2
	*	7	8	7	15	9	17	20	13	1
326.	*	1	6	6	11	30	30	8	2	6
		5	10	12	15	6	18	25	8	
*327.	*	5	7	10	10	15	25	29	6	3
		16	22	13	10	5	12	9	8	3
328.	*	1	9	12	16	39	15	17		4
	*	8	16	21	14	7	13	15	4	
*329.	*	7	14	33	23	10	8	2	1	2
	*	5	18	20	18	10	11	8	7	2
330.	*	3	8	9	14	38	18	8	1	1
	*	3	12	12	14	2	22	18	12	2
331.	*	1	3	7	12	43	17	11	5	1
	*	1	8	12	8	14	26	18	11	1

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*332.	*	1	1	2	3	15	10	22	22	13
	*	6	13	16	12	10	12	17	11	2
333.	*	1	6	13	12	26	20	9	10	3
	*	3	12	14	13	11	15	19	12	1
334.	*	1	12	15	35	12	11	9	4	1
	*	6	20	15	13	12	12	15	5	
*335.	*	2	4	3	7	51	16	14	2	
	*	6	17	11	7	19	12	14	9	3
*336.	*		3	1	7	31	23	14	14	6
	*	3	10	12	6	7	17	18	22	4
*337.	*			2	5	32	24	20	13	4
	*	4	7	8	9	7	17	29	15	4
**338.	*	3	8	15	18	22	7	9	15	3
	*	8	18	11	4	18	13	10	15	1
*339.	*	4	8	13	20	33	9	7	5	
	*	7	14	22	12	10	17	12	2	4
*340.	*		2	3	3	4	29	27	26	5
	**	2	5	7	13	6	16	27	19	3
**341.	*	3	11	3	13	2	17	24	20	7
	*	7	13	12	6	5	9	25	18	3
*342.	*	4	11	17	21	21	14	6	5	1
	*	11	20	11	13	11	12	12	10	
343.	*	1	7	7	16	43	11	8	4	2
	*	3	11	13	14	5	16	23	14	
*344.	*	1	2	4	4	39	26	13	8	2
	*	3	7	8	9	6	17	29	17	4
**345.	*	1	3	10	20	21	23	14	6	2
		3	7	13	12	6	14	18	23	3
*346.	*	6	13	21	23	28	3	3	2	
	*	12	16	19	19	9	12	6	8	1

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
347.	*	3	5	7	19	26	21	10	7	2
	*	5	18	13	12	5	9	25	11	1
348.	*	4	12	12	22	29	9	7	3	1
	*	3	17	15	16	7	19	8	14	1
349.	*	3	9	16	27	29	7	6		3
	*	8	15	20	14	7	9	13	9	4
*350.	*		2	6	13	32	24	15	6	2
	*	2	8	6	7	6	15	20	31	4
351.	*	1	2	3	4	7	26	28	22	7
	*	2	3	11	11	4	12	27	21	8
352.	*	2	7	20	18	39	7	4	3	
	*	5	13	19	14	7	17	15	7	
*353.	*	2	4	6	17	15	19	18	13	6
	*	6	14	10	18	6	7	22	11	5
*354.	*	5	21	21	22	21	3	3	2	1
		2	12	19	18	7	10	19	9	3
*355.	*	3	8	10	16	25	21	7	9	1
	*	4	13	9	16	16	9	16	9	3
356.	*	4	3	5	19	13	29	18	7	2
	*	4	6	15	10	7	16	25	13	3
*357.	*	1	4	7	7	30	22	18	9	1
		1	12	12	7	6	18	24	15	4
*358.	*	2		1	9	45	13	8	15	5
	*	6	4	12	9	5	15	21	14	10
359.	*	9	15	25	20	17	6	4	3	1
	**	12	28	12	7	13	9	10	9	
360.	*	8	9	11	19	12	28	5	5	3
	**	11	22	19	11	5	9	11	10	2
*361.	*	2	3	10	21	33	18	11	1	1
	*	6	19	17	14	10	16	11	6	

TABLE 8

(Continued)

ITEM		HATE							LOVE	
		-4	-3	-2	-1	0	1	2	3	4
362.	*	5	7	23	33	13	9	8	1	1
	*	4	9	13	19	10	12	21	8	1
*363.	*	22	27	16	13	14	6	1		1
	*	14	21	12	15	9	6	12	7	1
364.	*	3	3	3	1	5	24	29	23	9
	*	4	7	4	10	3	13	10	27	11
365.	*	2	2	8	7	31	23	12	15	
	*	6	14	13	13	7	23	14	8	1
*366.	*		4	4	9	17	32	16	14	3
	*	6	13	16	13	5	16	27	3	
*367.	*	2	3	4	11	22	28	19	9	1
	*	1	10	13	9	14	14	24	13	2
**368.	*	2	6	9	15	38	18	9	1	2
	*	10	12	12	12	11	19	20	4	
369.	*	5	4	9	16	42	9	9	2	2
	*	5	11	18	14	8	13	16	14	
370.	*	7	14	13	25	25	10	2	3	1
	*	11	21	15	14	8	9	17	2	1
*371.	*	8	2	5	11	22	23	15	12	2
	*	14	16	11	10	6	14	16	11	1
*372.	*	1		7	6	41	10	21	9	4
	*	4	7	11	6	11	23	22	12	2
*373.	*	1	12	33	30	9	7	1	3	3
		3	19	18	21	3	11	15	9	
374.	*	3	6	2	6	39	23	17	2	1
		2	12	9	13	6	15	28	11	4
**375.	*	1		4	11	30	31	16	6	
	*	1	8	13	8	5	19	31	11	4
*376.	*		1	1	5	40	17	22	10	4
		4	10	7	8	12	14	32	13	

TABLE 8

(Continued)

ITEM		-4	-3	-2	-1	0	1	2	3	4
			HATE						LOVE	
*377.	*	1	5	3	29	25	21	7	7	1
	*	4	10	16	12	9	21	15	11	
*378.	*	1	2	3	6	20	24	21	17	6
		1	10	8	8	6	20	26	15	6
*379.	*	1	4	5	9	30	26	17	5	3
	*	3	18	13	10	10	22	13	8	2
*380.	*	10	8	8	5	63	3		1	1
	*	12	22	13	6	29	6	8	3	
*381.	*	2	2		9	42	19	15	7	2
		4	17	9	14	17	14	15	9	
*382.	*	3	14	22	22	10	13	9	6	1
	**	9	12	15	14	6	15	13	13	2
383.	*	5	9	17	26	32	7	3	1	
	**	5	17	12	15	16	13	15	6	
*384.	*	4	3	3	6	19	29	21	12	3
	**	1	12	8	5	6	13	20	31	3
*385.	*	1	2	1	5	13	33	37	6	2
		2	13	13	10	4	16	27	11	3
*386.	*	2	1	7	7	12	24	27	17	3
		3	13	12	13	4	9	23	14	8
387.	*	1	10	19	28	23	8	9		2
	*	3	12	30	20	10	14	20	8	
*388.	*	1	2	4	8	32	33	13	4	3
	*	5	8	7	10	5	17	24	21	2
389.	*	2	1	4	3	45	27	4	9	1
	*	3	8	7	10	10	15	21	18	6
*390.	*	3	12	26	29	14	8	7	1	
	*	9	18	12	17	5	14	22	3	
391.	*	3	8	15	27	26	11	5	2	3
	**	6	16	13	10	14	9	14	10	4

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	LOVE 3	5
**392.	*	3	9	7	22	31	14	7	4	3
	*	3	11	16	15	8	13	20	10	3
393.	*	2	9	20	30	23	9	4	2	
		3	13	16	14	9	15	22	7	
*394.	*	3	9	11	21	31	16	5	2	2
	*	5	10	18	11	9	12	16	14	3
*395.	*	3	14	34	18	14	11	3	3	
	*	5	20	7	9	12	17	18	10	2
*396.	*	4	3	2	3	11	28	32	13	4
	*	3	5	9	5	7	21	30	16	3
397.	*		4	12	16	24	32	7	5	
	**	9	14	22	12	2	18	15	7	
**398.	*	6	11	11	20	12	21	12	5	2
	*	5	17	20	8	4	16	23	4	1
*399.	*	3	9	14	23	39	7	3	1	1
	*	1	13	19	16	8	17	19	6	
*400.	*	4	4	16	27	19	17	8	5	
	*	7	20	16	17	7	12	10	10	1
401.	*	1	6	10	13	36	23	9	2	
	*	3	11	25	6	10	16	21	6	
402.	*	2	4	9	16	24	16	20	6	3
	*	8	5	12	13	16	11	18	14	1
403.	*	7	7	4		47	14	10	5	5
	*	11	11	16	10	27	7	11	3	
**404.	*	5	13	21	20	33	6	1		1
	**	5	18	18	13	7	16	15	6	1
*405.	*	11	17	24	24	20	1	1		
	*	13	20	14	17	10	10	8	5	2
406.	*		3	6	14	23	26	22	4	1
	**	2	10	10	13	10	12	22	18	1

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TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
*407.	*		2	5	16	33	19	13	17	4
	**	3	7	6	9	12	16	17	27	3
408.	*	8	18	33	21	14	3	2		1
	*	18	27	10	13	4	11	11	4	
*409.	*		5	3	3	17	33	27	11	1
	*		11	11	6	8	26	21	13	4
*410.	*	2	8	10	34	17	16	9	4	
	**	6	14	14	21	4	13	17	7	1
411.	*	1	4	10	5	25	34	15	4	1
	*	6	9	10	12	6	21	22	11	3
*412.	*	1	2	1	5	14	42	23	10	2
	*	4	7	7	4	11	22	24	18	3
413.	*	7	7	17	23	22	10	5	5	3
		10	15	15	6	12	9	22	6	2
414.	*	1	1	3	9	34	32	15	3	1
	*	3	6	12	13	5	13	15	25	7
415.	*		8	8	12	32	17	13	8	1
	*	4	11	14	6	12	15	19	15	2
*416.	*	2	3	3	5	26	22	20	15	3
	**	3	15	11	7	7	13	27	15	1
**417.	*	1	2	11	14	22	23	27	8	2
	*	8	11	15	12	4	18	18	10	3
*418.	*	7	15	23	24	26	1	2	1	1
	*	9	20	26	10	8	14	10	2	1
419.	*	6	13	22	27	20	2	7	2	1
	*	6	19	20	14	6	13	13	9	
*420.	*		3	5	5	5	36	30	13	1
	*	2	8	7	13	5	16	19	14	6
421.	*			1	8	20	35	20	14	1
	*	2	8	10	11	11	17	20	19	1

TABLE 8

(Continued)

ITEM		HATE -4	-3	-2	-1	0	1	2	3	LOVE 4
422.	*	4	3	14	18	28	10	15	6	2
	**	3	17	17	14	4	14	17	11	3
423.	*		3	3	6	23	28	16	15	6
	*	1	11	7	5	4	20	16	35	
*424.	*	1	4	5	9	28	26	21	6	
	*	1	7	11	12	7	23	22	14	2
**425.	*	2	2	1	15	43	7	19	9	2
	**	4	11	20	14	13	10	13	13	
426.	*		3	3	11	29	28	22	4	
	*	2	3	8	8	11	14	28	22	3
*427.	*	3	3	8	17	29	14	15	8	3
	*	3	10	7	12	6	12	21	24	5
*428.	*	1	7	8	14	31	16	15	4	3
	*	3	12	20	7	12	14	23	8	
*429.	*	2	2	3	7	16	25	24	14	6
	**	2	13	7	14	3	24	24	11	2
*430.	*	1	2	4	9	10	27	31	12	3
	*	1	8	10	8	9	15	30	13	5
*431.	*	2	3	14	17	22	18	11	7	5
	*	8	4	15	10	12	17	22	11	1
**432.	*	1	1	3	5	13	42	22	12	1
	**		6	11	5	8	16	23	28	2
**433.	*	3	8	16	28	25	8	4	4	3
		3	13	21	16	8	13	16	8	1
**434.	*	6	10	31	27	12	4	5	2	2
		9	15	18	14	10	13	12	9	
*435.	*	3	7	6	18	36	13	10	4	1
	*	8	11	15	13	11	19	14	7	2
436.	*	1	3	10	4	32	23	15	9	3
	*	3	22	14	9	11	11	17	8	5

TABLE 8

(Continued)

ITEM		HATE							LOVE	
		-4	-3	-2	-1	0	1	2	3	4
437.	*	7	8	23	23	25	8	2	4	
	*	7	16	11	26	6	10	17	6	1
438.	*	5	14	19	22	24	7	6	2	1
	*	3	17	23	14	8	14	11	7	1
*439.	*			3	12	26	35	10	12	2
	*		10	10	7	3	17	27	22	4
440.	*	1	2	1	5	13	33	37	6	2
	*	2	13	13	10	4	16	27	11	3

Appendix B

TABLE 9

Frequency Distribution of the Nine-Point Scaling Procedure for the 440 PRF Items on the Submission-Dominance Dimension by the English-Speaking Subjects (First Row of Numbers) and the Non-English-Speaking Subjects (Second Row). K-S: * = p $\leq$ .01; ** = .05 $\leq$ p > .01

| ITEM | SUBMISSION | | | | | | | | DOMINANCE |
	-4	-3	-2	-1	0	1	2	3	4
1.	*11	29	19	17	6	11	4	2	1
	*14	23	31	8	7	7	5	3	2
*2.	*1	3	2	1	4	22	29	32	6
	*3	14	12	7	1	12	23	21	6
**3.	*2	4	11	9	16	15	17	16	9
	*2	14	17	19	8	15	20	4	1
*4.	*5	4	3	2	20	23	13	20	10
	**6	11	16	20	9	19	10	6	3
*5.	*15	30	24	15	8	3	2	1	1
	*11	18	17	12	10	14	12	3	2
*6.	*	4	5	2	10	28	31	13	5
	**3	10	16	13	9	22	16	9	2
7.	*6	6	15	7	34	11	10	7	3
	*4	15	17	9	14	22	12	6	1
*8.	*2	12	23	34	9	13	5	2	
	*2	11	21	14	14	16	15	2	2
*9.	*1	3	2	1	3	31	31	20	8
	*4	10	12	9	12	12	21	15	2
10.	*4	8	16	33	13	13	9	4	
	*4	14	23	19	7	15	11	6	1
*11.	*1	1		3	22	29	29	10	5
	*1	7	15	9	16	15	11	6	1
12.	*1	1	7	11	14	16	18	21	10
	**4	8	14	8	10	14	20	14	4
13.	*2	2	6	5	21	20	15	19	10
	*3	6	11	7	10	16	25	14	8
**14.	*2	6	11	5	22	17	17	16	3
	*4	12	23	6	13	18	15	5	2

TABLE 9

(Continued)

ITEM	SUBMISSION -4	-3	-2	-1	0	1	2	3	DOMINANCE 4
15.	*	2	6	11	20	22	19	17	2
	*5	7	12	10	7	13	21	20	5
16.	*5	5	10	14	39	12	11	3	
	**2	7	16	14	16	17	13	11	3
*17.	*	4	3	6	58	11	10	6	1
	6	7	15	12	16	13	15	13	1
18.	*1	3	5	10	7	20	25	20	9
	*4	12	11	8	9	14	20	17	5
*19.	* 3	6	4	5	14	21	25	13	9
	**11	11	17	19	5	14	13	9	1
*20.	*4	10	4	3	47	9	9	7	6
	**4	16	20	13	12	14	12	5	2
*21.	* 4	7	3	2	4	71	1	7	1
	*18	14	17	3	34		2	5	4
22.	*	6	12	25	21	11	11	11	3
	** 2	12	23	13	3	6	14	17	10
*23.	* 1	5	7	10	8	17	21	23	8
	5	11	14	12	11	14	10	15	8
*24.	* 4	8	4	5	18	13	24	12	12
	6	10	19	15	7	14	17	8	3
**25.	*	2	10	7	32	18	10	15	6
	** 4	11	9	14	6	17	19	17	2
26.	* 9	12	22	27	5	14	5	3	2
	** 7	17	14	17	7	10	21	7	
*27.	* 2	2	2	5	26	19	25	14	5
	* 2	11	17	6	9	10	25	8	11
28.	* 3	8	19	12	24	9	13	9	3
	* 1	13	16	15	9	16	23	4	2
*29.	*	2	7	2	16	25	28	28	12
	* 2	7	12	11	4	11	17	21	15

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
*30.	*	1	2	5	4	16	27	24	21
	*	7	11	11	8	12	25	19	5
*31.	*4	32	31	20	4	5	4		
	4	16	16	16	7	9	17	13	2
32.	*2	8	14	10	14	23	15	10	4
	*	8	20	10	6	8	26	12	9
*33.	*13	26	23	22	10	3	3		
	* 4	20	25	8	9	16	8	6	3
*34.	* 3	9	7	16	29	13	12	6	5
	* 1	8	13	14	7	8	18	21	8
*35.	* 4	16	20	29	16	10	1	4	
	* 3	7	9	9	9	16	26	17	4
*36.	*		2	13	18	39	18	9	1
	* 2	8	17	6	6	16	23	14	4
*37.	** 5	9	15	9	27	11	11	10	3
	*12	20	18	13	6	9	17	3	2
*38.	* 1		2	1	35	26	22	5	7
	* 5	8	13	13	8	11	20	16	6
*39.	* 5	9	5	3	59	8	6	3	2
	* 8	18	14	14	13	13	10	9	1
*40.	* 3	6	8	9	13	16	28	12	5
	* 6	18	22	16	5	13	13	4	3
**41.	* 1	3	11	22	26	16	12	6	3
	5	12	23	11	5	9	13	11	11
**42.	*		6	11	31	25	15	10	2
	* 4	7	14	10	7	16	28	9	5
*43.	*	2	6	7	48	13	7	10	7
	7	14	8	12	10	15	16	13	5
**44.	* 20	17	15	11	18	8	6	4	1
	* 4	19	24	9	6	15	15	5	2

TABLE 9

(Continued)

ITEM	SUBMISSION -4	-3	-2	-1	0	1	2	3	DOMINANCE 4
45.	*8	18	18	24	8	9	8	5	2
	*8	26	23	11	4	13	10	3	1
** 46.	*3	2	8	7	14	31	21	12	2
	*5	15	12	9	4	17	21	15	1
** 47.	*3	7	4	11	12	14	18	16	14
	4	15	15	15	8	10	14	14	5
* 48.	*3	2	2	2	40	16	13	11	9
	*12	13	15	10	15	11	8	10	2
** 49.	* 1	7	27	32	12	11	7	2	1
	4	17	15	15	9	15	16	5	2
* 50.	* 2	1	1	1	40	25	19	7	2
	* 1	13	9	15	6	19	26	10	
51.	* 2	7	12	24	27	18	7	3	
	* 3	13	23	16	10	9	15	10	1
52.	*12	14	13	20	6	15	13	5	2
	** 4	12	22	15	9	13	17	4	
* 53.	*	2		7	5	11	18	23	34
	* 3	12	8	10	10	21	15	16	5
* 54.	* 8	17	30	19	7	8	8	3	
	** 3	14	25	10	7	14	17	8	
* 55.	*	2	3	7	12	30	26	19	1
	* 2	14	12	9	8	18	29	8	
* 56.	* 8	4	1	1	35	14	20	9	8
	*10	14	8	18	14	5	18	6	7
* 57.	* 2	4	3	10	31	22	19	7	2
	* 3	11	22	17	12	14	15	4	1
* 58.	* 6	6	2	4	68	6	3	1	3
	*19	23	7	14	20	8	2	5	1
59.	* 3	6	7	13	22	20	12	12	5
	** 4	9	14	13	12	13	17	15	3

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
60.	* 5	9	8	10	40	15	9	3	1
	* 8	13	15	15	14	11	5	7	1
*61.	* 1	2	4	9	56	13	7	5	3
	* 1	12	15	10	8	22	19	11	2
62.	* 1	1	10	9	15	25	20	15	4
	* 1	9	9	16	4	20	21	16	3
*63.	* 1	5	3	6	5	14	23	28	15
	* 2	11	6	11	6	14	27	17	6
**64.	* 6	3	6	9	39	9	14	8	5
	4	7	18	12	15	12	13	17	2
*65.	* 6	3	2	3	40	9	8	11	16
	*11	20	10	7	17	13	6	9	5
66.	*	2	6	4	6	28	27	27	
	* 1	10	8	11	7	10	25	15	3
*67.	* 2	4	4	2	3	9	18	19	39
	* 3	7	18	14	10	5	11	20	12
68.	* 6	13	14	18	27	9	4	5	4
	* 4	17	23	18	11	8	9	8	1
*69.	* 1	6	9	13	31	11	7	15	6
	* 1	9	14	8	5	7	20	20	16
*70.	*14	29	24	15	8	7		3	
	* 8	17	17	15	8	11	14	6	2
*71.	*	2	3	6	4	35	27	15	8
	**	6	18	13	5	14	25	12	5
*72.	* 2	11	16	13	44	12		1	1
		23	18	13	9	12	16	9	
*73.	*	4	6	9	21	25	22	12	1
	6	13	12	12	4	14	22	15	2
74.	* 2	9	10	15	15	21	14	10	4
	**7	9	12	13	4	15	22	14	3

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
*75.	*14	32	21	22	7	2		2	
	* 2	14	23	18	8	14	17	2	1
76.	* 4	4	18	12	21	21	10	9	1
		10	17	16	13	9	22	10	3
*77.	* 1	3	6		12	13	30	24	11
	* 7	21	15	8	11	12	12	10	4
**78.	* 2	13	14	20	36	4	3	4	2
	* 8	26	16	11	10	7	8	7	6
79.	* 5	16	22	19	17	11	6	4	
	*10	10	14	20	10	7	17	7	1
*80.	* 2	9	14	16	35	12	3	8	1
	** 6	16	10	13	9	11	23	10	2
**81.	* 3	5	14	11	47	12	3	3	1
	* 8	12	10	14	18	12	8	7	1
*82.	* 1	2		6	23	28	24	11	4
	* 1	13	13	6	6	8	26	21.	5
*83.	* 7	7	13	13	31	15	7	6	1
	* 6	18	24	15	5	7	14	9	1
*84.	* 8	6	13	13	31	15	7	6	1
	* 9	19	17	9	8	11	19	5	2
*85.	* 2	16	25	27	12	10	7	1	
	* 3	10	21	12	7	21	17	8	
*86.	*		1	2	11	36	15	23	9	3
	* 1	9	12	18	6	16	10	16	2
*87.	* 3	2	5	8	41	12	21	5	3
	* 2	17	16	15	17	9	11	8	1
*88.	* 6	11	17	17	43	2	3		
	* 5	14	16	18	18	8	15	5	1
*89.	*13	30	26	14	7	6	3		1
	*10	13	19	11	7	13	12	10	3

TABLE   9

(Continued)

ITEM	SUBMISSION								DOMINANCE
	-4	-3	-2	-1	0	1	2	3	4
*90.	* 1	4	7	2	12	16	28	16	4
	* 2	9	10	9	6	18	31	14	1
*91.	* 2	1	3	10	25	28	20	9	2
	* 8	11	17	18	10	12	14	9	1
*92.	* 2	4	5	4	6	13	30	21	15
	** 5	23	13	13	7	9	17	11	2
*93.	* 2	10	24	26	23	7	4	1	3
	** 3	10	28	14	7	10	13	10	5
*94.	* 1	2	5	11	21	21	14	22	3
	** 1	17	18	12	6	10	23	11	2
*95.	*	4	6	13	27	26	17	6	1
	* 6	19	23	11	10	10	18	2	1
*96.	*10	32	28	18	4	4	2	2	
	* 7	25	20	12	11	11	8	2	
*97.	*	1	3	3	1	13	31	36	12
	* 1	11	16	8	8	20	16	15	5
*98.	* 1	4	16	22	37	12	6	2	
	* 7	14	19	16	3	12	13	12	
*99.	* 1	1	3	13	10	20	31	17	4
	3	10	15	14	14	13	15	10	3
*100.	*	5	2	4	18	21	25	20	5
	* 3	10	14	17	11	16	21	8	
*101.	* 1	1	3	7	28	31	19	10	
	* 4	10	12	16	13	16	22	3	2
102.	* 3	7	14	16	20	18	15	4	3
	2	15	13	14	10	16	16	11	2
*103.	* 1	3	6	7	42	20	9	9	3
	* 1	10	12	8	12	10	22	18	6
104.	* 2	5	14	13	31	14	13	6	2
	3	12	17	16	11	11	14	10	5

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
105.	* 1	2	11	16	50	11	4	2	3
	2	9	17	16	20	10	12	12	2
*106.	* 2	7	14	19	29	13	7	6	3
	* 3	5	19	15	2	7	31	11	5
*107.	*18	28	15	12	6	4	2	3	2
	2	20	13	12	10	11	13	12	7
108.	* 4	8	16	16	30	14	8	2	1
	* 2	17	20	13	14	7	16	8	1
*109.	*	5	2	6	59	8	9	2	8
	* 6	13	5	8	13	7	17	20	9
*110.	* 1	6	8	7	52	9	10	4	2
	* 4	10	9	5	12	9	32	12	7
*111.	*	2	4	3	14	25	25	19	8
	* 3	11	15	9	8	12	22	12	7
**112.	* 6	7	14	26	22	15	5	2	
	** 6	11	14	18	8	14	14	8	3
*113.	*	2	6	8	38	22	17	3	4
	* 2	16	18	5	7	11	23	14	4
*114.	* 4	15	16	33	17	7	3	3	2
	2	13	19	10	9	12	19	12	1
*115.	*	2	1	3	7	13	21	32	21
	* 3	12	9	7	6	12	22	17	12
*116.	* 2	4	10	9	33	20	16	4	2
	* 11	15	11	16	11	9	20	5	1
**117.	*	4	11	6	16	35	17	10	1
	* 4	10	22	7	3	15	21	14	4
*118.	* 2	3	2	6	4	10	24	28	21
	2	12	16	14	6	11	16	14	6
*119.	*10	28	35	15	3	3	2	2	2
	* 7	20	24	15	6	13	10	4	

TABLE 9

(Continued)

| ITEM | | SUBMISSION | | | | | | | DOMINANCE |
	-4	-3	-2	-1	0	1	2	3	4
**120. *	1	3	12	6	21	25	18	11	3
	3	16	11	17	5	13	23	10	2
*121. *	7	14	37	21	8	9	3	1	
*	2	17	21	13	7	15	15	10	
* 122. *	5	26	16	18	24		3	6	2
	7	20	9	15	10	7	18	10	4
123. *	7	6	14	16	20	22	7	4	2
	4	17	13	6	21	9	14	14	1
124. * **	3	3	15	14	18	24	14	7	2
	6	11	15	12	12	7	17	6	4
125. * *	4	6	17	17	36	9	8	2	1
	9	10	16	19	17	10	11	5	1
** 126. * *	6	7	8	9	36	18	14	1	
	6	13	13	21	13	9	15	6	1
* 127. * *	6	4	5	11	53	11	7		1
	7	11	15	13	15	11	17	8	2
** 128. * **	1	3	6	19	10	25	17	15	4
	4	15	8	15	7	13	23	13	1
* 129. *	2	6	14	30	26	13	2	4	1
	1	13	17	16	9	11	17	13	3
** 130. * *	1	1	6	7	21	22	24	12	6
	3	14	10	8	9	13	21	14	7
* 131. * *	8	4	3	4	64	4	5	4	3
	6	15	7	16	17	14	9	11	3
** 132. * *	9	9	15	18	36	3	5	2	1
	2	17	17	21	12	10	12	7	2
* 133. * *	24	39	19	4	6	5	1	2	
	13	21	24	7	5	11	11	6	1
134. * *	1	12	10	6	16	12	18	19	6
	3	15	12	8	7	12	19	19	5

TABLE 9

(Continued)

ITEM		SUBMISSION							DOMINANCE	
		-4	-3	-2	-1	0	1	2	3	4
* 135.	*	2	8	4	8	31	28	18	5	3
		5	18	14	9	6	16	20	9	3
* 136.	*	2	5	2	4	11	10	29	25	12
	*	2	15	13	13	5	14	15	20	3
* 137.	*		2	22	34	16	11	9	5	1
	**	2	12	24	8	5	12	20	13	4
** 138.	*	1	1	2	6	23	29	22	12	3
	*	4	6	15	15	16	18	18	7	
** 139.	*	1	5	13	20	42	6	9	3	1
	*	4	17	21	28	5	10	20	5	
* 140.	*	4	9	23	19	31	9	4	1	
	*	2	17	17	18	8	10	20	6	1
* 141.	*	3		2	1	8	7	30	39	10
	*	1	7	13	13	7	16	23	16	3
* 142.	*	2	4	4	2	3	9	18	19	39
	*	3	7	18	14	10	5	11	20	12
* 143.	*	5	29	33	20	1	7	2		2
		3	19	19	20	9	11	12	6	1
* 144.	*	2	1	2	1	6	12	24	29	21
	*	5	9	9	15	9	11	22	14	5
* 145.	*	5	2	2	4	34	13	19	15	5
	*	14	11	7	14	17	5	16	11	5
* 146.	*	2	5	9	13	44	15	5	5	2
	*	6	14	13	21	14	9	11	8	1
147.	*	3	6	5	5	21	21	13	19	7
	*	6	19	18	13	5	6	15	12	2
* 148.	*		4	3	11	25	24	17	13	3
	*	5	9	8	6	8	10	22	21	9
* 149.	*	1	6	8	12	48	11	7	4	2
	**	2	9	11	11	9	13	18	22	3

TABLE 9

(Continued)

| ITEM | | SUBMISSION | | | | | | | | DOMINANCE |
		-4	-3	-2	-1	0	1	2	3	4
150.	*	1	4	7	7	51	11	7	5	5
	*	7	8	13	9	10	20	11	20	2
*151.	*	3	13	12	7	10	6	25	15	8
	*	3	12	13	8	6	15	19	20	2
*152.	*	2	3	7	8	19	21	23	15	2
	*	8	16	14	16	2	17	15	6	4
*153.	*	6	2	5	10	52	4	6	5	3
	*	8	23	14	11	16	12	10	4	1
*154.	*	9	6	8	4	63	4	2	1	2
	**	17	12	10	11	21	7	11	5	1
*155.	*	2	2	2	4	27	18	16	12	4
	*	5	8	7	10	17	12	23	13	4
*156.	*	2	4	2	4	4	13	22	28	21
	*	4	14	9	8	2	14	18	19	11
**157.	*	2	24	26	19	13	8	2	4	
	*	3	13	18	16	12	15	14	8	1
158.	*	3	2	11	13	34	17	12	6	2
	*	5	21	15	7	9	13	21	9	
*159.	*	4	13	16	27	24	8	2	2	3
		4	17	23	19	10	11	8	6	2
160.	*	1	1	4	8	6	10	20	27	23
	*	4	13	18	12	9	12	19	13	
161.	**	4	11	21	17	18	11	5	9	3
		8	12	31	15	8	8	9	8	
162.	*	6	11	15	19	15	11	14	9	
		6	16	18	14	6	15	10	9	6
*163.	*	4	6	7	11	8	23	23	15	3
	*	2	13	11	13	16	7	22	14	2
164.	*	7	20	33	15	15	5	3		2
	*	4	17	17	17	15	11	15		1

TABLE 9

(Continued)

ITEM		SUBMISSION -4	-3	-2	-1	0	1	2	DOMINANCE 3	4
*165.	*	1	5	3	10	16	21	22	17	4
	**	8	9	4	10	5	16	19	20	8
*166.	*	13	20	23	22	14	3	4		1
		1	9	22	11	15	8	21	11	2
*167.	*	2	27	22	20	17	3	2	6	1
		4	11	22	14	8	9	16	12	3
168.	*	4	20	22	31	15	5	2	1	
	*	5	14	13	14	9	11	12	19	3
*169.	*		3	12	6	17	25	25	8	4
	**	5	6	13	5	14	16	21	16	4
170.	*	2	3	5	7	31	21	25	6	
	*	6	9	17	12	9	19	18	9	1
*171.	*	1	4	10	15	38	16	12	4	
	*	1	15	13	10	13	18	16	9	1
**172.	*	1	2	7	10	70	4	5		1
	**	4	18	11	10	24	20	10	1	
*173.	*	2	4	11	19	16	14	15	13	6
	*	6	13	17	12	10	15	16	9	1
174.	*	9	28	30	15	6	2	6	3	1
	*	7	17	10	9	9	10	20	14	1
*175.	*	2	1	4	5	26	26	15	17	4
	*	4	10	10	4	14	15	26	13	2
*176.	*	1	1	3	2	59	14	5	8	7
	*	5	7	12	10	6	14	10	19	15
**177.	*	9	11	31	18	28	1	1	1	
	*	8	16	25	11	10	9	15	2	2
*178.	*	7	24	30	16	8	10	1	3	1
	*	5	17	28	15	15	4	5	9	2
179.	*		5	7	3	7	27	25	19	7
	**	1	10	19	10	9	15	10	14	1

TABLE 9

193

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
*180. *	3	7	15	27	19	14	4	6	4
*	2	15	11	20	8	12	22	8	2
*181. *	3	10	5	4	8	8	16	25	21
**	1	8	13	15	11	11	13	20	5
**182. *	8	22	24	22	9	9	4	2	
*	3	13	22	16	8	12	17	8	1
*183. *		1	2	10	29	29	16	8	5
	2	7	11	16	8	12	17	8	1
184. *		2	5	7	30	22	22	8	4
*	3	13	13	19	12	9	22	8	1
*185. *	2	8	17	23	5	12	12	7	3
*	6	14	22	16	5	10	20	5	1
**186. *	1	2	4	5	5	2	18	38	25
*	6	6	12	9	7	12	22	18	7
*187. *	7	21	34	22	4	7	4		1
	8	17	23	19	9	8	12	4	
*188. *	1	1		7	16	9	20	27	19
*	4	16	11	8	12	17	13	16	3
*189. *	2	3	4	3	21	9	20	17	21
*	17	10	10	7	13	5	13	14	8
*190. *		5	2	6	13	24	24	12	14
**	3	13	14	5	7	10	24	21	3
*191. *	2	4	4	15	19	21	21	12	1
	4	15	20	18	10	12	12	8	1
192. *		8	7	7	37	20	9	10	2
*	9	13	18	11	5	10	21	11	1
**193. *	1	6	13	13	31	13	11	6	3
*	3	15	11	9	16	17	20	5	2
**194. *	2	1	9	9	50	11	9	6	2
*	6	11	11	7	16	17	19	10	1

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TABLE 9

(Continued)

ITEM	SUBMISSION -4	-3	-2	-1	0	1	2	3	DOMINANCE 4
*195.	* 5	12	22	10	19	9	10	8	5
	* 8	9	15	9	5	12	16	15	9
196.	*	2	3	7	5	16	27	27	13
	** 3	11	15	10	2	17	27	12	1
*197.	* 3	4	15	10	36	13	9	4	6
	3	9	17	17	20	15	8	9	1
*198.	* 1	2	6	12	27	2	4	2	4
	** 9	13	14	7	23	9	13	10	2
199.	*	2	4	9	37	22	14	10	2
	* 3	15	19	6	14	5	22	13	3
*200.	* 3	15	19	5	2	16	22	13	5
	* 7	11	20	18	4	11	10	16	3
*201.	* 2	7	16	27	32	7	4	3	1
	* 6	6	19	21	7	14	20	4	2
**202.	* 1	6	14	22	30	17	7	3	
	** 2	8	18	15	4	18	21	10	3
203.	* 6	19	23	28	6	8	5	5	
	* 5	21	16	15	7	14	15	6	1
*204.	* 1	3	7	14	9	25	27	9	5
	** 5	5	18	9	6	13	27	15	2
205.	*12	14	29	26	11	2	3	3	
	* 8	13	19	13	3	12	21	6	3
*206.	*	4	6	15	21	25	17	11	1
	* 3	15	8	6	5	18	27	14	4
*207.	* 1	4	5	2	8	17	25	30	8
	* 8	11	8	16	4	12	20	18	3
*208.	*22	29	24	14	4	4	2	1	
	** 4	23	19	16	7	5	18	5	1
*209.	* 2	2	5	4	6	26	28	18	9
	* 7	7	12	10	9	16	19	15	1

TABLE 9

(Continued)

ITEM	SUBMISSION -4	-3	-2	-1	0	1	2	DOMINANCE 3	4
*210.	*10	29	30	14	8	4	3	2	
	6	16	21	15	4	7	21	9	1
*211.	* 1	12	23	18	30	6	6	2	1
	* 3	16	12	11	14	9	17	13	4
**212.	* 1	4	24	18	25	11	9	7	1
	2	4	14	16	8	19	19	15	2
213.	* 2	3	11	21	23	20	11	9	
	** 1	14	10	14	12	10	21	14	3
*214.	* 2	5	5	9	46	18	9	5	1
	** 2	8	13	16	9	14	21	12	4
*215.	* 1	2	3	6	31	25	22	8	2
	* 4	13	18	9	13	13	21	6	3
*216.	* 3	3	4	4	68	9	5	3	1
	* 5	15	13	11	25	8	14	7	1
217.	* 2	5	4	9	4	19	29	13	15
	.* 2	21	21	11	5	5	20	14	1
*218.	* 5	29	33	20	1	7	2		2
	* 3	19	19	20	9	11	12	6	1
*219.	* 1	16	27	28	12	13	3		
	* 5	19	26	17	11	11	10	1	
*220.	* 3		4	3	22	21	30	13	3
	* 2	10	13	9	5	15	28	15	3
*221.	* 8	4		6	73	1	1	1	1
	17	9	7	6	31	5	10	7	3
222.	* 1	5	8	3	9	22	24	19	9
	* 3	11	12	14	4	15	25	12	3
223.	* 6	25	26	23	10	6	4		
	5	19	16	14	7	13	19	7	
*224.	* 1	2	11	8	24	15	24	10	5
	* 2	11	11	11	7	14	25	14	3

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
**225.	* 5	5	13	13	36	11	6	5	5
	* 6	14	14	15	13	6	17	8	2
*226.	* 2	1	7	6	5	13	35	20	11
	* 5	11	12	11	9	13	26	12	1
*227.	* 1	3	13	13	24	15	20	10	1
	** 3	6	13	11	7	10	24	18	6
**228.	* 2	2	3	7	28	20	20	11	7
	* 2	7	14	16	11	11	23	14	2
*229.	* 8	2	17	10	49	7	4	2	1
	* 5	19	10	13	12	16	14	8	4
230.	4	20	19	24	6	13	9	3	1
	* 2	11	25	10	11	9	23	5	1
*231.	* 2	1	4	3	4	8	23	41	14
	*	10	15	12	10	6	26	17	4
*232.	* 3	14	16	14	15	9	8	16	5
	* 2	13	18	11	6	9	27	12	1
233.	*	3	3	3	3	3	20	27	37
	*	10	15	6	8	9	20	21	10
234.	* 2	4	5	2	15	13	24	19	15
	*11	18	14	7	11	9	21	5	4
*235.	* 3	4	12	6	33	14	17	9	1
	* 4	11	20	8	10	20	20	7	
236.	* 4	16	14	20	19	11	12	2	2
	** 7	21	19	16	10	14	9	3	
*237.	* 2	3	6	12	39	12	13	10	3
	5	8	23	12	6	19	20	6	1
*238.	* 1	2	12	9	39	16	8	12	1
	* 5	10	12	12	16	9	24	9	3
*239.	* 2	5	10	12	48	8	9	5	1
	* 3	15	12	12	18	11	14	13	2

TABLE 9

(Continued)

ITEM	SUBMISSION				0	1	2	DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
*240.	* 4	24	36	14	8	8	5	1	
	* 4	18	14	16	9	8	18	11	
*241.	*		6	4	4	12	28	35	11
	* 1	11	9	12	5	11	30	20	1
*242.	*	2	8	11	40	14	15	6	4
	* 3	7	17	15	14	19	15	9	1
*243.	* 1		10	14	56	5	7	5	2
	* 5	6	10	13	8	11	18	21	8
*244.	*	1	11	20	50	8	7	3	
	5	8	12	16	13	4	17	21	1
*245.	* 2	3	1	3	5	20	40	19	7
	* 3	8	13	15	6	8	21	20	4
*246.	* 2	6	12	9	42	19	7	3	
	* 5	11	18	12	10	13	14	15	2
*247.	* 5	4	9	15	37	9	11	6	4
	7	12	10	5	7	6	17	26	9
**248.	* 2	6	24	36	13	4	11	3	1
	* 5	10	19	9	4	14	17	9	3
*249.	*	3	6	3	23	16	27	18	4
	* 4	13	10	13	13	10	23	13	1
250.	* 1	7	18	31	19	8	11	4	1
	1	11	25	15	7	12	18	10	
**251.	* 3	11	31	22	11	11	5	3	3
	* 5	9	19	11	3	11	27	12	1
252.	* 2	16	22	16	7	19	13	3	2
	6	16	15	15	9	16	16	7	
*253.	* 12	28	29	15	11	1	2	2	
	* 8	19	18	14	10	9	11	8	1
*254.	* 1	3	9	13	16	14	26	16	2
	** 4	14	10	12	6	18	24	12	

TABLE 9

(Continued)

| ITEM | SUBMISSION | | | | | | | DOMINANCE | |
	-4	-3	-2	-1	0	1	2	3	4
*255.	* 4	16	33	25	12	4	3	3	
	* 4	14	29	17	8	12	9	6	1
256.	* 6	19	29	25	11	6	2		2
	* 5	15	18	17	7	7	12	14	4
**257.	*	3	12	12	19	30	13	11	
	** 4	6	13	14	4	13	22	17	5
258.	* 1	2	9	11	15	21	28	10	3
	1	6	15	11	9	14	20	18	6
*259.	* 4	6	16	12	47	6	6	3	
	* 5	7	19	16	13	14	10	13	2
*260.	* 1	1	10	15	32	18	13	10	
	**	13	16	20	12	15	13	10	1
*261.	* 5	11	4	7	67	6			
	** 7	11	12	8	28	13	9	9	1
262.	* 2	2	6	2	21	20	26	14	7
	* 4	7	14	8	15	15	23	12	2
*263.	*11	17	31	18	8	7	4	4	
	5	17	19	13	5	7	18	14	2
264.	* 1	1	8	5	47	14	14	8	2
	3	6	9	9	9	17	22	20	3
*265.	* 9	8	6	3	53	12	5	1	3
	* 9	14	12	11	10	7	21	12	2
**266.	* 6	5	11	7	24	9	16	16	6
	* 8	13	14	13	10	15	11	13	2
267.	*17	29	27	9	6	3	6	1	2
	* 3	22	20	20	7	9	12	7	
*268.	*	2	5	9	31	19	20	11	3
	** 2	15	13	5	11	11	23	18	1
*269.	* 2	7	9	9	24	18	18	7	6
	** 4	10	15	14	5	18	25	8	

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
*270.	* 1	3	8	6	16	26	26	9	4
	** 7	9	14	15	11	12	21	9	
271.	* 3	5	20	26	16	15	13	1	
	** 4	14	11	7	11	16	20	15	2
**272.	* 1	1	3	4	18	19	28	16	
	* 1	12	10	14	5	18	23	13	2
*273.	* 2	7	12	12	35	13	13	3	1
	3	7	17	17	12	22	17	5	
274.	* 9	21	22	18	10	10	6	2	1
	* 8	15	18	12	8	10	19	8	1
*275.	*	2	4	10	5	27	29	18	5
	10	11	14	9	8	12	18	10	8
*276.	* 5	18	19	22	13	10	12	1	
	** 7	18	27	16	8	11	7	5	
*277.	* 2	2	3	5	3	10	23	38	13
	** 9	9	13	16	9	10	18	15	
278.	* 1	3	3	5	26	14	18	21	8
	** 8	15	12	13	18	8	12	10	4
279.	* 1	6	9	13	36	13	11	11	
	* 3	12	17	22	6	13	13	12	1
280.	* 2	7	10	16	30	12	13	7	2
	* 5	10	12	17	7	18	20	10	1
281.	*	2	3	10	29	21	16	13	6
	* 2	6	12	7	7	19	26	16	5
282.	* 3	3	6	13	35	18	13	7	2
	2	10	13	6	17	23	19	7	
*283.	* 1	3	2	3	41	19	13	14	4
	* 5	11	8	10	26	11	18	9	2
284.	*	8	16	13	13	13	21	11	5
	* 1	13	19	13	6	18	16	12	

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
**285.	*	2	3	9	7	20	27	21	11
	* 3	9	13	5	7	19	26	16	1
286.	* 2	9	11	17	50	7	1	2	1
	* 2	7	19	24	22	5	16	4	
*287.	* 8	7	3	8	67	2	3	1	
	* 9	8	9	9	31	9	11	8	2
288.	*	1		2	33	17	34	9	4
	1	12	10	3	8	13	27	13	11
289.	*	4	3	3	3	11	28	29	19
	* 4	12	5	8	10	7	21	21	12
* 290.	* 1	11	19	20	25	12	8	2	2
	* 10	12	18	17	5	10	15	13	
291.	*	4	10	11	35	17	15	8	
	* 2	10	10	8	11	17	24	17	1
292.	* 1	9	22	34	9	17	5	2	1
	* 2	14	21	18	11	18	8*	6	1
* 293.	*	2	4	9	11	27	27	12	6
	* 4	7	9	12	4	17	34	11	1
* 294.	* 1	16	27	28	12	13	3		
	5	19	26	17	11	11	10	1	
*295.	* 4	7	32	17	22	7	3	2	1
	* 7	19	13	20	10	9	13	8	1
*296.	* 1	11	9	12	31	14	17	2	3
	* 5	10	18	8	9	11	25	13	1
*297.	*	3	9	5	5	8	16	32	23
	* 1	12	16	18	10	6	18	14	5
*298.	* 7	38	27	11	5	5	3	3	1
	3	19	23	18	8	12	15	1	1
299.	*	1	6	8	20	24	22	14	5
	* 1	5	16	16	7	13	24	15	2

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
* 300.	* 1	14	19	28	18	12	5	3	
	* 3	7	14	15	13	19	15	12	1
*301.	* 5	10	23	29	19	2	6	1	5
	* 5	10	16	15	13	7	12	10	2
*302.	*	4	10	10	27	18	22	7	2
	* 1	12	8	13	3	13	24	22	4
*303.	* 2	2	8	14	46	13	9	2	4
	* 3	7	14	10	15	17	20	9	2
*304.	* 2	3	10	13	52	12	4	4	
	6	16	13	16	10	14	16	6	1
*305.	* 4	3	5	7	63	11	3	4	
	1	13	13	7	14	11	18	18	5
306.	* 1	2	6	12	53	13	8	2	3
	* 1	7	15	23	13	12	23	5	1
*307.	* 1	7	20	35	11	12	8	4	2
	* 1	12·	18	13	8	16	11	19	1
*308.	* 4	15	29	22	9	11	7	2	1
	4	18	19	15	4	11	16	11	1
*309.	* 2	1	2	3	9	30	32	16	5
	* 3	3	10	10	5	12	24	21	11
310.	* 1	3·	5	11	65	5	6	2	2
	* 9	8	14	10	16	6	16	12	8
*311.	*14	7	19	8	31	9	6	4	1
	* 3	14	14	15	10	8	21	9	4
*312.	*15	31	27	16	3	5	2	1	
	* 7	25	18	19	3	12	7	7	1
313.	* 6	11	17	23	18	11	7	6	1
	3	18	22	16	4	16	11	6	2
*314.	* 2	8	15	20	24	13	11	4	3
	* 4	11	16	10	8	19	20	11	1

TABLE 9

(Continued)

ITEM		SUBMISSION -4	-3	-2	-1	0	1	2	DOMINANCE 3	4
* 315.	*	1	4	6	7	31	21	19	8	3
	**	12	15	15	12	8	18	12	8	
316.	*	1	1	13	19	32	15	13	5	1
	**	5	10	15	14	7	11	18	5	3
* 317.	*	1	1	3	13	31	28	15	7	1
	**	6	10	26	14	8	14	13	9	
* 318.	*	2	5	9	9	27	19	17	10	2
	**	9	10	14	20	6	14	16	9	2
* 319.	*		3	6	18	32	27	10	3	1
	*	4	11	10	19	18	14	20	3	
* 320.	*	1		2	3	4	8	24	30	28
	*	6	14	12	9	5	11	20	18	5
* 321.	*	1	5	19	24	22	14	7	5	3
	*	7	12	11	19	6	14	22	6	2
* 322.	*	1	2	9	6	17	25	27	9	3
	**	2	11	13	14	5	22	19	13	
323.	*	2	3	2	4	24	23	27	13	2
	*	9	19	11	7	11	15	17	9	4
324.	*	1	2	12	12	31	24	13	4	1
	*	12	7	19	9	12	13	20	6	
** 325.	*		2	2	12	20	26	24	12	4
	*	5	13	18	11	13	18	17	5	
** 326.	*	2	5	12	18	32	15	13	1	2
	*	1	13	16	18	6	17	22	5	
* 327.	*	2	8	16	22	26	17	5	2	2
	**	3	9	10	18	14	17	18	9	
* 328.	*		3	13	12	52	9	7	3	1
	*	2	6	17	14	22	17	12	7	3
* 329.	*	1	3	5	8	8	14	35	16	10
	*	1	14	17	5	7	15	22	16	3

TABLE 9

(Continued)

ITEM	SUBMISSION -4	-3	-2	-1	0	1	2	3	DOMINANCE 4
330.	* 1	3	5	3	8	29	**33**	**12**	**5**
	* 7	12	12	17	10	12	**20**	9	
*331.	*	4	7	6	42	15	18	8	
	** 5	16	12	8	**19**	9	20	10	1
*332.	* 1	6	8	22	33	10	8	8	4
	** 3	13	11	15	9	11	19	16	3
*333.	*	3	2	1	12	20	28	25	9
	* 1	6	10	10	4	18	25	21	5
*334.	* 1	8	2	3	2	4	22	39	19
	** 4	16	13	10	9	8	13	20	6
335.	* 5	18	32	25	6	6	3	4	1
	** 2	12	21	23	6	11	11	12	1
336.	*	2	2	6	25	25	23	16	
	* 1	8	12	13	8	13	28	14	2
337.	* 1	6	8	16	44	14	6	4	1
	* 6	9	13	7	10	16	19	18	2
338.	* 5	14	14	16	21	16	7	4	3
	* 5	16	19	16	7	13	15	8	1
*339.	* 2	7	8	20	28	14	12	6	3
	* 3	9	16	14	17	18	15	8	
*340.	*	2	8	11	25	28	15	9	2
		10	9	11	12	16	23	16	3
*341.	*	4	3	7	7	19	28	25	7
	** 1	9	9	13	4	17	23	20	4
*342.	* 15	28	29	14	3	4	5	1	1
	3	27	16	21	7	5	15	4	1
343.	* 2	6	8	9	17	24	19	9	5
	* 5	11	14	13	7	10	25	12	3
344.	* 15	19	25	23	7	4	6	1	
	** 3	16	13	17	9	12	19	11	

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
*345.	* 7	13	22	25	18	3	2	6	3
	** 7	10	12	17	15	8	14	10	6
**346.	* 1	3	5	12	16	25	25	11	2
		10	14	4	5	22	24	20	1
*347.	* 1	2	12	18	28	15	15	6	3
	* 4	15	10	13	7	12	24	13	2
348.	** 2	4	7	9	54	9	9	2	4
	** 8	7	17	16	12	16	16	5	1
*349.	* 3	6	5	12	33	19	10	8	2
	** 3	15	12	16	7	9	20	13	2
*350.	* 4	4	6	13	51	11	5	3	2
	* 1	7	17	12	18	11	20	11	3
*351.	* 3	7	14	21	17	8	18	8	4
	* 3	13	9	17	14	7	16	10	7
*352.	*11	29	30	13	3	6	5	3	
	3	15	23	14	12	5	17	9	1
*353.	* 1	1	8	5	40	21	13	3	1
	* 2	13	14	10	9	12	32	5	3
354.	*	3	15	14	48	3	5	7	4
	* 5	5	16	8	12	12	23	11	6
*355.	*	6	8	3	30	23	16	11	3
	9	13	11	17	13	9	12	9	7
*356.	*17	40	22	13	3	2	2	1	
	* 4	25	30	11	5	7	9	9	
**357.	* 3	8	10	15	19	16	20	8	1
	5	12	19	18	12	12	16	3	2
*358.	* 1	3	8	4	14	28	19	19	5
	* 3	8	11	21	6	12	22	15	2
*359.	* 4	3	1	8	27	13	21	6	16
	7	9	10	11	5	12	18	20	6

TABLE 9

(Continued)

| ITEM | SUBMISSION | | | | | | | | DOMINANCE |
	-4	-3	-2	-1	0	1	2	3	4
360.	* 3	16	20	20	17	7	7	7	3
	** 4	12	15	17	7	12	17	11	5
*361.	* 2	2	2	6	41	26	13	7	1
	* 4	7	12	13	15	23	15	9	
362.	* 1		4	7	16	27	24	18	2
	* 5	13	15	14	8	14	16	13	1
*363.	*	7	15	15	24	22	7	9	
	4	11	23	10	12	6	21	9	3
*364.	*	4	4	1	9	18	31	27	6
	8	6	10	12	4	15	25	11	7
**365.	* 2	6	12	13	48	7	7	3	1
	* 4	16	19	18	14	6	12	10	
*366.	* 5	5	4	5	14	20	32	10	5
	* 7	12	16	6	7	17	22	10	3
367.	* 4	2	3	5	34	17	19	11	4
	*10	6	13	11	11	12	18	15	3
368.	* 2		1	6	22	31	23	12	2
	* 4	5	11	8	14	23	23	9	2
*369.	* 1	2	7	2	20	24	32	7	5
	* 3	8	17	20	11	17	10	13	1
*370.	* 7	9	32	17	22	7	3	2	1
	* 7	19	13	20	10	9	13	9	1
**371.	*	3	7	12	32	18	12	13	3
	* 6	7	11	12	8	15	26	13	1
**372.	*	2	7	15	19	25	21	9	2
	* 4	8	11	12	5	18	22	18	2
*373.	* 1	2	6	12	58	9	5	7	
	* 5	14	8	9	17	14	21	11	1
*374.	* 5	17	21	16	15	15	8	6	1
	* 6	9	17	9	6	11	17	10	4

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
375. *	1	2	3	3	6	27	18	25	15
*	1	8	9	13	5	21	21	16	6
*376. *	1	4	6	10	48	17	9	3	1
**	5	12	16	13	13	16	16	9	
**377. *	5	1	8	6	66	4	5	1	2
*	8	8	20	6	39	7	8	3	1
*378. *	1	2	2	5	64	10	9	5	2
**	6	7	10	12	27	10	23	4	
**379. *	3	7	9	10	7	29	23	11	
**	4	14	13	11	4	15	21	16	2
*380. *	10	24	33	14	9	5	2	3	
*	6	14	22	16	16	3	20	2	
*381. *	1	4	13	13	46	12	8	1	2
**	1	11	19	19	12	16	14	8	
**382. *	4	13	16	20	19	13	7	4	4
	5	20	15	12	4	4	15	12	11
*383. *		4	6	10	22	27	23	7	1
**	2	8	12	18	7	19	21	12	1
**384. *		2	12	13	32	22	9	9	1
	2	5	13	8	5	21	26	17	3
*385. *	1	7	12	22	37	8	7	3	3
**	2	15	18	9	10	14	17	10	4
386. *	2	7	8	6	25	24	17	8	3
*	6	12	16	13	10	13	16	12	2
387. *	4	15	22	26	19	3	5	4	2
	5	21	18	7	12	12	14	8	2
388. *	2	4	5	16	23	21	14	11	5
	4	11	14	14	9	12	15	16	5
**389. *	4	21	35	21	3	7	4	4	1
	3	17	20	12	6	10	19	10	

TABLE 9

(Continued)

ITEM	SUBMISSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
** 390.	* 6	20	13	26	21	6	5	1	2
	* 4	20	18	16	11	9	9	9	2
* 391.	* 1	7	9	8	37	19	12	5	2
	* 5	11	12	12	11	12	22	12	1
** 392.	* 1	10	13	14	27	13	16	5	1
	* 3	12	23	7	10	17	17	9	2
* 393.	* 1	8	7	13	37	19	11	2	2
	* 8	13	22	12	5	21	9	6	3
** 394.	* 4	4	4	2	29	30	21	6	
	* 3	16	10	13	10	13	22	11	1
* 395.	* 4	8	17	20	32	11	5	3	
	3	12	21	16	8	18	16	5	1
** 396.	* 2	17	20	28	17	9	5	1	1
	* 7	13	18	23	6	14	9	9	1
* 397.	* 7	23	37	20	6	5	2		
	* 7	19	25	12	10	6	21		
* 398.	* 2	2	7	10	32	19	18	9	1
	* 3	8	15	18	14	12	23	6	1
* 399.	* 2	2	5	2	41	16	12	10	8
	* 2	9	11	8	12	18	10	11	9
* 400.	* 3	11	19	14	39	8	4	1	1
	4	10	17	12	14	12	14	5	2
* 401.	*42	25	17	4	7	3	1	1	
	**15	16	17	11	11	12	12	4	
* 402.	* 1	2	9	8	31	20	17	10	2
	* 1	8	11	18	15	15	20	10	2
403.	*	1	1	3	6	14	32	32	12
	4	8	8	14	0	13	19	22	2
* 404.	* 1	6	6	4	26	15	24	13	5
	** 7	16	7	13	11	11	16	14	3

TABLE 9

(Continued)

| ITEM | SUBMISSION | | | | | | | | DOMINANCE |
	-4	-3	-2	-1	0	1	2	3	4
*405.	* 4	8	31	22	13	11	9	3	1
	7	15	16	21	5	10	20	3	3
*406.	*	3	6	4	36	21	17	10	3
	* 5	10	15	9	8	14	22	6	1
*407.	* 1	3	2	7	20	35	19	11	2
	* 3	9	14	12	12	14	24	11	
**408.	* 1	3	18	19	14	19	11	14	1
	5	14	13	8	14	13	22	11	
**409.	* 2	5	4	3	10	10	21	28	15
	* 2	14	9	10	10	14	10	13	15
410.	* 3	5	14	15	40	6	5	2	
	4	9	23	13	7	16	10	13	5
*411.	* 4	1	4	6	10	11	29	25	10
	** 7	6	12	10	10	11	29	11	1
*412.	*	2	4	11	19	10	22	11	
	* 2	15	8	14	15	13	19	11	1
**413.	* 2		6	8	26	21	18	16	3
	5	9	15	7	11	17	19	12	5
*414.	* 3	6	8	7	50	11	6	4	5
	* 7	12	19	13	14	13	14	6	2
*415.	* 2	8	6	7	38	18	11	7	3
	* 3	11	22	10	11	17	16	7	3
*416.	*	11	12	27	31	9	8	2	
	** 7	14	15	17	3	10	16	11	7
*417.	**	2	7	9	63	9	6	4	
	* 3	8	10	13	15	18	17	11	3
**418.	* 2	16	26	16	14	9	8	9	
	* 2	15	17	16	7	10	22	9	2
**419.	*	1	5	3	5	20	29	27	10
	*	9	13	9	4	17	17	24	6

TABLE 9

(Continued)

ITEM	SUBMISSSION							DOMINANCE	
	-4	-3	-2	-1	0	1	2	3	4
*420.	*	1	1	6	41	21	17	12	1
	* 1	8	9	12	12	14	21	21	1
*421.	*	2	2	10	41	14	20	7	4
	* 3	9	14	14	10	18	15	13	2
**422.	* 2	10	17	15	9	23	10	11	3
	** 2	8	13	10	7	11	24	18	5
*423.	*	3	3	4	13	18	25	25	9
	* 1	6	9	9	10	13	26	17	8
**424.	* 5	13	22	21	17	9	8	4	1
	* 3	11	11	10	8	15	21	8	1
*425.	* 1	3	9	8	12	24	17	22	4
	8	16	12	15	8	18	16	6	1
**426.	*	7	21	27	14	18	6	6	1
	* 5	9	19	4	10	10	29	13	1
**427.	* 2	3	5	3	17	12	22	25	11
		14	17	12	14	12	18	7	4
*428.	*	6	18	29	22	13	5	7	
	* 2	7	13	12	10	14	21	16	3
429.	* 1	4	5	8	32	25	16	8	1
	* 5	3	19	11	10	13	21	13	3
*430.	* 2	4	9	4	10	17	32	14	8
	* 3	15	15	12	9	9	17	18	2
431.	* 9	27	24	15	11	1	9	3	1
	* 8	20	14	24	13	8	4	7	1
*432.	* 1	2	4	6	16	21	25	19	6
	* 5	12	15	9	10	14	16	12	7
**433.	* 3	16	27	31	11	6	3	2	1
	6	21	25	12	3	12	14	6	1
*434.	* 3	22	11	22	26	9	2	4	1
	* 8	11	28	16	11	11	9	4	2

TABLE 9

(Continued)

| ITEM | SUBMISSION | | | | | | | | DOMINANCE |
	-4	-3	-2	-1	0	1	2	3	4
*435.	*	3	9	23	27	20	7	10	1
	*	8	8	15	8	18	23	14	6
*436.	*	5	13	14	24	24	13	7	
	*	7	8	14	16	13	22	17	1
437.	* 1	2	2	9	53	20	7	6	
	** 3	9	5	12	17	13	22	18	1
*438.	*	4	9	8	40	21	11	5	2
	* 6	8	11	16	12	12	11	20	3
*439.	* 2	7	9	9	45	15	8	3	2
	* 7	11	9	9	16	9	15	14	7
*440.	* 1	5	11	26	27	10	8	8	4
	*10	5	11	9	5	14	9	14	20

Appendix C

TABLE 11

The Mean and Standard Deviation of the 440 Items Scaled by the
English-Speaking Subjects (Group A)* and the Non-English-Speaking
Subjects (Group B)*. The First Column of Numbers are Data from the
Submission-Dominance Dimension and the Second Column are Data from
the Hate-Love Dimension

ITEM	N S-D	H-L	MEAN S-D	H-L	STD DEV S-D	H-L
1.	100	99	−1.57	−2.111	1.865	1.427
	100	100	−1.61	−0.77	1.984	2.178
2.	100	100	1.82	0.57	1.565	1.701
	99	100	0.606	0.27	2.436	2.145
3.	99	99	0.828	0.434	2.080	1.499
	100	100	−0.32	0.84	1.963	2.394
4.	100	100	1.09	−1.56	2.074	1.695
	100	100	−0.4	−0.78	2.069	2.139
5.	99	100	−2.010	0.82	1.619	1.849
	99	100	−0.898	−0.61	2.164	2.233
6.	98	99	1.275	1.989	1.597	1.396
	100	100	0.02	1.33	2.044	2.265
7.	99	100	−0.151	−1.33	1.960	1.775
	100	98	−0.36	−0.316	2.017	1.977
8.	100	100	−0.95	−1.87	1.513	1.894
	97	97	−0.381	−0.773	1.884	1.928
9.	100	100	1.67	−0.58	1.544	1.590
	97	99	0.288	−0.565	2.203	2.075
10.	100	100	−0.62	−0.75	1.680	1.520
	100	99	−0.64	−0.505	1.982	2.042
11.	100	99	1.27	−0.525	1.354	1.520
	99	98	0.353	−0.448	1.912	2.086

*Group A = first row of numbers
 Group B = second row

TABLE 11

(Continued)

ITEM	N S-D	N H-L	MEAN S-D	MEAN H-L	STD DEV S-D	STD DEV H-L
12.	99	99	1.242	0.070	1.884	1.465
	96	100	0.375	0.27	2.225	2.145
13.	100	99	1.16	0.959	1.894	1.544
	100	96	0.81	0.395	2.149	2.197
14.	99	99	0.585	0.959	1.964	1.544
	98	98	−0.336	−0.061	2.065	1.973
15.	99	100	0.909	1.51	1.610	1.459
	100	96	0.6	0.75	2.296	2.005
16.	99	99	−0.062	0.323	1.613	1.713
	99	98	0.131	0.346	1.987	2.154
17.	99	99	0.292	1.858	1.303	1.477
	98	98	−0.010	1.224	2.122	2.127
18.	100	100	1.33	−1.04	1.853	1.556
	100	86	0.43	−0.145	2.319	2.087
19.	100	99	1.03	0.636	2.007	1.467
	100	99	−0.59	1.414	2.225	1.994
20.	99	99	0.151	−0.939	1.955	1.658
	98	99	−0.571	−0.272	2.050	1.973
21.	96	98	−0.281	1.357	1.381	1.554
	97	99	−1.195	0.868	2.196	1.909
22.	100	100	0.11	1.65	1.819	1.754
	100	99	0.22	1.030	2.492	2.067
23.	100	100	1.17	−0.99	2.005	1.560
	100	100	0.18	−0.5	2.379	1.956
24.	100	98	0.92	−1.265	2.205	1.665
	99	96	−0.232	−0.843	2.198	2.063
25.	100	96	0.74	−0.270	1.738	1.357
	99	95	0.333	−1.452	2.213	2.009
26.	99	100	−1.030	2.22	1.903	1.404
	100	100	−0.51	1.48	2.176	2.148

TABLE 11

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(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
27.	100	99	1.08	-1.353	1.655	1.704
	99	100	0.474	-0.34	2.348	2.370
28.	100	100	-0.12	-1.0	2.001	1.758
	99	98	-0.080	-0.459	1.988	2.006
29.	100	98	1.41	1.030	1.741	2.165
	100	100	1.04	0.73	2.365	2.205
30.	100	99	2.14	-0.070	1.557	1.858
	98	99	0.867	0.303	2.049	2.057
31.	100	99	-1.81	1.232	1.383	1.713
	100	98	-0.22	1.214	2.267	2.087
32.	100	100	0.29	-0.86	2.006	1.544
	99	100	0.585	-0.16	2.240	1.921
33.	100	99	-1.89	0.686	1.469	1.782
	99	100	-0.727	1.48	2.141	2.076
34.	100	100	0.06	-0.4	1.927	1.912
	100	97	0.78	0.195	2.303	2.129
35.	100	99	-1.09	-0.191	1.583	1.664
	100	97	0.75	0.030	2.100	2.063
36.	100	99	0.89	0.939	1.230	1.497
	96	100	0.5	1.27	2.181	2.068
37.	100	99	-0.11	-0.474	2.064	1.459
	100	99	-0.97	-0.252	2.244	1.842
38.	99	100	1.050	1.03	1.380	1.648
	100	100	0.4	1.37	2.318	2.023
39.	100	100	-0.23	0.15	1.650	1.552
	100	99	-0.64	1.181	2.176	1.859
40.	100	99	0.72	1.535	2.035	1.466
	100	99	-0.75	1.949	2.143	1.949
41.	100	100	0.13	-1.08	1.661	1.823
	100	99	-0.01	-0.828	2.516	2.157

TABLE 11

(Continued)

215

ITEM	N S-D	H-L	MEAN S-D	H-L	STD DEV S-D	H-L
42.	100	99	0.7	1.858	1.396	1.362
	100	100	0.44	1.38	2.161	2.008
43.	100	100	0.6	-1.21	1.608	1.430
	100	99	0.08	-0.676	2.372	2.122
44.	100	100	-1.36	-1.28	2.115	1.570
	99	100	-0.626	-0.66	2.150	2.070
45.	100	99	-0.98	1.898	2.029	1.574
	99	100	-1.222	1.09	2.053	2.279
46.	100	99	0.76	1.141	1.747	1.317
	99	99	0.101	1.020	2.310	1.895
47.	99	99	1.030	1.131	2.229	1.588
	100	100	-0.06	1.07	2.347	2.152
48.	98	99	0.887	-1.505	1.787	1.686
	96	96	-0.645	-0.364	2.303	2.052
49.	100	100	-0.76	-0.08	1.538	1.835
	98	99	-0.428	-0.616	2.105	2.257
50.	98	100	0.795	-0.48	1.361	2.071
	99	100	0.252	0.05	1.996	2.203
51.	100	100	-0.36	-1.48	1.514	1.579
	100	98	-0.4	-0.744	2.088	2.062
52.	100	100	-0.72	-1.01	2.206	1.678
	96	99	-0.541	-1.242	1.956	2.254
53.	100	100	2.39	-0.3	1.704	1.527
	100	100	0.45	0.12	2.208	1.986
54.	100	100	-1.29	0.86	1.799	1.4
	98	100	-0.428	0.87	2.080	1.926
55.	100	99	1.24	-0.414	1.436	1.463
	100	100	0.17	-0.76	2.055	2.108
56.	100	100	0.66	-0.64	2.080	1.630
	100	100	-0.29	-0.2	2.400	2.146

TABLE 11   216

(Continued)

ITEM	N S-D	N H-L	MEAN S-D	MEAN H-L	STD DEV S-D	STD DEV H-L
57.	100	100	0.53	-0.45	1.604	1.765
	99	99	-0.464	0.070	1.907	1.880
58.	99	100	-0.232	-0.59	1.537	1.470
	99	100	-1.434	-0.02	2.058	2.215
59.	100	100	0.43	1.07	1.960	1.465
	100	99	0.2	0.292	2.188	2.209
60.	100	98	-0.27	-0.091	1.710	2.130
	99	100	-0.505	-0.34	2.130	2.266
61.	100	100	0.27	0.04	1.369	1.413
	100	98	0.21	0.112	2.056	1.936
62.	100	99	0.9	-1.424	1.732	1.492
	99	97	0.575	-1.917	2.050	1.918
63.	100	100	1.73	0.4	1.953	1.385
	100	100	0.79	0.27	2.189	2.173
64.	99	100	0.272	-1.53	1.931	1.559
	100	100	0.12	-1.21	2.152	2.041
65.	98	100	0.836	1.71	2.180	1.458
	98	100	-0.602	1.03	2.414	1.971
66.	100	100	1.41	1.98	1.511	1.543
	100	98	0.66	1.163	2.031	1.745
67.	100	100	2.28	-0.12	2.113	1.816
	100	98	0.52	0.897	2.443	1.997
68.	100	99	-0.61	-1.272	1.968	1.517
	99	97	-0.777	-0.226	2.018	2.038
69.	99	99	0.414	-0.010	1.948	2.159
	100	95	1.04	-1.031	2.411	2.416
70.	100	100	-1.9	1.2	1.648	1.699
	98	100	-0.683	0.51	2.204	2.012
71.	100	100	1.48	-0.48	1.500	1.930
	98	100	0.540	-0.22	2.061	2.263

TABLE 11   217

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
72.	100	100	-0.67	-1.32	1.421	1.716
	100	98	-0.47	-0.795	2.076	2.205
73.	100	100	0.76	2.08	1.583	1.715
	100	99	0.12	1.656	2.336	2.213
74.	100	100	0.25	-0.46	1.999	1.708
	99	99	0.212	-0.262	2.317	2.102
75.	100	100	-2.08	0.66	1.440	1.532
	99	99	-0.565	0.666	1.896	2.208
76.	100	100	-0.04	-0.53	1.858	1.493
	100	100	0.15	-0.04	2.026	2.054
77.	100	100	1.64	-0.71	1.806	1.677
	100	100	-0.47	-0.2	2.380	2.502
78.	98	99	-0.663	-1.121	1.655	1.762
	99	98	-0.858	-0.826	2.394	2.270
79.	100	100	-0.96	-0.82	1.769	1.647
	96	99	-0.541	-0.222	2.180	2.007
80.	100	100	-0.33	1.0	1.7	1.385
	100	100	-0.1	0.7	2.285	1.795
81.	99	100	-0.353	1.26	1.479	1.829
	100	100	-0.69	0.01	2.023	2.524
82.	100	100	1.06	-0.83	1.502	1.803
	99	99	0.686	-1.282	2.315	2.299
83.	100	100	-0.37	-0.25	1.851	1.506
	99	96	-0.757	-0.416	2.195	2.338
84.	100	99	0.82	1.050	2.280	2.052
	99	100	-0.646	0.52	2.291	2.311
85.	100	99	-1.06	-0.717	1.549	1.428
	99	99	-0.171	-1.010	2.000	1.982
86.	100	100	0.82	1.75	1.409	1.459
	100	100	0.39	1.17	2.059	2.278

TABLE 11

(Continued)

ITEM	N S-D	N H-L	MEAN S-D	MEAN H-L	STD DEV S-D	STD DEV H-L
87.	100	100	0.45	−1.01	1.629	1.507
	96	98	−0.489	−0.918	2.005	2.227
88.	99	100	−1.010	−1.03	1.403	1.714
	100	100	−0.55	−0.73	1.976	2.210
89.	100	100	−1.92	0.55	1.624	1.677
	98	100	−0.5	0.6	2.356	2.035
90.	100	100	1.34	0.96	1.821	1.556
	100	99	0.62	0.797	2.028	2.045
91.	100	100	0.76	0.26	1.511	1.755
	100	94	−0.46	−0.319	2.148	2.186
92.	100	99	1.62	−1.272	1.988	1.537
	100	99	−0.44	−0.838	2.336	1.972
93.	100	100	−0.82	−0.09	1.610	2.220
	100	100	−0.26	−0.61	2.223	2.178
94.	100	100	0.96	1.22	1.728	1.541
	100	99	−0.06	0.424	2.214	2.060
95.	100	100	0.45	−0.75	1.479	1.427
	100	99	−0.82	−0.575	2.056	2.015
96.	100	99	−1.96	1.040	1.503	1.783
	96	97	−1.270	−0.422	1.877	2.253
97.	100	99	2.19	1.040	1.412	1.783
	100	99	0.4	0.212	2.178	2.348
98.	100	100	−0.4	0.94	1.333	1.796
	96	97	−0.520	0.0	2.238	2.160
99.	100	100	1.23	−0.32	1.619	1.427
	97	100	−0.010	−0.53	2.099	1.946
100.	100	100	1.28	−0.10	1.664	1.811
	100	98	−0.05	−0.765	1.966	2.064
101.	100	100	0.79	1.14	1.343	1.530
	98	100	−0.091	0.77	1.979	2.029

TABLE 11   219

(Continued)

ITEM	N S-D	N H-L	MEAN S-D	MEAN H-L	STD DEV S-D	STD DEV H-L
102.	100	100	−0.05	−0.78	1.866	1.251
	98	97	−0.040	−0.268	2.128	2.196
103.	100	99	0.45	0.323	1.552	1.524
	99	94	0.666	0.148	2.199	1.928
104.	100	100	0.02	0.6	1.734	1.563
	99	98	−0.090	0.214	2.204	2.087
105.	100	100	−0.11	0.66	1.369	1.464
	100	100	−0.07	0.52	1.996	1.925
106.	100	100	−0.19	−1.28	1.767	1.295
	98	100	0.428	−0.47	2.215	2.138
107.	100	98	−1.93	0.714	1.881	1.399
	100	100	−0.05	1.31	2.375	2.068
108.	99	100	−0.484	−0.42	1.668	1.747
	98	100	−0.459	0.48	2.071	2.258
109.	99	99	0.393	1.414	1.544	1.583
	98	98	0.571	0.775	2.503	2.048
110.	99	99	0.040	1.505	1.518	1.599
	100	98	0.68	1.224	2.260	2.093
111.	100	99	1.47	0.626	1.572	2.097
	99	100	0.363	0.74	2.309	2.115
112.	97	100	−0.701	−0.87	1.601	1.535
	96	100	−0.260	−0.65	2.182	2.086
113.	100	100	0.55	0.89	1.424	1.675
	100	95	0.18	1.431	2.341	2.086
114.	100	98	−0.96	0.540	1.687	1.444
	98	99	−0.010	0.888	2.184	2.151
115.	100	100	2.24	−1.23	1.570	1.879
	100	100	0.82	−0.53	2.413	2.438
116.	100	98	0.23	−1.0	1.632	1.643
	99	96	−0.595	−0.208	2.226	2.388

TABLE 11 220

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
117.	100	99	0.63	1.696	1.605	1.373
	100	100	0.18	1.51	2.324	1.992
118.	100	99	1.99	0.434	1.935	1.604
	97	97	0.195	0.793	2.307	2.008
119.	100	100	-1.88	1.31	1.665	1.661
	99	100	-1.070	1.87	1.965	2.008
120.	100	100	0.63	0.34	1.744	1.571
	100	100	-0.02	-0.09	2.201	2.069
121.	100	100	-1.47	0.61	1.493	1.317
	100	100	-0.39	0.77	2.088	2.242
122.	100	100	-1.16	-0.65	1.905	1.648
	100	99	-0.32	-0.212	2.390	2.237
123.	99	100	-0.303	-0.69	1.924	1.643
	99	99	-0.161	-0.575	2.211	2.085
124.	100	100	0.16	0.49	1.801	1.487
	100	100	-0.04	0.16	2.246	2.130
125.	100	100	-0.5	-0.77	1.589	1.509
	98	98	-0.673	-0.020	1.998	2.055
126.	99	99	-0.212	-0.555	1.685	1.912
	97	99	-0.505	-0.393	2.041	2.151
127.	98	98	-0.285	0.0	1.473	1.589
	99	99	-0.272	-0.050	2.165	2.173
128.	100	100	0.76	1.49	1.798	1.566
	99	100	0.101	0.63	2.220	1.967
129.	98	100	-0.520	-0.48	1.500	1.388
	100	99	0.03	-0.888	2.157	1.839
130.	100	98	1.94	0.265	1.650	1.677
	99	94	0.434	-0.117	2.434	1.939
131.	99	100	-0.161	-0.72	1.706	1.614
	98	100	-0.224	-0.63	2.194	2.163

TABLE 11

221

(Continued)

ITEM	N S-D	N H-L	MEAN S-D	MEAN H-L	STD DEV S-D	STD DEV H-L
132.	98	100	−0.897	−0.83	1.701	1.657
	100	99	−0.51	−0.505	2.012	1.971
133.	100	99	−2.42	0.666	1.609	1.784
	99	99	−1.161	1.0	2.239	1.979
134.	100	99	0.63	1.313	2.204	1.694
	100	96	0.38	0.531	2.385	2.348
135.	100	98	0.36	−1.040	1.743	1.661
	100	98	−0.16	−0.530	2.312	2.046
136.	100	100	−1.60	−1.80	1.948	1.645
	100	100	0.24	−0.89	2.309	2.044
137.	100	100	−0.36	−0.89	1.540	1.858
	100	97	0.07	−0.494	2.284	2.483
138.	99	100	1.050	−0.08	1.438	1.931
	99	100	−0.040	−0.11	1.878	2.369
139.	100	100	−0.28	−1.67	1.456	1.705
	100	100	−0.62	−0.78	2.048	2.042
140.	100	100	−0.88	−1.55	1.465	2.162
	99	100	−0.393	−0.95	2.059	2.422
141.	100	100	2.07	0.98	1.640	1.524
	99	99	0.585	0.767	2.045	2.029
142.	100	100	2.28	0.84	2.113	1.315
	100	100	0.52	0.59	2.443	1.842
143.	99	100	−1.757	−0.71	1.545	1.380
	100	98	−0.7	−0.622	1.997	1.961
144.	98	100	2.193	0.89	1.709	1.669
	99	99	0.373	−0.080	2.265	2.155
145.	99	100	0.828	0.43	1.879	1.552
	100	98	−0.27	0.204	2.473	2.100
146.	100	100	−0.06	−0.08	1.549	1.548
	97	98	−0.556	−0.346	2.056	2.139

TABLE 11   222

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
147.	99	100	0.868	1.25	2.038	1.585
	96	99	-0.520	0.212	2.366	2.286
148.	100	99	0.8	-0.161	1.595	2.093
	98	99	0.857	-0.929	2.398	2.592
149.	99	100	-0.050	-0.65	1.500	1.539
	98	100	0.602	-0.77	2.185	2.068
150.	98	100	0.234	-1.58	1.591	1.886
	100	99	0.23	-0.616	2.282	2.297
151.	99	100	0.515	0.61	2.396	1.427
	98	100	0.397	1.26	2.278	2.272
152.	100	100	0.81	-0.24	1.767	1.676
	98	100	-0.438	1.19	2.315	2.058
153.	100	99	-0.21	1.737	1.707	1.723
	99	99	-0.929	0.626	2.071	2.517
154.	99	100	-0.555	0.94	1.617	1.779
	95	99	-0.915	0.575	2.220	2.148
155.	97	100	0.824	-0.52	1.613	1.611
	99	100	0.454	0.02	2.153	2.304
156.	100	100	1.97	1.26	1.961	1.829
	99	100	0.676	0.01	2.518	2.524
157.	100	100	-1.35	-1.05	1.659	1.597
	100	100	-0.32	-0.52	2.014	2.194
158.	100	99	0.14	-0.747	1.657	1.612
	100	94	-0.38	-0.872	2.246	2.401
159.	99	99	-0.848	0.595	1.698	1.518
	100	100	-0.79	0.51	1.996	2.195
160.	100	100	2.0	-0.02	1.880	1.933
	100	100	-0.14	-0.1	2.174	2.739
161.	99	100	-0.484	-0.56	2.022	1.526
	99	100	-0.959	-0.16	2.019	2.290

TABLE 11

223

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
162.	100	100	-0.4	1.86	2.025	1.511
	100	99	-0.36	0.646	2.346	2.361
163.	100	100	0.67	0.69	2.035	1.889
	100	99	0.19	-0.404	2.144	2.189
164.	100	100	-1.5	0.51	1.629	1.956
	97	99	-0.752	-0.474	1.865	2.282
165.	99	99	0.979	-0.090	1.789	1.492
	99	99	0.696	-0.585	2.447	2.040
166.	100	99	-1.65	-0.606	1.635	1.971
	100	100	0.05	-0.22	2.056	2.368
167.	100	98	-1.24	-0.775	1.770	1.971
	99	100	-0.181	-0.5	2.237	2.071
168.	100	99	-1.39	-0.141	1.391	1.690
	100	99	0.02	-0.171	2.356	1.862
169.	100	100	0.76	0.26	1.694	1.778
	100	100	0.53	0.23	2.180	2.620
170.	100	99	0.55	-0.161	1.536	1.645
	100	100	-0.11	0.15	2.117	2.076
171.	100	100	0.01	-0.38	1.445	1.555
	96	98	-0.041	-0.102	2.030	2.258
172.	100	100	-0.16	0.0	1.051	1.510
	98	99	-0.602	0.909	1.797	2.020
173.	100	100	0.46	1.31	2.002	1.637
	99	99	-0.313	0.717	2.164	2.204
174.	100	100	-1.68	-0.09	1.791	1.576
	100	100	0.0	-0.49	2.449	2.258
175.	100	100	0.99	0.63	1.642	1.767
	98	98	0.448	0.346	2.144	2.101
176.	100	100	0.61	-0.33	1.490	1.511
	98	100	0.775	-0.33	2.501	2.025

TABLE 11   224

(Continued)

| ITEM | N | | MEAN | | STD DEV | |
	S-D	H-L	S-D	H-L	S-D	H-L
177.	100	100	-1.43	-0.64	1.401	1.494
	98	100	-0.897	-0.8	2.088	1.964
178.	100	99	-1.51	0.111	1.720	1.731
	100	100	-0.93	0.55	2.036	2.367
179.	100	100	1.43	0.98	1.789	1.490
	99	97	0.191	1.030	2.083	2.098
180.	99	99	-0.343	0.969	1.847	1.625
	100	97	-0.07	1.226	2.094	2.460
181.	100	99	1.43	-0.686	2.442	1.620
	97	100	0.494	-1.26	2.175	2.111
182.	100	100	-1.45	0.78	1.671	1.789
	100	100	-0.37	-0.8	2.067	2.335
183.	100	100	0.88	0.97	1.401	1.678
	99	100	0.464	0.71	2.026	2.051
184.	100	100	0.83	-0.7	1.497	1.494
	100	100	-0.15	-0.37	2.056	2.092
185.	99	99	-0.404	-1.050	1.994	1.803
	99	97	-0.575	-0.329	2.128	2.008
186.	100	100	2.29	-0.34	1.871	1.471
	99	99	0.636	-0.424	2.349	2.055
187.	100	99	-1.62	-0.252	1.542	1.560
	100	96	-1.04	-0.343	1.948	2.218
188.	100	99	1.92	0.515	1.738	1.618
	100	100	0.09	-0.57	2.292	2.230
189.	100	99	1.56	0.373	2.041	1.717
	97	99	-0.202	-0.363	2.730	2.168
190.	100	100	1.39	0.72	1.791	1.729
	100	100	0.49	0.37	2.346	1.889
191.	99	100	0.606	-0.51	1.725	1.540
	100	100	-0.55	-0.89	2.046	1.994

TABLE 11

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
192.	100	100	0.31	1.27	1.667	1.763
	99	98	-0.333	0.010	2.351	2.370
193.	97	100	0.041	0.49	1.749	2.181
	98	99	-0.081	-0.757	2.054	2.755
194.	99	98	0.171	0.683	1.484	1.647
	98	100	-0.081	-0.03	2.054	2.367
195.	100	100	-0.37	-1.28	2.186	1.498
	98	100	0.275	-0.75	2.539	1.991
196.	100	98	1.84	-0.714	1.661	1.861
	99	100	0.303	-0.34	2.196	2.475
197.	100	99	0.03	-0.828	1.839	1.778
	99	100	-0.282	-0.58	1.890	2.142
198.	100	99	-0.02	1.565	1.310	1.617
	100	100	-0.37	0.37	2.232	2.186
199.	100	99	0.65	-0.373	1.424	2.345
	100	100	-0.01	0.15	2.298	2.731
200.	100	100	0.19	0.05	2.381	1.629
	100	100	-0.28	0.42	2.344	2.165
201.	99	98	-0.606	-1.091	1.483	1.478
	99	100	-0.272	-0.68	2.024	1.802
202.	100	98	-0.32	0.265	1.455	1.509
	99	100	0.191	-0.14	2.088	2.365
203.	100	98	-1.22	0.622	1.772	1.417
	100	100	-0.64	0.46	2.134	2.185
204.	100	100	0.85	-0.49	1.760	1.690
	100	100	0.4	-0.32	2.197	2.246
205.	100	100	-1.57	-1.3	1.603	1.352
	98	98	-0.387	-0.591	2.309	2.119
206.	100	100	0.57	1.2	1.590	1.463
	100	100	0.51	0.77	2.271	2.088

TABLE 11

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
207.	100	100	1.61	0.18	1.825	1.731
	100	99	0.21	-0.222	2.404	2.187
208.	100	100	-2.26	0.45	1.534	1.578
	98	100	-0.806	0.58	2.123	2.084
209.	100	99	1.44	-0.414	1.771	1.974
	96	97	0.208	0.134	2.228	2.215
210.	100	100	-1.85	0.19	1.578	1.541
	100	100	-0.49	0.85	2.254	2.006
211.	99	100	-0.767	-0.58	1.563	1.770
	99	100	0.030	0.09	2.278	2.247
212.	100	98	-0.28	-0.653	1.649	1.867
	99	99	0.464	-0.454	1.970	2.182
213.	100	100	0.09	0.65	1.645	1.546
	99	99	0.262	0.505	2.159	2.237
214.	100	100	0.13	-0.3	1.488	1.636
	99	99	0.343	-0.151	2.095	2.370
215.	100	100	0.79	-0.3	1.444	1.636
	100	97	-0.15	-0.206	2.152	2.380
216.	100	99	-0.01	0.414	1.298	1.577
	99	100	-0.414	0.11	2.030	2.063
217.	100	100	1.36	1.7	2.032	1.521
	100	100	-0.33	1.23	2.318	2.063
218.	99	100	-1.757	-0.54	1.545	1.731
	100	99	-0.7	-0.111	1.997	2.249
219.	100	100	-1.15	1.09	1.380	1.477
	100	99	-1.12	0.414	1.759	2.281
220.	99	98	1.101	-0.571	1.606	1.377
	100	97	0.55	-0.628	2.162	1.900
221.	95	100	-0.421	-0.84	1.395	1.631
	95	99	-0.6	-1.020	2.326	2.099

TABLE 11   227

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
222.	100	99	1.25	-0.111	1.940	1.537
	99	99	0.303	-0.676	2.192	2.064
223.	100	99	-1.6	0.848	1.470	1.459
	100	97	-0.51	1.020	2.143	1.957
224.	100	97	0.73	-0.587	1.780	1.525
	98	91	0.448	-1.087	2.164	2.506
225.	99	100	-0.161	-1.06	1.882	1.879
	95	99	-0.389	-0.313	2.203	2.122
226.	100	100	1.56	-0.74	1.854	1.534
	100	100	0.17	-0.2	2.192	2.059
227.	100	100	0.37	0.46	1.727	1.788
	98	95	0.704	0.894	2.225	2.085
228.	100	100	0.94	-1.17	1.716	1.602
	100	98	0.34	-0.265	2.050	2.339
229.	100	99	-0.57	-1.434	1.584	1.738
	100	96	-0.3	-0.677	2.217	2.178
230.	99	99	-0.949	1.323	1.881	1.455
	97	99	-0.278	1.262	2.029	2.206
231.	100	100	2.11	1.57	1.763	1.532
	100	100	0.53	1.04	2.157	2.107
232.	100	100	-0.07	-1.05	2.284	1.597
	99	100	0.090	-0.52	2.195	2.194
233.	99	100	2.565	-0.54	1.773	1.559
	99	98	0.868	-0.397	2.301	2.204
234.	99	98	1.474	0.010	2.006	1.446
	100	95	-0.51	-0.505	2.414	2.247
235.	99	100	0.252	-0.09	1.780	1.484
	100	100	-0.16	-0.28	2.038	2.247
236.	100	100	-0.63	-0.71	1.889	1.472
	99	99	-1.050	0.252	1.918	2.282

TABLE 11   228

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
237.	100	99	0.39	0.969	1.687	1.881
	100	99	-0.21	0.828	2.061	2.227
238.	100	99	0.29	-0.393	1.603	1.910
	100	99	0.1	-0.969	2.162	2.247
239.	100	100	-0.1	-0.55	1.534	1.388
	100	100	-0.07	-0.5	2.152	2.115
240.	100	100	-1.53	-1.45	1.559	1.358
	99	100	-0.363	-0.84	2.178	2.048
241.	100	99	2.01	-0.929	1.553	1.830
	100	100	0.68	-0.676	2.117	2.221
242.	100	100	0.45	0.31	1.533	1.631
	100	97	-0.02	0.402	1.933	2.239
243.	100	100	0.04	1.89	1.347	1.413
	100	96	0.71	0.458	2.328	2.238
244.	100	99	-0.14	-0.131	1.163	1.805
	97	98	0.216	-0.244	2.255	2.306
245.	100	100	1.630	0.26	1.630	1.685
	98	99	0.5	0.222	2.266	2.178
246.	100	100	-0.17	0.15	1.470	1.597
	100	97	-0.07	-0.443	2.243	2.145
247.	100	100	0.0	1.07	1.847	1.525
	99	100	0.656	1.19	2.623	2.419
248.	100	100	-0.71	1.12	1.616	1.437
	100	97	-0.4	1.391	2.335	1.981
249.	100	100	1.16	0.41	1.649	1.658
	100	99	0.11	0.191	2.173	2.146
250.	100	100	-0.46	-0.9	1.635	1.446
	99	99	-0.242	-0.191	2.015	2.310
251.	100	100	-0.87	2.9	1.807	1.446
	98	100	0.091	1.5	2.247	2.405

TABLE 11

(Continued)

229

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
252.	100	99	−0.54	0.707	1.961	1.691
	100	100	−0.48	0.04	2.096	2.373
253.	100	100	−1.94	0.39	1.509	2.068
	99	99	−0.767	−0.181	2.221	2.130
254.	100	100	0.78	−0.3	1.812	1.487
	100	98	0.12	−0.071	2.161	2.021
255.	100	99	−1.36	−0.858	1.500	1.511
	100	99	−0.81	−0.262	1.947	2.380
256.	100	99	−1.46	−0.818	1.559	1.541
	99	99	−0.292	−0.515	2.348	2.130
257.	100	100	0.44	−0.81	1.584	1.548
	98	99	0.551	−0.737	2.243	2.102
258.	100	100	0.8	0.87	1.705	1.612
	100	99	0.69	0.474	2.121	2.153
259.	100	100	−0.51	−0.26	1.507	1.315
	99	99	−0.141	−0.090	2.109	2.030
260.	100	100	0.32	0.18	1.523	1.860
	100	100	−0.16	0.62	1.936	2.394
261.	100	100	−0.62	0.78	1.308	1.314
	98	99	−0.316	0.989	2.038	2.062
262.	100	100	1.14	1.63	1.763	1.750
	100	99	0.32	1.171	2.078	2.258
263.	100	100	−1.48	−0.77	1.772	1.369
	100	100	−0.29	−0.37	2.358	2.038
264.	100	100	0.46	0.78	1.473	1.755
	98	98	0.775	0.091	2.083	2.275
265.	100	99	−0.38	−0.737	1.791	1.460
	98	94	−0.204	−0.382	2.393	2.064
266.	100	98	0.45	0.612	2.212	1.892
	99	99	−0.282	0.181	2.290	2.210

TABLE 11   250

(Continued)

	N		MEAN		STD DEV	
ITEM	S-D	H-L	S-D	H-L	S-D	H-L
267.	100	99	−1.92	−0.252	1.878	2.260
	100	98	−0.84	−0.602	1.998	2.439
268.	100	100	0.79	0.66	1.526	1.386
	99	99	0.313	0.777	2.248	2.183
269.	100	99	0.43	−1.444	1.934	1.841
	99	99	0.020	−1.606	2.065	2.275
270.	99	100	0.868	−1.44	1.694	1.854
	98	100	−0.173	−1.14	2.125	2.127
271.	99	100	−0.494	−0.71	1.599	1.742
	100	99	0.22	−0.444	2.245	2.181
272.	100	100	1.06	1.35	1.434	1.493
	98	98	0.377	0.714	2.088	2.030
273.	98	100	−0.132	−1.25	1.641	1.799
	100	97	−0.13	−0.010	1.823	2.033
274.	99	100	−1.303	−1.59	1.859	1.670
	99	97	−0.494	−0.721	2.251	2.139
275.	100	100	1.35	0.94	1.578	1.339
	100	100	0.0	0.9	2.514	2.204
276.	100	100	−0.97	0.97	1.777	1.641
	99	99	−1.131	1.141	1.904	2.114
277.	99	100	1.989	−0.47	1.826	1.359
	99	100	−0.141	−0.32	2.276	2.054
278.	99	100	1.222	0.02	1.793	1.626
	100	99	−0.36	−0.141	2.294	2.285
279.	100	100	0.15	0.23	1.659	1.686
	99	100	−0.252	−0.53	2.091	2.367
280.	99	99	0.020	−0.757	1.778	1.407
	100	99	0.01	−1.262	2.105	1.876
281.	100	100	0.94	−0.56	1.587	1.695
	100	100	0.82	−1.01	2.061	2.204

TABLE 11   231

(Continued)

ITEM	N S-D	N H-L	MEAN S-D	MEAN H-L	STD DEV S-D	STD DEV H-L
282.	100	100	0.27	1.04	1.650	1.989
	97	99	0.123	-0.353	1.883	2.425
283.	100	100	0.83	0.4	1.575	1.576
	100	100	0.03	-0.19	2.052	2.158
284.	100	99	0.39	-0.818	2.034	1.272
	98	100	-0.081	-0.43	2.059	2.239
285.	100	100	1.6	0.85	1.669	1.526
	100	100	0.57	1.15	2.137	1.903
286.	100	100	-0.55	0.38	1.380	1.405
	99	98	-0.424	0.224	1.696	2.013
287.	99	99	-0.565	1.494	1.436	1.618
	96	99	-0.25	0.494	2.082	2.154
288.	100	100	1.23	0.99	1.262	1.642
	98	98	0.887	0.418	2.278	2.030
289.	100	100	2.09	0.38	1.747	1.745
	100	99	0.9	0.626	2.443	1.992
290.	100	100	-0.53	-0.61	1.672	1.294
	100	98	-0.5	-0.775	2.289	1.891
291.	100	99	0.28	-0.939	1.518	1.689
	100	96	0.54	-0.791	2.066	2.112
292.	100	100	-0.72	1.4	1.551	1.723
	99	99	-0.545	0.888	1.891	2.249
293.	98	98	1.204	0.132	1.572	2.128
	99	97	0.555	0.175	2.051	2.340
294.	100	99	-1.15	-0.979	1.380	1.456
	100	100	-1.12	-0.82	1.759	2.12
295.	100	100	-1.13	1.59	1.630	1.272
	100	100	-0.68	0.92	2.150	2.48
296.	100	99	-0.01	0.646	1.772	1.624
	100	98	0.1	-0.010	2.231	1.992

TABLE 11

(Continued)

232

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
297.	100	98	1.93	0.163	2.046	1.564
	100	99	0.14	0.040	2.220	2.108
298.	100	100	−1.83	0.05	1.735	2.021
	100	100	−0.84	−0.11	1.894	2.196
299.	100	100	1.07	−0.29	1.571	1.558
	99	100	0.474	−0.16	2.006	2.048
300.	100	100	−0.81	−0.73	1.555	1.710
	99	100	0.131	−0.92	1.977	1.840
301.	100	100	−0.88	−0.54	1.821	1.760
	100	98	0.02	−0.387	2.282	2.132
302.	100	100	0.49	0.78	1.629	1.453
	100	99	0.74	0.666	2.213	1.979
303.	100	100	0.09	−0.67	1.511	1.620
	97	100	0.216	−0.18	1.995	2.085
304.	100	100	−0.18	−0.34	1.321	1.742
	98	99	−0.469	0.030	2.116	2.533
305.	100	99	−0.13	0.888	1.330	1.300
	100	97	0.45	1.092	2.240	2.227
306.	100	100	0.13	1.25	1.345	1.565
	100	96	−0.01	0.895	1.817	2.134
307.	100	100	−0.52	−0.49	1.678	1.459
	99	99	0.101	−0.525	2.154	2.091
308.	100	100	−1.06	−0.54	1.733	1.559
	99	98	−0.434	−0.397	2.232	2.204
309.	100	100	1.44	0.82	1.513	1.771
	99	99	1.171	0.979	2.171	2.226
310.	100	100	−0.03	−0.81	1.242	1.535
	99	99	0.080	−0.080	2.448	2.112
311.	99	100	−0.868	0.06	1.972	1.420
	98	99	−0.040	0.101	2.228	2.047

TABLE 11 233

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
312.	100	100	−2.11	0.41	1.49	1.477
	99	99	−1.080	0.343	2.097	2.209
313.	100	97	−0.67	1.072	1.880	1.501
	98	100	−0.632	1.08	2.082	2.120
314.	100	100	−0.23	0.15	1.797	1.898
	100	95	0.05	0.463	2.133	2.628
315.	100	99	0.6	−0.939	1.632	1.942
	100	99	−0.69	0.282	2.223	2.249
316.	100	100	0.08	0.06	1.502	1.680
	98	97	0.102	−0.731	2.290	2.224
317.	100	100	0.57	0.06	1.365	1.680
	100	100	−0.53	−0.01	2.066	2.285
318.	100	99	0.41	−0.646	1.781	1.553
	100	100	−0.33	−0.37	2.225	2.120
319.	100	100	0.21	−1.11	1.327	1.530
	99	100	−0.252	−1.43	1.853	1.913
320.	100	100	2.47	0.82	1.553	1.346
	100	99	0.26	0.636	2.472	2.269
321.	100	100	−0.26	0.37	1.709	1.643
	99	99	−0.212	−0.666	2.181	2.166
322.	99	100	0.848	0.52	1.649	1.749
	99	99	0.171	−0.323	2.050	2.230
323.	100	100	0.99	0.57	1.598	1.289
	100	98	−0.38	0.510	2.352	1.960
324.	100	100	0.2	0.7	1.483	1.660
	98	99	−0.459	0.030	2.192	2.229
325.	100	100	1.06	0.05	1.482	1.395
	100	97	−0.39	0.195	1.999	2.172
326.	100	100	−0.13	0.27	1.586	1.575
	98	99	−0.174	0.030	1.931	2.077

TABLE 11 234

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
327.	100	100	−0.45	0.22	1.610	1.987
	98	98	0.030	−1.020	1.918	2.449
328.	100	100	−0.11	−0.38	1.309	1.440
	100	98	0.0	−0.826	1.864	2.061
329.	100	100	1.41	−1.36	1.826	1.636
	100	99	0.34	−0.767	2.243	2.069
330.	100	100	1.262	−0.27	1.619	1.549
	99	97	−0.262	0.164	2.145	2.163
331.	100	100	0.43	0.19	1.458	1.426
	100	99	−0.17	0.393	2.183	1.867
332.	100	99	0.06	1.696	1.745	1.644
	100	99	0.21	−0.202	2.244	2.249
333.	100	100	1.73	0.2	1.549	1.809
	100	100	0.99	0.04	2.032	2.107
334.	100	100	2.06	−0.6	2.063	1.687
	99	98	0.181	−0.714	2.479	1.070
335.	100	99	−1.35	0.171	1.689	1.332
	99	98	−0.363	−0.714	2.052	2.248
336.	99	99	1.040	1.564	1.377	1.564
	99	99	0.545	0.636	2.026	2.265
337.	100	100	−0.12	1.1	1.444	1.337
	100	100	0.32	0.74	2.273	2.120
338.	100	100	−0.52	−0.02	1.956	2.069
	100	98	−0.51	−0.306	2.134	2.343
339.	100	99	0.03	−0.484	1.772	1.649
	100	100	−0.13	−0.63	1.894	2.120
340.	100	99	0.6	1.676	1.510	1.448
	100	98	0.63	0.908	2.003	1.979
341.	100	100	1.53	0.89	1.707	2.241
	100	98	0.77	0.285	2.107	2.474

TABLE 11

235

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
342.	100	100	−1.95	−0.59	1.713	1.787
	99	100	−0.959	−0.73	2.024	2.269
343.	99	99	0.585	−0.080	1.900	1.543
	100	99	0.14	0.191	2.274	2.126
344.	100	99	−1.71	0.626	1.677	1.418
	100	100	−0.2	0.84	2.117	2.085
345.	99	100	−1.0	0.24	1.905	1.627
	99	99	−0.090	0.606	2.295	2.212
346.	100	99	0.81	−1.141	1.637	1.511
	100	99	0.72	−0.959	2.040	2.147
347.	100	100	0.23	0.1	1.656	1.726
	100	99	0.13	−0.161	2.263	2.319
348.	100	99	0.06	−0.626	1.529	1.699
	98	100	−0.367	−0.28	2.037	2.160
349.	98	100	0.193	−0.67	1.738	1.602
	97	99	−0.010	−0.535	2.247	2.335
350.	99	100	−0.151	0.49	1.514	1.424
	100	99	0.25	1.141	1.986	2.086
351.	100	100	0.02	1.56	2.02	1.603
	96	99	0.114	1.121	2.270	2.086
352.	100	100	−1.79	−0.63	1.748	1.433
	99	97	−0.474	−0.443	2.110	2.061
353.	100	100	0.25	0.69	1.343	1.921
	100	99	0.18	0.0	2.119	2.377
354.	99	99	−0.030	−1.292	1.600	1.624
	98	99	0.408	−0.131	2.223	2.136
355.	100	100	0.73	−0.06	1.691	1.802
	100	95	−0.26	−0.094	2.389	2.149
356.	100	100	−2.36	0.4	1.406	1.769
	100	99	−1.1	0.434	2.067	2.143

TABLE 11

236

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
357.	100	100	0.13	0.525	1.899	1.599
	99	99	-0.515	0.565	1.996	2.167
358.	100	98	1.09	0.765	1.781	1.597
	100	96	0.3	0.729	2.115	2.346
359.	99	100	1.030	-1.24	2.032	1.770
	99	100	0.469	-1.07	2.450	2.279
360.	100	100	-0.66	-0.35	1.996	2.011
	100	100	0.0	-0.9	2.265	2.367
361.	100	100	0.53	-0.11	1.395	1.441
	98	99	0.061	-0.737	1.903	2.043
362.	100	100	1.14	-0.88	1.563	1.609
	100	97	-0.1	-0.061	2.240	2.040
363.	99	100	-0.030	-2.02	1.656	1.711
	99	97	-0.181	-1.061	2.214	2.281
364.	100	100	1.64	1.59	1.636	1.815
	98	99	0.448	1.242	2.359	2.286
365.	99	100	-0.292	0.55	1.486	1.635
	99	99	-0.606	-0.262	2.044	2.136
366.	100	99	0.86	0.898	1.984	1.600
	100	99	0.01	-0.292	2.320	2.100
367.	99	100	0.717	0.65	1.761	1.622
	99	100	0.101	0.4	2.353	2.035
368.	99	100	1.060	-0.12	1.405	1.526
	99	100	0.434	-0.41	1.943	2.122
369.	100	98	1.03	-0.255	1.598	1.626
	100	99	-0.1	-0.161	2.002	2.179
370.	100	100	-1.13	-0.94	1.630	1.704
	100	98	-0.68	-1.0	2.150	2.158
371.	100	100	0.58	0.38	1.634	1.973
	99	99	0.313	-0.535	2.160	2.446

TABLE 11

237

(Continued)

ITEM	N S-D	H-L	MEAN S-D	H-L	STD DEV S-D	H-L
372.	100	100	0.67	0.71	1.550	1.552
	100	98	0.5	0.469	2.171	2.046
373.	100	99	0.06	-1.070	1.277	1.624
	100	99	0.06	-0.585	2.154	2.094
374.	100	100	-0.76	0.25	1.990	1.552
	100	100	0.08	0.45	2.241	2.152
375.	100	99	1.79	0.585	1.719	1.269
	100	100	0.76	0.68	2.070	2.029
376.	99	100	0.101	0.97	1.358	1.359
	100	100	-0.26	0.49	2.057	2.071
377.	98	99	-0.204	0.060	1.391	1.530
	100	98	-0.66	-0.061	1.810	2.055
378.	100	100	0.32	1.19	1.270	1.643
	99	100	-0.090	0.83	1.884	2.089
379.	99	100	0.474	0.51	1.902	1.560
	100	99	0.18	-0.222	2.302	2.131
380.	100	99	-1.74	-0.757	1.618	1.565
	99	99	-0.777	-1.161	1.935	1.967
381.	100	98	-0.16	0.561	1.419	1.443
	100	99	-0.26	-0.282	1.872	2.055
382.	100	100	-0.52	-0.67	1.956	1.901
	98	99	-0.081	-0.282	2.646	2.334
383.	100	100	0.64	-0.91	1.514	1.422
	100	99	0.27	-0.494	1.984	2.017
384.	100	100	0.28	0.82	1.511	1.771
	100	99	0.79	0.979	2.011	2.226
385.	100	100	-0.28	1.16	1.595	1.331
	99	99	-0.040	0.323	2.221	2.193
386.	100	100	0.43	1.09	1.816	1.712
	100	99	-0.16	0.414	2.237	2.399

TABLE 11

238

(Continued)

ITEM	N		MEAN		STD DEV	
	S–D	H–L	S–D	H–L	S–D	H–L
387.	100	100	−0.98	−0.66	1.763	1.564
	99	100	−0.545	−0.16	2.237	1.988
388.	100	100	0.59	0.57	1.787	1.401
	100	99	0.19	0.686	2.303	2.206
389.	100	98	−1.39	0.408	1.728	1.405
	97	98	−0.381	0.765	2.176	2.171
390.	100	100	−1.09	−1.04	1.747	1.510
	98	100	−0.673	−0.64	2.143	2.153
391.	100	100	0.15	−0.54	1.635	1.666
	98	96	0.071	−0.260	2.183	2.327
392.	100	100	−0.1	−0.23	1.766	1.739
	100	99	−0.15	0.030	2.133	2.159
393.	100	99	0.0	−0.828	1.563	1.421
	99	99	−0.585	−0.171	2.190	2.035
394.	100	100	0.52	−0.42	1.617	1.627
	99	98	0.010	0.010	2.168	2.277
395.	100	100	−0.64	−1.14	1.560	1.582
	100	100	−0.37	−0.12	1.972	2.262
396.	100	100	−1.01	1.15	1.573	1.760
	100	99	−0.63	0.919	2.087	1.977
397.	100	100	−1.82	0.09	1.305	1.436
	100	99	−0.99	−0.565	1.977	2.186
398.	100	100	0.48	−0.31	1.598	1.998
	100	98	−0.04	−0.418	1.938	2.186
399.	98	100	0.775	−0.7	1.744	1.431
	98	99	0.020	−0.242	2.445	1.933
400.	100	100	−0.74	−0.39	1.528	1.650
	100	100	−0.59	−0.71	2.094	2.203
401.	100	100	−2.73	−0.08	1.556	1.419
	98	98	−1.071	−0.255	2.145	2.032

TABLE 11

239

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
402.	100	100	0.56	0.32	1.610	1.763
	100	98	0.25	0.091	1.908	2.173
403.	99	99	2.101	0.121	1.366	1.939
	98	96	0.561	-0.843	2.201	1.943
404.	100	100	0.84	-1.09	1.840	1.450
	98	99	-0.061	-0.555	2.371	2.124
405.	99	98	-0.727	-1.673	1.701	1.360
	100	99	-0.55	-1.090	2.171	2.171
406.	100	100	0.72	0.5	1.524	1.446
	98	98	-0.336	0.438	2.205	2.115
407.	100	99	0.9	0.505	1.487	1.521
	99	100	0.161	0.89	2.028	2.107
408.	100	100	0.19	-1.62	1.840	1.447
	100	98	-0.06	-1.438	2.168	2.206
409.	98	100	1.653	1.0	2.066	1.477
	97	100	0.567	0.62	2.466	2.013
410.	99	100	-0.565	-0.4	1.363	1.589
	100	97	-0.07	-0.443	2.252	2.140
411.	100	99	1.51	0.393	1.956	1.524
	97	100	0.268	0.27	2.186	2.196
412.	100	100	1.55	1.09	1.641	1.349
	98	100	0.051	0.81	2.072	2.063
413.	100	99	0.89	-0.595	1.650	1.900
	100	97	0.27	-0.432	2.251	2.340
414.	100	100	0.02	0.57	1.717	1.289
	100	99	-0.48	0.797	2.110	2.281
415.	100	99	0.22	0.191	1.749	1.657
	100	98	-0.17	0.234	2.094	2.218
416.	100	99	-0.53	0.919	1.438	1.682
	100	99	-0.14	0.303	2.457	2.251

TABLE 11   240

(Continued)

ITEM	N S-D	N H-L	MEAN S-D	MEAN H-L	STD DEV S-D	STD DEV H-L
417.	100	100	0.04	0.43	1.118	1.646
	98	99	0.285	−0.111	2.025	2.316
418.	100	100	−0.72	−1.31	1.923	1.508
	100	100	−0.14	−1.14	2.155	2.000
419.	100	100	1.83	−1.08	1.544	1.667
	99	100	0.858	−0.69	2.180	2.154
420.	100	100	0.84	1.15	1.276	1.452
	98	100	0.632	0.91	2.007	2.170
421.	100	99	0.71	1.121	1.444	1.214
	98	99	0.142	0.555	2.090	2.041
422.	100	100	0.01	−0.05	2.047	1.799
	98	100	0.663	−0.18	2.205	2.266
423.	100	100	1.6	1.08	1.663	1.593
	99	99	1.0	1.020	2.055	2.128
424.	100	100	−0.83	0.51	1.826	1.487
	99	99	−0.141	0.585	2.094	1.943
425.	100	100	1.01	0.49	1.850	1.560
	100	98	−0.47	−0.285	2.167	2.100
426.	100	100	−0.38	0.58	1.656	1.304
	100	99	0.22	1.080	2.236	1.904
427.	100	100	1.45	0.26	1.940	1.773
	98	100	−0.030	0.78	2.073	2.267
428.	100	99	−0.39	0.151	1.543	1.698
	98	99	0.5	−0.111	2.091	2.069
429.	100	100	0.51	1.09	1.527	1.747
	98	100	0.285	0.38	2.149	2.078
430.	100	99	1.13	1.111	1.957	1.577
	100	99	0.06	0.787	2.304	2.036
431.	100	99	−1.48	0.191	1.904	1.844
	99	100	−1.040	0.14	1.979	2.136

TABLE 11   241

(Continued)

ITEM	N		MEAN		STD DEV	
	S-D	H-L	S-D	H-L	S-D	H-L
432.	100	100	1.28	1.08	1.682	1.346
	100	99	0.15	1.101	2.362	1.956
433.	100	99	-1.23	-0.565	1.529	1.715
	100	99	-1.87	-0.363	2.153	2.062
434.	100	99	-0.93	-1.161	1.724	1.682
	100	100	-0.88	-0.67	1.991	2.160
435.	100	99	0.18	-0.101	1.546	1.669
	100	100	0.75	-0.32	1.996	2.155
436.	100	100	0.16	0.55	1.580	1.647
	98	100	0.622	-0.26	1.875	2.325
437.	100	100	0.29	-0.97	1.208	1.610
	100	100	0.54	-0.58	2.037	2.109
438.	100	100	0.28	-0.93	1.470	1.689
	99	98	0.202	-0.632	2.276	2.042
439.	100	100	-0.08	0.81	1.574	1.323
	97	100	0.216	0.96	2.411	2.088
440.	100	100	-0.01	1.16	1.766	1.331
	97	99	0.701	0.323	2.712	2.193

Appendix D

Table 16

Ranked Angular Placement, Sines, and Cosines of the
440 PRF Items from the Two-Dimensional Scaling Procedure
by the English-Speaking Subjects. The Positive and the
Negative Signs of the Sines and Cosines were Deleted
Except where the Sign Changes

Item	Angular Rank	Vector Length	Sine	Cosine
247	000.00	1.070	0.000	1.000
351	0.73	1.560	.012	.999
243	1.212	1.890	.021	.999
110	1.537	1.505	.026	.999
104	1.909	0.600	.033	.999
414	2.009	0.570	.035	.999
332	2.025	1.698	.035	.999
22	3.814	1.653	.066	.997
193	4.810	0.491	.083	.996
417	5.314	0.431	.092	.995
306	5.937	1.256	.103	.994
376	5.945	0.975	.103	.994
213	7.883	0.656	.137	.990
17	8.956	1.881	.155	.987
192	13.717	1.307	.237	.971
357	13.901	0.541	.240	.970
194	14.099	0.704	.243	.969
282	14.553	1.074	.251	.967
378	15.051	1.232	.259	.963
109	15.566	1.467	.268	.963
324	15.945	0.728	.274	.961
436	16.220	0.572	.279	.960
124	18.083	0.515	.310	.950
384	18.853	0.866	.323	.946
173	19.348	1.388	.331	.943
340	19.688	1.780	.336	.941
533	19.916	0.733	.340	.940
73	20.071	2.140	.343	.939
117	20.367	1.810	.348	.937
42	20.637	1.986	.352	.945
386	21.529	1.171	.366	.930
59	21.893	1.153	.372	.927
237	21.909	1.045	.373	.927
429	25.074	1.203	.423	.905
86	25.106	1.932	.424	.905
40	25.124	1.695	.424	.905
206	25.407	1.328	.429	.903
134	25.630	1.456	.432	.901

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
65	26.074	1.903	.439	.898
128	27.024	1.672	.545	.890
264	30.529	0.905	.507	.861
15	31.049	1.762	.515	.856
113	31.715	1.046	.525	.850
302	32.137	0.921	.531	.846
421	32.343	1.327	.543	.844
6	32.659	2.363	.539	.841
279	33.111	0.274	.546	.837
46	33.657	1.371	.554	.832
101	34.721	1.386	.569	.821
147	34.797	1.522	.570	.821
262	34.968	1.981	.573	.819
66	35.455	2.430	.580	.814
420	36.145	1.424	.589	.807
266	36.315	0.795	.592	.905
84	37.974	1.332	.615	.802
272	38.138	1.716	.617	.786
94	38.198	1.552	.618	.785
217	38.659	1.177	.624	.780
227	38.811	0.590	.626	.779
151	40.181	0.789	.645	.764
183	42.214	1.309	.671	.740
47	42.324	1.530	.673	.739
379	42.395	0.704	.674	.738
258	42.599	1.181	.676	.736
372	43.339	0.976	.686	.727
36	43.453	1.294	.687	.725
366	43.730	1.244	.691	.722
163	44.157	0.961	.696	.717
430	45.482	1.584	.713	.701
38	45.564	1.471	.714	.700
364	45.886	2.284	.717	.696
388	45.987	0.820	.719	.694
336	46.134	1.443	.720	.692
367	47.812	0.967	.740	.671
415	48.899	0.291	.753	.657
432	49.844	1.674	.764	.644
268	50.123	1.029	.767	.641
13	50.401	1.505	.770	.637
288	51.170	1.578	.779	.627
179	52.989	1.628	.798	.601
231	53.348	2.630	.802	.596
29	53.835	1.746	.807	.590

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
103	54.310	0.554	.812	.583
90	54.381	1.648	.812	.582
412	54.884	1.894	.817	.575
358	54.926	1.331	.818	.574
275	55.150	1.645	.820	.571
406	55.222	0.876	.821	.570
242	55.437	0.546	.823	.567
423	55.980	1.930	.828	.559
371	56.768	0.693	.836	.548
156	57.397	2.338	.842	.538
175	57.528	1.173	.843	.536
19	58.291	1.210	.850	.525
322	58.497	0.995	.852	.522
409	58.828	1.932	.855	.517
341	59.813	1.770	.864	.502
323	60.068	1.142	.866	.498
402	60.255	0.644	.868	.496
309	60.340	1.657	.868	.494
260	60.642	0.367	.871	.490
407	60.700	1.032	.872	.489
120	61.645	0.715	.880	.474
285	62.020	1.811	.883	.469
3	62.237	0.935	.885	.464
145	62.564	0.933	.887	.460
190	62.616	1.565	.887	.459
425	64.119	1.122	.899	.436
283	64.269	0.921	.900	.434
97	64.589	2.424	.903	.429
141	64.666	2.290	.903	.427
331	66.161	0.470	.914	.404
347	66.501	0.250	.917	.398
111	66.925	1.597	.919	.391
144	67.919	2.367	.926	.375
142	69.775	2.429	.938	.345
249	70.534	1.230	.942	.333
91	71.114	0.803	.946	.323
169	71.114	0.803	.946	.323
320	71.844	2.599	.950	.311
375	71.877	1.884	.950	.311
2	72.610	1.907	.954	.298
188	74.981	1.987	.965	.259
200	75.256	0.196	.967	.254
411	75.378	1.560	.967	.252
130	75.689	1.073	.968	.247

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
189	76.527	1.604	.972	.232
63	76.981	1.775	.974	.225
118	77.688	2.036	.977	.213
289	79.695	2.124	.983	.178
427	79.834	1.473	.984	.176
245	80.937	1.650	.987	.157
61	81.573	0.272	.989	.146
333	83.406	1.741	.993	.114
207	83.421	1.620	.993	.111
293	83.713	1.211	.993	.109
317	83.991	0.573	.994	.104
297	85.165	1.936	.996	.084
403	86.698	2.104	.998	.057
12	86.743	1.244	.998	.056
325	87.299	1.061	.998	.047
278	89.063	1.222	.999	.016
234	89.604	1.474	.999	.006
160	90.573	2.000	.999	−0.010
69	91.397	0.414	.999	.024
30	91.892	2.141	.999	.033
67	93.013	2.282	.998	.052
138	94.355	1.053	.997	.075
100	94.467	1.283	.996	.077
222	95.080	1.254	.996	.088
165	95.301	0.984	.995	.092
355	95.440	0.632	.995	.094
368	96.455	1.067	.993	.112
53	97.154	2.408	.992	.124
343	97.853	0.591	.990	.136
186	98.445	2.315	.989	.146
148	101.421	0.816	.980	.198
361	101.725	0.541	.979	.203
233	101.886	2.621	.978	.205
330	102.070	1.291	.977	.201
277	103.298	2.044	.973	.229
369	103.911	1.061	.970	.240
99	104.583	1.270	.967	.251
299	105.164	1.108	.965	.261
209	106.045	1.498	.961	.276
334	106.239	2.145	.960	.279
170	106.375	0.573	.959	.281
152	106.504	0.844	.958	.284
71	107.969	1.555	.951	.308
55	108.469	1.307	.948	.316

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
9	109.152	1.767	.944	.328
235	109.616	0.268	.941	.335
25	110.102	0.788	.939	.343
215	110.794	0.845	.934	.355
254	111.037	0.835	.933	.358
196	111.216	1.973	.932	.361
11	112.469	1.374	.924	.382
77	113.409	1.787	.917	.397
241	114.813	2.214	.907	.419
226	115.378	1.726	.903	.428
181	115.656	1.586	.901	.432
220	117.429	1.240	.887	.460
176	118.413	0.693	.879	.475
115	118.771	2.555	.876	.481
435	119.300	0.204	.872	.489
199	119.898	0.749	.866	.498
204	119.962	0.981	.866	.499
419	120.548	2.124	.861	.508
281	120.784	1.094	.859	.511
50	121.093	0.929	.856	.516
155	122.231	0.974	.845	.533
398	122.856	0.571	.840	.542
413	123.807	1.071	.830	.556
362	127.666	1.440	.791	.611
18	128.024	1.688	.787	.615
82	128.062	1.346	.787	.616
92	128.154	2.060	.786	.617
224	128.833	0.937	.778	.627
394	128.928	0.668	.777	.628
191	130.081	0.792	.765	.643
184	130.143	1.085	.764	.644
23	130.236	1.532	.763	.645
57	130.333	0.695	.762	.647
399	132.070	1.044	.742	.670
329	133.966	1.959	.719	.694
56	134.119	0.919	.717	.696
136	138.366	2.408	.664	.747
359	140.277	1.612	.639	.769
228	141.221	1.500	.626	.779
14	141.251	0.936	.625	.779
27	141.413	1.731	.623	.781
404	142.381	1.376	.610	.792
238	143.641	0.489	.592	.794
24	143.979	1.564	.588	.808

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Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
346	144.639	1.399	.578	.815
383	144.881	1.112	.575	.817
4	145.057	1.903	.572	.819
315	147.433	1.114	.538	.842
318	147.616	0.765	.535	.844
62	147.711	1.684	.534	.845
270	148.899	1.681	.516	.856
95	149.036	0.874	.514	.857
48	149.466	1.474	.508	.861
74	151.477	0.523	.477	.878
257	151.489	0.921	.477	.878
43	153.625	1.350	.444	.895
284	154.514	0.906	.430	.902
214	155.095	0.308	.421	.907
87	155.985	1.105	.406	.913
135	160.920	1.101	.326	.945
32	161.365	0.907	.319	.947
438	163.244	0.971	.288	.957
437	163.355	1.012	.286	.958
291	163.403	0.980	.285	.958
269	163.422	1.507	.285	.958
349	163.861	0.697	.277	.960
391	164.476	0.560	.367	.963
116	167.047	1.026	.224	.974
422	168.690	0.050	.196	.980
319	169.287	1.129	.185	.982
158	169.392	0.760	.184	.982
64	169.893	1.554	.175	.984
20	170.838	0.951	.159	.987
34	171.469	0.404	.148	.988
150	171.551	1.597	.146	.989
316	171.879	0.565	.141	.989
303	172.349	0.676	.133	.991
41	173.136	1.087	.119	.992
408	173.311	1.631	.116	.993
348	174.527	0.629	.095	.995
339	176.459	0.485	.061	.998
373	176.793	1.072	.055	.998
197	177.926	0.828	.036	.999
280	178.472	0.757	.026	.999
171	178.493	0.380	.026	.999
127	180.000	0.285	0.000	1.000
172	180.000	0.160	.000	1.000
393	180.000	0.828	.000	1.000
363	180.859	2.020	-0.014	.999
354	181.343	1.293	.023	.999

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
310	182.121	0.810	.037	.999
102	183.668	0.781	.063	.997
232	183.814	1.052	.066	.997
76	184.316	0.531	.075	.997
149	184.443	0.651	.077	.996
273	186.058	1.257	.105	.994
7	186.499	1.338	.113	.993
28	186.843	1.007	.119	.992
106	188.443	1.294	.146	.989
225	188.669	1.072	.150	.988
139	189.518	1.693	.165	.986
239	190.305	0.559	.178	.983
131	192.651	0.737	.219	.975
37	193.045	0.487	.225	.974
51	193.675	1.523	.236	.971
195	196.123	1.332	.277	.960
328	196.144	0.395	.278	.960
126	200.898	0.594	.356	.934
185	201.038	1.125	.358	.933
58	201.493	0.634	.366	.930
229	201.673	1.543	.369	.929
137	202.023	0.960	.374	.927
212	203.207	0.710	.394	.919
405	203.489	1.824	.398	.917
392	203.499	0.250	.398	.917
123	203.710	0.753	.402	.915
68	205.608	1.411	.432	.901
221	206.622	0.939	.448	.893
72	206.911	1.480	.452	.891
8	206.932	2.097	.452	.891
250	207.072	1.010	.455	.890
265	207.265	0.829	.458	.888
304	207.897	0.384	.467	.883
418	208.794	1.494	.481	.876
201	209.034	1.248	.485	.874
395	209.310	1.307	.489	.871
140	209.585	1.782	.493	.869
78	210.607	1.302	.509	.860
125	212.998	0.919	.544	.838
271	214.881	0.865	.571	.820
52	215.484	1.240	.580	.814
1	216.638	2.630	.568	.802
146	216.870	0.100	.600	.799
382	217.816	0.848	.613	.789

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
434	218.681	1.488	.624	.780
112	218.861	1.117	.627	.778
274	219.335	2.055	.633	.773
10	219.579	0.973	.637	.770
161	220.886	0.740	.654	.756
290	220.986	0.808	.655	.754
236	221.583	0.949	.663	.747
88	224.441	1.442	.700	.713
390	226.345	1.506	.723	.690
240	226.538	2.107	.725	.687
96	226.677	2.694	.727	.686
307	226.701	0.714	.727	.685
44	226.736	1.867	.728	.685
244	226.834	0.191	.729	.684
132	227.252	1.222	.734	.678
129	227.313	0.707	.733	.677
300	227.974	1.090	.742	.669
108	229.099	0.641	.755	.654
79	229.497	1.262	.760	.649
294	229.569	1.510	.761	.648
370	230.244	1.469	.768	.639
205	230.374	2.038	.770	.637
157	232.125	1.710	.789	.613
211	232.928	0.962	.797	.602
410	234.734	0.692	.816	.577
85	235.919	1.279	.828	.561
83	235.954	0.446	.828	.559
387	236.041	1.181	.829	.558
255	237.735	1.608	.845	.533
167	237.978	1.462	.847	.530
301	238.465	1.032	.852	.523
256	240.734	1.673	.872	.488
122	240.736	1.329	.872	.488
360	242.063	0.747	.883	.468
400	242.210	0.836	.884	.466
263	242.523	1.668	.887	.461
259	242.987	0.572	.890	.454
308	243.004	1.189	.891	.453
433	245.303	1.353	.908	.417
177	245.889	1.566	.912	.408
380	246.472	1.897	.916	.399
143	248.003	1.895	.927	.374
166	249.831	1.757	.938	.344
352	250.610	1.897	.943	.331

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
60	251.215	0.285	.946	.332
218	252.921	1.838	.955	.293
342	253.166	2.037	.957	.289
35	260.014	1.106	.984	.173
187	261.140	1.639	.988	.154
267	262.507	1.936	.991	.130
93	263.737	0.824	.994	.109
49	263.991	0.764	.994	.104
168	264.191	1.397	.994	.101
174	266.934	1.682	.998	.053
338	267.797	0.520	.999	.038
401	268.322	2.731	.999	.029
298	271.565	1.830	.999	+0.027
397	272.831	1.822	.998	.049
311	273.951	0.870	.997	.068
178	274.208	1.514	.997	.073
210	275.864	1.859	.994	.102
335	277.249	1.360	.992	.126
431	277.389	1.492	.991	.128
356	279.620	2.393	.985	.167
312	280.996	2.149	.981	.190
208	281.261	2.304	.980	.195
253	281.367	1.978	.980	.197
345	283.496	1.028	.972	.233
133	285.401	2.510	.964	.265
89	285.985	1.997	.961	.275
389	286.364	1.448	.959	.281
377	286.540	0.212	.958	.284
75	287.605	2.182	.953	.302
374	288.208	0.800	.949	.312
164	288.778	1.584	.946	.321
33	289.972	2.101	.940	.341
344	290.114	1.821	.939	.343
107	290.309	2.057	.937	.347
428	291.231	0.418	.932	.362
5	292.192	2.170	.925	.377
121	292.537	1.591	.923	.383
327	296.053	0.500	.898	.439
203	297.031	1.369	.890	.454
223	297.937	1.811	.883	.468
182	298.227	1.646	.880	.473
114	299.395	1.101	.871	.490
424	301.569	0.974	.852	.523
70	302.276	2.247	.845	.533

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
39	303.111	0.274	.837	.549
314	303.111	0.274	.837	.549
54	303.690	1.550	.832	.554
31	304.249	2.189	.826	.562
286	304.641	0.668	.822	.568
119	304.869	2.291	.820	.571
159	305.083	1.036	.818	.574
202	309.661	0.415	.769	.638
246	311.424	0.226	.749	.661
219	313.466	1.584	.725	.687
276	315.000	1.371	.707	.707
396	318.708	1.530	.659	.751
16	320.906	0.416	.630	.776
261	321.520	0.996	.622	.782
252	322.630	0.889	.606	.794
230	324.338	1.628	.583	.812
295	324.599	1.950	.579	.815
321	324.904	0.452	.574	.818
426	326.768	0.683	.548	.836
248	327.628	1.326	.535	.844
313	327.999	1.264	.529	.848
154	329.416	1.091	.508	.860
416	330.033	1.061	.499	.866
365	331.960	0.623	.470	.882
45	332.703	2.136	.458	.888
292	332.784	1.574	.457	.889
326	334.290	0.299	.433	.901
26	335.104	2.447	.420	.907
98	336.949	1.021	.391	.920
287	339.274	1.598	.353	.935
180	340.498	1.028	.333	.942
80	341.737	1.053	.313	.949
350	342.818	0.512	.295	.955
251	343.301	3.027	.287	.957
381	344.088	0.583	.274	.961
81	344.327	1.308	.270	.962
385	346.430	1.193	.234	.972
162	347.863	1.902	.210	.977
21	348.292	1.385	.202	.979
105	350.538	0.669	.164	.986
305	351.679	0.898	.144	.989
153	353.108	1.750	.119	.992
337	353.774	1.106	.108	.994
439	354.359	0.813	.098	.995

Table 16

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
216	358.617	0.414	.024	.999
296	359.114	0.646	.015	.999
198	359.268	1.565	.012	.999
440	359.506	1.160	.008	.999

Appendix E

Table 17

Ranked Angular Placement, Sines, and Cosines of the
440 PRF Items from the Two-Dimensional Scaling Procedure
by the Non-English-Speaking Subjects. The Positive and the
Negative Signs of the Sines and Cosines were Deleted Except where the Sign Changes

Item	Angular Rank	Vector Length	Sine	Cosine
275	0.000	0.900	0.000	1.000
6	.861	1.330	.015	.999
251	3.503	1.502	.061	.998
412	3.604	0.811	.062	.998
73	4.143	1.660	.072	.997
430	4.354	0.790	.075	.997
46	5.654	1.025	.098	.995
351	5.835	1.127	.101	.994
314	6.161	0.465	.107	.994
117	6.797	1.520	.118	.992
113	7.166	1.442	.124	.992
432	7.758	1.111	.134	.990
128	9.108	0.638	.158	.987
374	10.080	0.457	.175	.984
407	10.292	0.904	.178	.983
179	10.545	1.048	.183	.983
426	11.525	1.102	.199	.979
22	12.053	1.053	.208	.977
350	12.354	1.168	.213	.976
439	12.708	0.984	.219	.975
118	13.861	0.817	.239	.970
367	14.172	0.412	.244	.969
421	14.420	0.573	.249	.968
262	15.275	1.214	.263	.964
388	15.464	0.712	.266	.963
38	16.276	1.427	.280	.959
151	17.528	1.321	.301	.953
42	17.684	1.448	.303	.952
86	18.435	1.233	.316	.948
211	18.604	0.094	.319	.967
364	19.868	1.321	.339	.940
16	20.731	0.370	.353	.935
36	21.489	1.364	.366	.930
268	21.929	0.838	.373	.927
320	22.223	0.687	.378	.925
358	22.363	0.788	.380	.924
305	22.381	1.181	.380	.924
337	23.385	0.806	.396	.917

Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
111	26.169	0.824	.441	.897
285	26.365	1.283	.444	.895
231	27.004	1.167	.453	.891
213	27.474	0.569	.461	.887
272	27.859	0.807	.467	.884
247	28.887	1.359	.483	.874
110	29.044	1.400	.485	.874
66	29.569	1.337	.493	.869
249	29.819	0.221	.497	.867
67	30.074	1.037	.501	.865
183	33.202	0.848	.547	.836
206	33.518	0.923	.552	.833
59	34.323	0.354	.563	.825
340	34.749	1.105	.569	.821
420	34.807	1.108	.570	.821
134	35.575	0.653	.581	.813
343	36.110	0.237	.589	.807
109	36.384	0.963	.593	.805
429	36.939	0.475	.600	.799
141	37.349	0.965	.606	.794
90	37.846	1.010	.613	.789
227	38.200	1.138	.618	.785
15	38.660	0.960	.624	.780
384	38.879	1.258	.627	.778
336	40.601	0.383	.650	.759
142	41.392	0.786	.661	.750
409	42.444	0.840	.674	.737
423	44.427	1.428	.700	.714
394	44.709	0.014	.703	.710
411	44.791	0.380	.704	.708
372	46.809	0.685	.729	.684
12	47.785	0.506	.740	.671
302	47.984	0.996	.742	.669
375	48.180	1.019	.745	.666
309	50.095	1.527	.767	.641
175	52.306	0.567	.791	.611
190	52.943	0.614	.798	.602
29	54.934	1.270	.818	.574
289	55.168	1.096	.820	.571
258	55.470	0.837	.823	.566
243	57.156	0.845	.840	.542
209	57.247	0.247	.841	.541
61	61.876	0.238	.881	.471
97	62.063	0.452	.883	.468

Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
13	63.956	0.901	.898	.439
288	64.767	0.981	.904	.426
440	65.246	0.771	.908	.418
2	65.987	0.663	.913	.406
245	66.038	0.547	.913	.406
169	66.541	0.577	.917	.398
341	69.642	0.821	.937	.347
402	69.829	0.266	.938	.344
30	70.742	0.918	.944	.329
63	71.131	0.834	.946	.323
293	72.491	0.582	.953	.300
297	73.902	0.145	.960	.277
53	75.069	0.465	.966	.257
34	75.903	0.804	.969	.243
103	77.407	0.683	.975	.218
50	78.800	0.257	.980	.194
264	83.246	0.780	.993	.117
155	87.481	0.454	.999	.043
35	87.639	0.750	.999	.041
333	87.686	0.990	.999	.040
156	89.153	0.676	.999	.014
353	90.000	0.180	1.000	0.000
296	95.826	0.100	.999	−0.101
144	102.200	0.382	.997	.211
428	102.529	0.512	.976	.216
76	104.931	0.155	.966	.257
130	105.079	0.449	.965	.260
422	105.183	0.687	.965	.261
32	105.275	0.607	.964	.263
354	107.834	0.428	.951	.306
299	108.625	0.500	.947	.319
18	108.734	0.454	.947	.321
417	111.250	0.396	.932	.362
71	112.136	0.583	.926	.376
436	112.671	0.674	.922	.385
176	113.051	0.842	.920	.391
435	113.106	0.815	.919	.392
214	113.806	0.375	.914	.403
233	114.613	0.955	.909	.416
254	120.763	0.139	.859	.511
115	122.876	0.976	.839	.542
186	123.690	0.764	.832	.510
27	125.609	0.583	.813	.509
202	126.110	0.237	.807	.589

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Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
228	127.965	0.431	.788	.615
204	128.660	0.512	.780	.624
419	128.787	1.104	.779	.626
303	129.741	0.281	.768	.639
165	130.050	0.910	.765	.643
368	133.349	0.597	.727	.686
332	133.890	0.291	.720	.693
212	134.370	0.650	.714	.699
194	134.421	0.042	.714	.699
69	134.767	1.464	.709	.704
241	134.863	0.959	.708	.705
310	135.000	0.114	.707	.707
207	136.620	0.305	.686	.726
437	137.045	0.792	.681	.731
148	137.313	1.264	.677	.735
106	137.640	0.636	.673	.738
196	138.290	0.455	.665	.746
244	138.523	0.326	.662	.749
220	138.827	0.835	.658	.752
226	139.635	0.262	.647	.761
281	140.927	1.300	.630	.776
379	140.993	0.285	.629	.777
74	141.072	0.337	.628	.777
347	141.188	0.207	.626	.779
11	141.782	0.571	.618	.785
149	141.971	0.977	.615	.787
346	143.119	1.199	.600	.799
257	143.230	0.920	.598	.801
291	145.702	0.958	.563	.826
403	146.370	1.013	.553	.832
413	148.054	0.510	.529	.848
371	149.676	0.620	.504	.863
383	151.387	0.563	.478	.877
82	151.834	1.455	.472	.881
322	152.021	0.366	.469	.883
9	152.964	0.635	.455	.890
271	153.665	0.495	.443	.896
163	154.815	0.446	.425	.904
222	155.879	0.741	.408	.912
329	156.112	0.839	.404	.914
359	156.314	1.168	.401	.915
224	157.574	1.176	.381	.924
181	158.558	1.353	.365	.930
150	159.530	0.657	.349	.936

Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
195	159.829	0.799	.344	.938
23	160.201	0.531	.338	.940
282	160.714	0.374	.330	.943
438	162.291	0.664	.304	.952
62	163.287	2.002	.287	.957
391	164.662	0.270	.264	.964
136	164.908	0.921	.260	.965
334	165.719	0.737	.246	.969
25	167.076	1.490	.223	.974
166	167.196	0.225	.221	.975
55	167.391	0.778	.218	.975
307	169.114	0.534	.188	.982
232	170.083	0.527	.172	.985
188	171.027	0.577	.155	.987
283	171.027	0.192	.155	.987
300	171.877	0.929	.141	.989
137	171.948	0.499	.140	.990
316	172.064	0.739	.138	.990
43	173.258	0.681	.117	.993
168	173.357	0.172	.115	.993
238	174.112	0.974	.102	.994
373	174.153	0.588	.101	.994
64	174.336	1.215	.098	.995
399	175.188	0.243	.083	.996
361	175.254	0.739	.082	.996
301	177.047	0.388	.051	.998
366	178.045	0.293	.034	.999
129	178.067	0.889	.033	.999
327	178.282	1.020	.029	.999
269	179.279	1.606	.012	.999
280	179.546	1.252	.007	.999
174	180.000	0.490	0.000	−1.000
328	180.000	0.826	.000	1.000
360	180.000	0.900	.000	1.000
98	180.000	0.520	.000	1.000
41	180.692	0.828	−0.012	.999
349	181.103	0.535	.019	.999
99	181.114	0.530	.019	.999
408	182.388	1.440	.041	.999
100	183.738	0.766	.065	.997
398	185.461	0.420	.095	.995
193	186.150	0.761	.107	.994
404	186.289	0.558	.109	.993
418	187.001	1.148	.121	.992

Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
239	187.970	0.504	.138	.990
102	188.572	0.271	.149	.988
270	188.652	1.153	.150	.988
246	188.973	0.448	.155	.987
410	188.973	0.448	.155	.987
85	189.648	1.024	.167	.985
363	189.716	1.077	.168	.985
28	189.981	0.466	.173	.984
319	190.015	1.452	.173	.984
284	190.749	0.437	.186	.982
339	191.659	0.643	.202	.979
120	192.529	0.092	.216	.976
24	195.395	0.875	.265	.964
123	195.680	0.598	.270	.962
382	196.100	0.294	.277	.960
135	196.780	0.554	.288	.957
321	197.650	0.699	.303	.952
131	199.613	0.668	.335	.941
167	199.983	0.532	.341	.939
138	200.169	0.117	.344	.938
112	201.833	0.700	.371	.928
201	201.854	0.732	.372	.928
184	202.068	0.399	.375	.926
171	202.212	0.110	.378	.925
140	202.522	1.028	.383	.923
93	203.085	0.663	.392	.919
240	203.408	0.915	.397	.924
158	203.538	0.951	.399	.916
52	203.556	1.355	.399	.916
277	203.842	0.349	.404	.914
229	203.897	0.740	.405	.914
182	204.821	0.881	.419	.907
279	205.476	0.587	.430	.902
197	205.995	0.645	.438	.898
8	206.259	0.862	.442	.896
405	206.756	1.221	.450	.892
4	207.150	0.876	.456	.889
92	207.691	0.946	.464	.885
265	208.052	0.433	.470	.882
87	208.062	1.040	.470	.882
51	208.235	0.845	.473	.881
189	209.554	0.418	.493	.869
256	209.624	0.592	.494	.869
235	209.745	0.322	.496	.868

Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
221	210.461	1.183	.506	.861
72	210.562	0.924	.508	.861
157	211.608	0.610	.524	.851
191	211.715	1.046	.525	.850
369	211.747	0.190	.526	.850
290	212.811	0.922	.541	.840
205	213.232	0.707	.548	.836
380	213.805	1.397	.556	.830
370	214.216	1.209	.562	.826
274	214.445	0.875	.565	.824
49	214.821	0.750	.571	.820
215	216.036	0.254	.588	.808
88	216.995	0.914	.601	.798
263	218.089	0.470	.616	.787
139	218.480	0.996	.622	.782
400	219.726	0.923	.639	.769
318	221.730	0.495	.665	.746
381	222.592	0.384	.676	.736
44	223.498	0.909	.688	.725
234	225.267	0.717	.710	.703
132	224.279	0.717	.710	.703
78	226.090	1.191	.720	.693
390	226.460	0.929	.724	.688
352	226.962	0.649	.730	.682
308	227.503	0.589	.737	.675
177	228.302	1.202	.746	.665
143	228.356	0.936	.747	.719
7	228.695	0.479	.751	.660
225	231.202	0.499	.779	.626
250	231.633	0.309	.784	.620
10	231.722	0.815	.785	.619
126	232.052	0.640	.788	.614
348	232.685	0.461	.795	.606
434	232.716	1.106	.795	.605
342	232.738	1.205	.795	.605
294	233.791	1.388	.806	.590
267	234.370	1.033	.812	.582
160	234.462	0.172	.813	.581
95	234.926	1.001	.818	.574
335	234.949	0.444	.818	.574
91	235.247	0.559	.821	.570
56	235.408	0.352	.823	.567
5	235.842	1.086	.827	.561
60	236.052	0.608	.829	.558

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Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
397	236.448	1.187	.833	.552
122	236.460	0.383	.833	.552
259	237.265	0.168	.841	.540
164	237.755	0.889	.845	.533
146	238.069	0.655	.848	.528
362	238.261	0.117	.850	.526
425	238.704	0.550	.854	.519
338	239.026	0.594	.857	.514
185	240.188	0.663	.867	.497
48	240.555	0.741	.870	.491
83	241.189	0.864	.876	.481
1	244.440	1.784	.902	.431
20	244.486	0.633	.902	.430
365	246.571	0.660	.917	.397
77	246.949	0.510	.920	.391
433	247.316	0.942	.922	.385
79	247.694	0.585	.925	.379
278	248.555	0.386	.930	.365
355	249.980	0.276	.939	.342
116	250.732	0.631	.943	.329
96	251.603	1.339	.948	.315
187	251.710	1.095	.949	.313
395	252.031	0.388	.951	.308
255	252.036	0.851	.951	.308
387	253.652	0.568	.959	.281
393	253.664	0.610	.959	.281
68	253.743	0.810	.960	.279
37	255.408	1.002	.967	.251
401	256.608	1.101	.972	.231
253	256.675	0.788	.973	.230
127	259.509	0.277	.983	.182
14	259.695	0.342	.983	.178
161	260.534	0.972	.986	.164
218	260.981	0.708	.987	.156
298	262.539	0.847	.991	.129
377	264.700	0.662	.995	.092
273	265.466	0.130	.996	.079
125	268.264	0.673	.999	.030
317	268.919	0.530	.999	.018
58	269.201	1.434	.999	.013
81	270.830	0.690	.999	+0.014
192	271.753	0.333	.999	.030
304	273.694	0.470	.997	.064
324	273.776	0.460	.997	.065

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Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
252	274.764	0.481	.996	.083
323	277.647	0.383	.991	.133
431	277.664	1.049	.991	.133
57	278.653	0.470	.988	.150
326	279.909	0.176	.985	.172
392	281.421	0.153	.980	.198
236	283.517	1.080	.972	.233
216	284.875	0.428	.966	.256
312	287.628	1.134	.953	.302
219	290.293	1.194	.937	.346
356	291.547	1.182	.930	.367
147	292.160	0.562	.926	.377
315	292.289	0.745	.925	.379
325	296.668	0.436	.893	.448
286	297.886	0.479	.882	.467
178	300.600	1.080	.860	.509
330	302.132	0.310	.846	.531
154	302.158	1.081	.846	.532
266	302.735	0.336	.841	.540
159	302.845	0.940	.840	.542
153	303.977	1.120	.829	.558
203	305.707	0.788	.812	.583
208	305.735	0.993	.811	.584
21	305.995	1.478	.809	.587
70	306.722	0.852	.801	.597
145	307.084	0.338	.797	.602
84	308.812	0.829	.779	.626
133	310.724	1.532	.757	.652
45	311.727	1.637	.746	.665
198	315.000	0.523	.707	.707
276	315.255	1.607	.703	.710
108	316.270	0.664	.691	.722
357	317.675	0.765	.673	.739
75	319.686	0.874	.646	.762
89	320.194	0.781	.640	.768
406	322.496	0.553	.608	.793
295	323.531	1.144	.594	.804
170	323.746	0.186	.591	.806
415	324.082	0.289	.586	.809
396	325.574	1.114	.565	.824
200	326.310	0.504	.554	.832
172	326.486	1.090	.552	.833
292	328.465	1.042	.523	.852
414	328.972	0.931	.515	.856

Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
313	329.639	1.251	.505	.862
65	329.693	1.193	.504	.863
210	330.038	0.981	.499	.866
119	330.206	2.154	.496	.867
162	330.888	0.739	.486	.873
39	331.563	1.343	.476	.879
376	332.049	0.554	.468	.883
40	332.884	1.645	.455	.890
121	333.138	0.863	.451	.892
287	333.202	0.554	.450	.892
223	333.449	1.140	.446	.894
389	333.507	0.855	.446	.894
54	333.775	0.969	.441	.897
33	333.830	1.649	.441	.897
416	335.203	0.333	.419	.907
173	336.413	0.782	.400	.916
331	336.658	0.429	.396	.918
104	337.011	0.232	.390	.920
19	337.353	1.532	.385	.922
311	337.997	0.108	.374	.927
386	338.876	0.443	.360	.932
3	339.146	0.898	.355	.934
152	339.760	1.268	.345	.938
26	340.986	1.565	.325	.945
261	342.278	1.039	.304	.952
248	343.965	1.448	.276	.961
217	344.982	1.273	.259	.965
260	345.530	0.640	.249	.968
237	345.773	0.854	.245	.969
124	345.964	0.164	.242	.970
424	346.430	0.602	.234	.972
344	346.607	0.863	.231	.972
230	347.568	1.292	.215	.976
31	349.731	1.234	.178	.983
345	351.469	0.612	.148	.988
80	351.870	0.707	.141	.989
94	351.950	0.428	.140	.990
105	352.333	0.524	.133	.991
385	352.875	0.325	.124	.992
101	353.199	0.775	.118	.992
378	353.749	0.834	.108	.994
199	356.186	0.150	.066	.997
180	356.734	1.228	.056	.998
47	356.791	1.071	.055	.998

Table 17

(Continued)

Item	Angular Rank	Vector Length	Sine	Cosine
242	357.152	0.402	.049	.998
427	357.752	0.780	.039	.999
107	357.814	1.310	.038	.999
114	359.342	0.888	.011	.999
306	359.360	0.895	.011	.999
17	359.523	1.224	.008	.999

Appendix F

Table 12

Scaled Items (p < .05) by Subjects (Group A) for
Whom English is not the Native Language. Scale Category and
Positively (+) and Negatively (-) Scored Statements are Ranked-
Ordered with Corresponding Angles, Vector Lengths, Sines* and Cosines*

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
247	Au	+	I delight in feeling unattached	0.000	1.070	0.000	1.000
351	In	-	I wear clothes when I am around other people	0.734	1.560	0.012	0.999
243	Ab	-	I try not to let anyone else take credit for my work	1.212	1.890	0.021	0.999
110	Dy	+	In the long run humanity will owe a lot more to the teacher than to the salesman	1.537	1.505	0.026	0.999
104	Pl	-	When I have a choice between work and enjoying myself, I usually work	1.909	0.600	0.033	0.999
414	Sr	+	I do a good job more to gain approval than because I like my work	2.009	0.570	0.035	0.999
332	Ac	-	It doesn't really matter to me whether I become one of the best in my field	2.025	1.698	0.035	0.999
22	Dy	+	I always try to be considerate of the feelings of my friends	3.814	1.653	0.066	0.997
193	Se	+	I like to run through heaps of fallen leaves	4.810	0.491	0.083	0.996
417	Im	-	I would have a hard time keeping my mind a complete blank	5.314	0.431	0.092	0.995
306	Un	+	If I believe something is true, I try to prove that my theory will hold up in actual practice	5.937	1.256	0.103	0.994
376	Ac	-	I am sure people think that I don't have a great deal of drive	5.945	0.975	0.103	0.994
213	Or	-	I seldom take time to hang up my clothes neatly	7.883	0.656	0.137	0.990

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
17	Se	+	Sometimes a certain smell reminds me of a place or experience in my past	8.956	1.881	0.155	0.987
192	Pl	-	Practical jokes aren't at all funny to me	13.717	1.307	0.237	0.971
357	Au	-	To have a sense of belonging is very important to me	13.901	0.541	0.240	0.970
194	Sr	+	Nothing would hurt me more than to have a bad reputation	14.099	0.704	0.243	0.969
282	Sr	+	One of the things which spurs me on to do my best is the realization that I will be praised for my work	14.553	1.074	0.251	0.969
378	Ag	-	I do not think it is necessary to step on others in order to get ahead in the world	15.051	1.232	0.259	0.965
109	In	-	I have attended school at some time during my life	15.566	1.467	0.268	0.963
324	Pl	-	People consider me a serious, reserved person	15.945	0.728	0.274	0.961
436	Sr	-	Inner satisfaction rather than fame is my goal in life	16.220	0.572	0.279	0.960
124	Nu	+	People like to tell me their troubles because they know that I will do everything I can to help them	18.083	0.515	0.310	0.950
384	En	+	I won't leave a project unfinished even if I am very tired	19.953	0.866	0.323	0.946
173	Su	+	I think it would be best to marry someone who is more mature and less dependent than I	19.348	1.388	0.331	0.943
340	En	+	I will continue working on a problem even with a severe headache	19.688	1.780	0.336	0.941

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
353	Ab	+	I let people get ahead of me when waiting in line since they probably have something more important to do than I do	19.916	0.733	0.340	0.940
73	Cs	+	I don't enjoy confused conversations where people are unsure of what they mean to say	20.071	2.214	0.343	0.939
117	Cs	+	Before I ask a question, I figure out exactly what I know already and what it is I need to find out	20.367	1.810	0.348	0.937
42	Un	+	I often try to grasp the relationship between different things that happen	20.637	1.986	0.352	0.935
386	Ha	+	I will not climb a ladder unless someone is there to steady it for me	21.529	1.171	0.366	0.930
59	Or	+	When I am going somewhere I usually find my exact route by using a map	21.893	1.153	0.372	0.927
237	Se	+	I like to have my neck massaged	21.909	1.045	0.373	0.927
429	Ex	-	The idea of acting in front of a large group doesn't appeal to me	25.074	1.203	0.423	0.905
86	Un	+	I do almost as much reading on my own as I did for classes when I was in school	25.106	1.932	0.424	0.905
40	Sr	-	I give little thought to the impression I make on others	25.124	1.695	0.424	0.905
206	De	+	I would get into a long discussion rather than admit I am wrong	25.407	1.328	0.429	0.903
134	Ac	+	I often set goals that are very difficult to reach	25.630	1.456	0.432	0.901

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
65	In	+	I have a number of out-fits of clothing, each of which costs several thousand dollars	26.073	1.903	0.439	0.898
128	Sr	-	The opinions that impor-tant people have of me cause me little concern	27.024	1.672	0.454	0.890
264	Dy	-	We ought to let the rest of the world solve their own problems and just look out after ourselves	30.529	0.905	0.507	0.861
15	Or	+	I often decide ahead of time exactly what I will do on a certain day	31.049	1.762	0.515	0.856
113	Af	+	I am considered friendly	31.715	1.046	0.525	0.850
302	Pl	+	I like to watch televi-sion comedies	32.137	0.921	0.531	0.846
421	Af	+	I go out of my way to meet people	32.343	1.327	0.534	0.844
6	Ch	+	I get annoyed with people who never want to go anywhere different	32.659	2.363	0.539	0.841
46	Ac	+	I get disgusted with my-self when I have not learned something pro-perly	33.657	1.371	0.554	0.832
101	Im	+	The people I know who say the first thing they think of are some of my most interesting acquain-tances	34.721	1.386	0.569	0.821
147	Or	+	Before I start to work, I plan what I will need and get all the necessary materials	34.797	2.533	0.570	0.821
262	Un	+	I am more at home in an intellectual discussion than in a discussion of sports	34.968	1.989	0.573	0.819
66	Dy	+	I often take some responsibility for look-ing out for newcomers in a group	35.455	2.430	0.580	0.814

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
420	Ac	-	It is unrealistic for me to insist on becoming t e best in my field of work all of the time	36.145	1.424	0.589	0.807
266	Ac	+	People have always said that I am a hard worker	36.315	0.759	0.592	0.805
84	Sr	-	Social approval is un-important to me	37.974	1.332	0.615	0.802
272	De	-	If faced by a good argument, I am usually willing to change my position even on important issues	38.138	1.716	0.617	0.786
94	Ch	+	I would be willing to give up some financial security to be able to change from one job to another if something interesting came along	39.198	1.552	0.618	0.785
217	Sr	+	I usually tell others of my misfortunes because they might be able to assist me	38.659	2.177	0.624	0.780
227	Cs	-	I don't keep a very accurate account of my financial resources	38.811	0.590	0.626	0.779
151	Su	-	If I feel sick, I don't like to have friends or relatives fuss over me	40.181	0.798	0.645	0.764
183	Cs	-	I like to be with people who are unpre-dictable	42.214	1.309	0.671	0.740
47	Af	-	Trying to please people is a waste of time	42.324	1.530	0.673	0.739
379	Au	+	Having a home has a tendency to tie a person down more than I would like	42.395	0.704	0.674	0.738
258	Pl	+	I spend a good deal of my time just having fun	42.599	1.181	0.676	0.736
372	Un	-	I would rather build something with my hands than try to develop scientific theories	43.339	0.976	0.686	0.727

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
36	Nu	+	When I see someone who looks confused, I usually ask if I can be of any assistance	43.453	1.294	0.687	0.725
366	Nu	-	I become irritated when I must interrput my activities to do a favor for someone	43.730	1.244	0.691	0.722
163	Do	-	Most community leaders do a better job than I could possibly do	44.157	0.961	0.696	0.717
430	Ha	+	To me, it seems foolish to ski when so many people get hurt that way	45.482	1.584	0.713	0.701
38	Pl	+	I love to tell, and listen to, jokes and funny stories.	45.564	1.471	0.714	0.700
364	Ha	-	I would like to drive a motocycle	45.886	2.284	0.717	0.696
388	Nu	+	Seeing an old or help-less person makes me feel that I would like to take care of him	45.987	0.820	0.719	0.694
336	Ch	-	I see no reason to change the color of my room once I have painted it	46.134	1.443	0.720	0.692
367	Or	+	I keep my possessions in such good order that I have no trouble find-ing anything	47.812	0.967	0.740	0.671
432	Nu	+	I can remember that as a child I tried to take care of anyone who was sick	49.844	1.674	0.764	0.644
268	Ag	+	I often make people angry by teasing them	50.123	1.029	0.767	0.641
13	Im	+	I admire free, spon-taneous people	50.401	1.505	0.770	0.637
288	Ac	-	When people are not going to see what I do, I often do less than my very best	51.170	1.578	0.779	0.627

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
179	Af	-	Usually I would rather go somewhere alone than go to a party	52.989	1.628	0.798	0.601
231	Ex	+	If I were to be in a play, I would want to play the leading role	53.348	2.630	0.802	0.596
29	Cs	+	When I talk to a doctor, I want him to give me a detailed explanation of any illness I have	53.835	1.746	0.807	0.590
103	Or	+	I keep all my important documents in one safe place	54.310	0.554	0.812	0.583
90	Ac	+	I will keep working on a problem after others have given up	54.381	1.648	0.812	0.582
412	Pl	-	I would prefer a quiet evening with friends to loud party	54.884	1.894	0.817	0.575
358	Ch	+	I like to change the pictures on my walls frequently	54.926	1.331	0.818	0.574
275	Ex	+	I often monopolize a conversation	55.150	1.645	0.820	0.571
406	En	-	When I feel ill, I stop working and try to get some rest	55.222	0.876	0.821	0.570
242	Sd	+	Most of my teachers were helpful	55.437	0.546	0.823	0.567
423	Au	+	My idea of an ideal marriage is one where the two people remain as independent as if they were single	55.980	1.930	0.828	0.559
371	Su	-	I am usually very self-sufficient	56.768	0.693	0.836	0.548
156	Ac	-	I would rather do an easy job than one involving obstacles which must be overcome	57.397	2.338	0.842	0.538
175	In	-	I could easily count from one to twenty-five	57.528	1.173	0.843	0.536
19	Su	-	If I have had an accident, I want sympathy from no one	58.291	1.210	0.850	0.525

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
322	Nu	-	People's tears tend to irritate me more than to arouse my sympathy	58.497	0.995	0.852	0.522
409	Im	+	Life is no fun unless it is lived in a carefree way	58.828	1.932	0.855	0.517
341	Ex	-	I never attempt to be the life of the party	59.813	1.770	0.864	0.502
323	Or	+	I spend much of my time arranging my belongings neatly	60.068	1.142	0.866	0.498
402	Ch	+	I would rather make new and different friends than spend my time with old friends	60.255	0.644	0.868	0.496
309	Ab	+	Sometimes I let people push me around so they can feel important	60.340	1.657	0.868	0.494
260	Sr	-	I don't care if my clothes are unstylish, as long as I like them	60.642	0.367	0.871	0.490
407	Ex	+	I perform in public whenever I have the opportunity ·	60.700	1.032	0.872	0.489
120	En	+	If I want to know the answer to a certain question, I sometimes look for it for days	61.645	0.715	0.880	0.474
285	In	+	I have no sense of touch in my fingers	62.020	1.811	0.883	0.469
3	Af	-	I pay little attention to the interests of people I know	62.327	0.935	0.885	0.464
145	Im	+	I have often broken things because of carelessness	62.564	0.933	0.887	0.460
190	Nu	-	I really do not pay much attention to people when they talk about their problems	62.626	1.565	0.887	0.459
425	Cs	+	I have no use for theories which are only good guesses and are not closely tied to facts	64.119	1.122	0.899	0.436

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
283	Su	-	I prefer to face my problems by myself	64.269	0.921	0.900	0.434
97	Do	+	I feel confident when directing the activities of others	64.589	2.424	0.903	0.429
141	Do	+	I am quite good at keeping others in line	64.666	2.290	0.903	0.427
331	Ab	-	I would never be the "low man on the totem pole" if I could help it	66.161	0.470	0.914	0.404
111	Ab	-	I resent being punished	66.925	1.597	0.919	0.391
144	Ha	-	I think it would be enjoyable and rather exciting to feel an earthquake	67.919	2.367	0.926	0.375
142	En	-	When someone thinks I should not finish a project, I am usually willing to follow his advice	69.775	2.429	0.938	0.345
249	Cs	+	I don't like situations that are uncertain	70.534	1.230	0.942	0.333
91	Af	-	Most of my relationships with people are businesslike rather than friendly	71.114	0.803	0.946	0.323
169	Or	-	I can work better when conditions are somewhat chaotic	71.114	0.803	0.946	0.323
320	Ha	-	I would enjoy exploring an old deserted house at night	71.844	2.599	0.950	0.311
375	Af	-	I don't particularly enjoy being the object of someone's jokes	71.877	1.883	0.950	0.311
2	Ac	+	I enjoy doing things which challenge me	72.610	1.907	0.954	0.298
188	Ha	-	I would enjoy the feeling of riding to the top of an unfinished skyscraper in an open elevator	74.981	1.987	0.965	0.259

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
411	Or	+	I can't stand reading a newspaper that has been messed up	75.378	1.560	0.967	0.252
130	Un	+	I have unlimited curiosity about many things	75.689	1.073	0.968	0.247
189	Im	+	I enjoy arguments that require good quick thinking more than knowledge	76.527	1.604	0.972	0.232
63	Su	-	I am perfectly capable of solving my personal problems without consulting anyone	76.981	1.775	0.974	0.225
118	De	+	I try never to allow anyone to get the upper hand with me	77.688	2.036	0.977	0.213
289	Af	+	Most people think I am warm-hearted and sociable	79.695	2.124	0.983	0.178
427	Do	-	I don't have a forceful or dominating personality	79.834	1.473	0.984	0.176
245	Af	+	To love and be loved is of greatest importance to me	80.937	1.650	0.987	0.157
333	Af	+	I truly enjoy myself at social functions	83.406	1.741	0.993	0.114
207	Do	-	I think it is better to be quiet than assertive	83.621	1.620	0.993	0.111
293	Cs	+	I would never make something without having a good idea of what the finished product should look like	83.713	1.211	0.993	0.109
317	Do	+	If I were in politics, I would probably be seen as one of the forceful leaders of my party	83.991	0.573	0.994	0.104
297	Ex	-	I think that trying to be the center of attention is a sign of bad taste	85.165	1.936	0.996	0.084

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
403	Cs	-	Once in a while I like to take a chance on something that isn't sure--such as gambling	86.698	2.104	0.998	0.057
12	Ha	-	I almost always accept a date	86.743	1.244	0.998	0.056
325	Se	+	One of my favorite pastimes is sitting before a crackling fire	87.299	1.061	0.998	0.047
278	Nu	-	I avoid doing too many favors for people because it would seem as if I were trying to buy friendship	89.063	1.222	0.999	0.016
234	Nu	-	If someone is in trouble, I try not to become involved	89.604	1.474	0.999	0.006
160	Ch	-	It would take me a long time to adapt to living in a foreign country	90.573	2.000	0.999	-0.010
69	Af	+	Loyalty to my friends is quite important to me	91.397	0.414	0.999	0.024
30	Af	+	When someone opposes me on an issue, I usually find myself taking an even stronger stand than I did at first	91.892	2.141	0.999	0.033
67	Ab	-	I do everything in my power not to have to admit defeat	93.013	2.283	0.998	0.052
138	Ch	+	I am always looking for new routes to take on a trip	94.355	1.053	0.997	0.075
100	Ha	-	I would never pass up something that sounded like fun just because it was a little bit hazardous	94.467	1.283	0.996	0.077
222	Ac	+	I prefer to be paid on the basis of how much work I have done rather than on how many hours I have worked	95.080	1.254	0.996	0.088

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
165	Ex	-	I was one of the quietest children in my group	95.301	0.984	0.995	0.92
355	Af	-	I want to remain unhampered by obligations to friends	95.440	0.632	0.995	0.094
368	Pl	-	I usually have some reason for the things I do rather than just doing them for my own amusement	95.455	1.067	0.993	0.112
53	Do	+	I try to control others rather than permit them to control me	97.154	2.408	0.992	0.124
343	Im	-	If I am playing a game of skill, I attempt to plan each move thoroughly before acting	97.853	0.591	0.990	0.136
186	En	-	When other people give up working on a problem, I usually quit too	98.445	2.315	0.989	0.146
148	Pl	-	I only celebrate very special events	101.421	0.816	0.980	0.198
361	Do	+	I try to convince others to accept my political principles	101.725	0.541	0.979	0.203
233	In	+	I often get bored at having to concentrate on one thing at a time	101.886	2.621	0.978	0.205
330	Dy	+	I am able to make correct decisions on difficult questions	102.070	1.291	0.977	0.209
277	Im	+	It seems that emotion has more influence over me than does calm meditation	103.289	2.044	0.973	0.229
369	Se	+	Certain pieces of music remind me of pictures or moving patterns of color	103.911	1.061	0.970	0.240
99	Ex	+	I don't mind being conspicuous	104.583	1.270	0.967	0.251
299	Im	-	I generally rely on careful reasoning in making up my mind	105.164	1.108	0.965	0.261

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
209	Ex	-	At a party, I usually sit back and watch the others	106.045	1.498	0.961	0.276
334	Ag	-	I do not like to see anyone receive bad news	106.239	2.145	0.960	0.279
170	Pl	+	Most of my spare moments are spent relaxing and amusing myself	106.375	0.573	0.959	0.281
152	Un	-	When I was a child, I showed no interest in books	106.504	0.844	0.958	0.284
71	Au	+	When I was a child, I wanted to be independent	107.969	1.555	0.951	0.308
55	Ex	+	I like to have people talk about things I have done	108.469	1.307	0.948	0.316
9	Do	+	I would enjoy being a club officer	109.152	1.767	0.944	0.328
25	Af	+	I believe that a person who is incapable of enjoying the people around him misses much in life	110.102	0.788	0.939	0.343
215	Se	-	I have never seen a statue that reminded me of a real person	110.794	0.845	0.934	0.355
254	Ha	+	I prefer a quiet, secure life to an adventurous one	111.037	0.835	0.933	0.358
196	Un	-	Abstract ideas are of little use to me	111.216	1.973	0.932	0.361
11	Ex	+	Others think I am lively and witty	112.469	1.374	0.924	0.382
77	Ex	-	I would not like the fame that goes with being a great athlete	113.409	1.787	0.917	0.397
241	In	-	I usually wear something warm when I go outside on a cold day	114.813	2.214	0.907	0.419
226	Ch	+	The main joy in my life is going new places and seeing new sights	115.378	1.726	0.903	0.428
181	Au	-	I often do things just because social custom dictates	115.656	1.586	0.901	0.432

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
220	Sd	-	I am not willing to give up my own privacy or pleasure in order to help other people	117.429	1.240	0.887	0.460
176	Sd	-	I almost always feel sleepy and lazy	118.143	0.693	0.879	0.475
115	Au	+	My greatest desire is to be independent and free	118.771	2.555	0.876	0.481
199	Ab	-	I avoid situations which would make me seem inferior	119.898	0.749	0.866	0.498
204	Ch	-	I would be satisfied to stay at the same job indefinitely	119.962	0.981	0.866	0.499
419	Ab	-	If my house were robbed, I would insist that the police make every effort to catch the thief	120.548	2.124	0.861	0.508
281	Se	+	I like the way my muscles tingle after a good workout	120.784	1.094	0.859	0.511
50	Ch	+	I like to have new things to eat from week to week	121.093	0.929	0.856	0.516
155	Ab	-	I would never allow someone to blame me for something which was not my fault	122.231	0.974	0.845	0.533
398	Ac	+	I enjoy work more than play	122.856	0.571	0.840	0.542
413	Se	+	I like to feel sculptured objects	123.807	1.071	0.830	0.556
362	En	-	I am easily distracted when I am tired	127.666	1.440	0.791	0.611
18	Sr	+	I consider it important to be held in high esteem by those I know	128.024	1.688	0.787	0.615
82	Pl	+	I enjoy parties, shows, games--anything for fun	128.062	1.346	0.787	0.616

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
92	Ag	+	If someone has a better job than I, I like to try to show him up	128.154	2.060	0.786	0.617
224	Ag	+	I often find it necessary to criticize a person sharply if he annoys me	128.833	0.937	0.778	0.627
394	Un	+	I am unable to think of anything that I wouldn't enjoy learning about	128.928	0.668	0.777	0.628
191	Or	+	I dislike to be in a room that is cluttered	130.081	0.792	0.765	0.643
184	De	-	I don't get angry when people laugh at my errors	130.143	1.085	0.764	0.644
23	Ab	-	I would never apologize if someone bumped into me and it was his fault	130.236	1.532	0.763	0.645
57	Im	+	I find that I sometimes forget to "look before I leap"	130.333	0.695	0.762	0.647
399	Af	-	I am quite independent of the people I know	132.070	1.044	0.742	0.670
329	Im	-	If I were exploring a strange place at night, I would want to carry a light	133.966	1.959	0.719	0.694
56	Ha	-	I would enjoy learning to walk on a tightrope	134.119	0.919	0.717	0.696
136	Ag	+	Stupidity makes me angry	138.366	2.408	0.664	0.747
359	Cs	-	I like the adventure of going into a new situation without knowing what might happen	140.277	1.612	0.639	0.769
228	De	-	I am only very rarely in a position where I feel a need to actively argue for a point of view I hold	141.221	1.500	0.626	0.779

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
14	Nu	-	I think a man is smart to avoid being talked into helping his acquaintances	141.251	0.936	0.625	0.779
27	Au	+	I would like to wander freely from country to country	141.413	1.731	0.623	0.781
404	De	-	Most of the criticism I receive can be used to my advantage by helping me to improve myself	142.381	1.376	0.610	0.792
238	Sr	+	When I am doing something, I often worry about what other people will think	143.641	0.489	0.592	0.794
24	Ac	-	Self-improvement means nothing to me unless it leads to immediate success	143.979	1.564	0.588	0.808
346	Pl	+	If I didn't have to earn a living, I would spend most of my time just having fun	144.639	1.399	0.578	0.815
383	Do	-	I would not want to have a job enforcing the law	144,881	1.112	0.575	0.817
4	Ag	+	I get a kick out of seeing someone I dislike appear foolish in front of others	145.057	1.903	0.572	0.819
315	Cs	-	When I take a vacation I like to go without detailed plans or time schedules	147.433	1.114	0.538	0.842
318	En	-	If I get tired while playing a game, I generally stop playing	147.616	0.765	0.535	0.844
62	Sr	+	I very much enjoy being complimented	147.711	1.684	0.534	0.845
270	Ch	+	I would like the type of work which would keep me constantly on the move	148.899	1.681	0.516	0.856

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
95	Cs	-	I tend to start right in on a new task without spending much time thinking about the best way to proceed	149.036	0.874	0.514	0.857
48	Ag	+	I swear a lot	149.466	1.747	0.508	0.861
74	De	+	I don't like people to joke about what they feel are my shortcomings	151.477	0.523	0.477	0.878
257	Or	-	I could never find out with accuracy just how I have spent my money in the past several months	151.489	0.921	0.477	0.878
43	In	-	I try to get at least some sleep every night	153.625	1.350	0.444	0.895
284	Un	-	I really dont' know what is involved in any of the latest cultural developments	154.514	0.906	0.403	0.902
87	In	+	I make all my own clothes and shoes	155.985	1.105	0.406	0.913
135	Af	-	After I get to know most people, I decide that they would make poor friends	160.920	1.101	0.326	0.945
32	En	+	I don't mind doing all the work myself if it is necessary to complete what I have begun	161.365	0.907	0.319	0.947
438	Un	+	If I were going to an art exhibit, I would first try to learn about the artist, his style and technique, his philosophy of art, and the story behind each piece of work	163.244	0.971	0.288	0.957
437	Su	+	I usually feel insecure unless I am near someone whom I can ask for support	163.355	1.012	0.286	0.958
291	Au	+	I find that I can think better without having to bother with advice from others	163.403	0.980	0.285	0.958

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
269	Au	-	I respect rules because they guide me	163.422	1.507	0.285	0.958
349	Su	+	I like to be with people who assume a protective attitude toward me	163.861	0.697	0.277	0.960
391	Se	-	I am not very good at describing things	164.476	0.560	0.267	0.963
116	Ch	-	I have a specific routine of recreational activities	167.047	1.026	0.224	0.974
319	Ex	+	I try to get others to notice the way I dress	169.287	1.129	0.185	0.982
158	Ag	-	I seldom feel like hitting anyone	169.392	0.760	0.184	0.982
64	Un	-	I can't see how intellectuals get personal satisfaction from their impractical lives	169.893	1.554	0.175	0.984
20	Un	-	Philosophical discussions are a waste of time	170.838	0.951	0.159	0.987
34	Ha	+	I am careful about the things I do because I want to have a long and healthy life	171.469	0.404	0.148	0.988
150	Sr	+	I constantly try to make people think highly of me	171.551	1.597	0.146	0.989
316	De	-	Most of the people with whom I am in contact ignore any minor errors I make	171.870	0.565	0.141	0.989
303	Se	-	I rarely sit and watch the water at a beach or stream	172.349	0.676	0.133	0.991
41	Su	+	I always appreciate it when people are concerned about me	173.136	1.087	0.119	0.992
408	Ha	-	I like the feeling of speed	173.311	1.631	0.116	0.993
348	Sr	-	I don't try to "keep up with the Joneses"	174.527	0.629	0.095	0.995

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
339	Do	-	I feel incapable of handling many situations	176.459	0.485	0.061	0.998
373	In	+	I can't believe that wood really burns	176.793	1.072	0.055	0.998
197	In	-	Sometimes I feel thristy or hungry	177.926	0.828	0.036	0.999
280	Pl	-	Most of my friends are serious-minded people	178.472	0.757	0.026	0.999
171	Se	-	I feel about the same after a hearty meal as before one	178.493	0.380	0.026	0.999
393	Su	+	When I was a child, I usually went to an adult for protection if another child threatened me	180.000	0.828	0.000	1.000
363	Ex	+	When I was in school, I often talked back to the teacher to make the other children laugh	180.859	2.020	0.000	1.000
354	Ac	+	Sometimes people say I neglect other important aspects of my life because I work so hard	181.343	1.293	0.023	0.999
310	Ac	+	I don't mind working while other people are having fun	182.121	0.810	0.037	0.999
102	Nu	-	I dislike people who are always asking me for advice	183.668	0.781	0.063	0.997
232	Ha	-	Swimming alone in strange waters would not bother me	183.814	1.052	0.066	0.997
76	En	+	If people want a job done which requires patience, they ask me	184.316	0.531	0.075	0.997
149	Se	+	Going barefoot in cool grass is great fun	184.443	0.651	0.077	0.996
273	Do	+	When two persons are arguing, I often settle the argument for them	186.058	1.257	0.105	0.994

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
7	Cs	-	I live from day to day without trying to fit my activities into a pattern	186.499	1.338	0.113	0.993
28	Ch	-	Changes in routine disturb me	186.843	1.007	0.119	0.992
106	Sr	+	The good opinion of one's friends is one of the chief rewards for living a good life	188.443	1.294	0.146	0.989
225	Au	-	Family obligations make me feel important	188.669	1.072	0.150	0.988
139	Cs	-	When I need one thing at the store I get it without thinking what else I may need soon	189.518	1.693	0.165	0.986
239	Su	-	I prefer not being dependent on anyone for assistance	190.305	0.559	0.178	0.983
131	In	+	I rarely use food or drink of any kind	192.651	0.737	0.219	0.975
37	Or	-	I don't especially care how I look when I go out	193.045	0.487	0.225	0.974
51	Cs	-	It doesn't bother me to put aside what I have been doing without finishing it	193.671	1.523	0.236	0.971
195	Su	-	I usually make decisions without consulting others	196.123	1.332	9.277	0.960
328	Un	-	I would rather be an accountant than a theoretical mathematician	196.144	0.395	0.278	0.960
126	Pl	+	Once in a while I enjoy acting as if I were tipsy	200.898	0.594	0.356	0.934
185	Do	+	I seek out positions of authority	201.038	1.125	0.358	0.933
58	Nu	-	All babies look very much like monkeys to me	201.493	0.634	0.366	0.930
229	Do	+	When I am with someone else I do most of the decision-making	201.673	1.543	0.369	0.929

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
137	Au	-	I usually try to share my problems with someone who can help me	202.023	0.960	0.374	0.927
212	Nu	+	I am usually the first to offer a helping hand when it is needed	203.207	0.710	0.394	0.919
405	Do	+	With a little effort, I can "wrap most people around my little finger"	203.489	1.824	0.398	0.917
123	Im	-	I am not an "impulse-buyer"	203.710	0.753	0.402	0.915
68	Ac	-	I work because I have to, and for that reason only	205.608	1.411	0.432	0.901
221	Ab	+	When people try to make me feel important, I feel guilty and uncomfortable about it	206.622	0.939	0.448	0.893
72	Ch	-	My likes and dislikes are the same from year to year	206.911	1.480	0.452	0.891
8	De	-	When someone presents me with strong arguments, I usually try to settle on some middle ground	206.932	2.097	0.452	0.891
250	De	+	Since people are always looking for a person's weak spots, I am careful never to talk about mine	207.072	1.010	0.455	0.890
265	Ab	+	When I was a child I allowed other children to take my toys away from me	207.264	0.829	0.458	0.888
418	Sd	+	I am always prepared to do what is expected of me	208.794	1.494	0.481	0.876
201	Af	+	I try to be in the company of friends as much as possible	209.034	1.248	0.485	0.874
395	In	+	I can run a mile in less than four minutes	209.310	1.307	0.489	0.871

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
140	De	-	Most people are honest enough that I would let them work in my home without close supervision	209.585	1.782	0.493	0.869
78	Ha	+	I would never want to be a forest-fire fighter	210.607	1.302	0.509	0.860
125	Or	-	Most of the things I do have no system to them	212.998	0.918	0.544	0.838
271	Cs	-	I very seldom make detailed plans	214.881	0.865	0.571	0.820
52	De	-	If someone finds fault with me I either listen quietly or just ignore the whole thing	215.484	1.240	0.580	0.814
1	Ab	+	I like to be the first to apologize after an argument	216.638	2.630	0.568	0.802
382	De	+	I deliberately keep people from getting to know me too well	217.816	0.848	0.613	0.789
434	Pl	+	Things that would annoy most people seem humorous to me	218.681	1.488	0.624	0.780
112	Ac	-	I try to work just hard enough to get by	218.861	1.117	0.627	0.778
274	En	-	If I had to do something I didn't like, I would put if off and hope that someone else might do it	219.335	2.055	0.633	0.773
10	En	-	If I can't finish a task within a certain amount of time, I usually decide not to waste any more time on it	219.579	0.973	0.637	0.770
161	Cs	+	It upsets me to go into a situation without knowing what I can expect from it	220.886	0.740	0.654	0.756
290	Ag	-	I show leniency to those who have offended me	220.986	0.808	0.655	0.754

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
236	Pl	-	I prefer to read worthwhile books rather than spend my spare time playing	221.583	0.949	0.663	0.747
88	Sd	-	I have a number of health problems	224.441	1.442	0.700	0.713
390	Pl	+	I delight in playing silly little tricks on people	226.345	1.506	0.723	0.690
240	Un	-	It is more important to me to be good at a sport than to know about literature or science	226.538	2.107	0.725	0.687
96	De	-	I usually let unkind things someone might say about me pass without making any return comment	226.677	2.694	0.727	0.686
307	In	-	If someone pricked me with a pin, it would hurt	226.701	0.714	0.727	0.685
44	Sd	-	Nothing that happens to me makes much difference one way or the other	226.736	1.867	0.728	0.685
132	Sd	-	I often have the feeling that I am doing something evil	227.252	1.222	0.734	0.678
129	Su	-	When I need money, it makes me feel good to know that someone can help me out	227.313	0.707	0.733	0.677
300	Nu	+	When I see a baby, I often ask to hold him	227.974	1.090	0.742	0.669
108	Un	-	If the relationships between theories and facts are not immediately evident, I see no point in trying to find them	229.099	0.641	0.755	0.654
79	Im	-	Rarely, if ever, do I do anything reckless	229.497	1.262	0.760	0.649
294	De	+	People find it very difficult to convince me that I am wrong on a point no matter how hard they try	229.569	1.510	0.761	0.648

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
370	Sr	+	I would not consider myself a success unless other people viewed me as such	230.244	1.469	0.768	0.639
205	Cs	+	I won't answer a person's question until I am very clear as to what he is asking	230.374	2.038	0.770	0.637
157	Af	+	I enjoy being neighborly	232.125	1.710	0.789	0.613
211	Im	-	I am not one of those people who blurt out things without thinking	232.928	0.962	0.797	0.602
410	Nu	-	It doesn't affect me one way or another to see a child being spanked	234.734	0.692	0.816	0.577
85	Su	+	I often seek out other people's advice	235.919	1.279	0.828	0.561
83	Se	-	I don't pay much attention to my surroundings	235.954	0.446	0.828	0.559
387	Im	-	I think that people who fall in love impulsively are quite immature	236.041	1.181	0.829	0.558
255	Im	-	I always try to be fully prepared before I begin working on anything	237.735	1.608	0.845	0.533
167	Im	-	I make certain that I speak softly when I am in a public place	237.978	1.462	0.847	0.530
301	Or	-	I often forget to put things back in their place	238.465	1.032	0.852	0.523
256	Nu	+	I would prefer to care for a sick child myself rather than hire a nurse	240.734	1.673	0.872	0.488
122	Ha	+	I can't imagine myself jumping out of an airplane as skydivers do	240.736	1.329	0.872	0.488
360	De	-	I don't mind answering questions about my family or friends when applying for a job	242.063	0.747	0.883	0.468

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
400	Ag	+	I often quarrel with others	242.210	0.836	0.884	0.466
263	Im	+	I think the world would be a much better place if no one ever went to school	242.513	1.668	0.887	0.461
259	Se	-	All cheeses taste the same to me	242.987	0.572	0.890	0.454
308	Sd	-	I often question whether life is worthwhile	243.004	1.189	0.891	0.453
433	Or	-	If I have brought something home, I often drop it on a chair or table as I enter	245.303	1.353	0.908	0.417
177	Ab	+	I am the kind of person who is always doing errands for others	245.889	1.566	0.912	0.408
380	Ch	-	When I was in school, I preferred to work on one subject until I had finished the assignment	246.472	1.897	0.916	0.399
143	Ex	+	I like to be in the spotlight	248.003	1.895	0.927	0.374
166	Ha	+	I avoid some hobbies and sports because of their dangerous nature	249.831	1.757	0.938	0.344
352	Sd	-	I believe people tell lies any time it is to their advantage	250.610	1.897	0.943	0.331
218	Un	+	When I see a new invention, I attempt to find out how it works	252.921	1.838	0.955	0.293
342	Ha	+	Surf-board riding would be too dangerous for me	253.166	2.037	0.957	0.289
35	Im	-	I have a reserved and cautious attitude toward life	260.014	1.106	0.984	0.173
187	Ex	+	I would enjoy being a popular singer with a large fan club	261.140	1.639	0.988	0.154
267	Af	-	I seldom go out of my way to do something just to make others happy	262.507	1.936	0.991	0.130

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
93	Au	-	I don't want to be away from my family too much	263.737	0.824	0.994	0.109
49	Au	-	Adventures where I am on my own are a little frightening to me	263.991	0.764	0.994	0.104
168	Nu	+	I believe in giving friends lots of help and advice	264.191	1.397	0.994	0.101
174	Un	+	I would very much like to know how and why natural events occur in the way they do	266.934	1.682	0.998	0.053
338	De	+	I am always ready to defend myself against remarks people might make about me or my friends	267.797	0.520	0.999	0.038
401	Au	-	I can do my best work when I have the encouragement of others	268.322	2.731	0.999	0.029
298	Ha	+	I never go into sections of a city that are considered dangerous	271.565	1.830	0.999	+0.027
397	Ab	+	I am only worthy of an inferior position in most groups	272.831	1.822	0.998	0.049
311	Af	-	When I see someone I know from a distance, I don't go out of my way to say "Hello"	273.951	0.870	0.997	0.068
178	Ac	+	My goal is to do at least a little bit more than anyone else has done before	274.208	1.514	0.997	0.073
210	Ha	+	I try to get out of jobs that would require using dangerous tools or machinery	275.864	1.859	0.994	0.102
335	Au	+	I would not mind living in a very lonely place	277.249	1.360	0.992	0.126
431	Im	-	I like to take care of things one at a time	277.389	1.492	0.991	0.128
356	Ag	+	I have a violent temper	279.620	2.393	0.985	0.167

Table 12   (continued)

Item	Scale	+/-	Statement	Angle	Vector Length	Sin	Cos
312	Ag	+	I become angry more easily than most people	280.996	2.149	0.981	0.190
208	En	+	When I hit a snag in what I am doing, I don't stop until I have found a way to get around it	281.261	2.304	0.980	0.195
253	Ex	-	When I was young I seldom competed with the other children for attention	281.367	1.978	0.980	0.197
345	Or	-	I rarely clean out my bureau drawers	283.496	1.028	0.972	0.233
133	Ab	+	I would rather let others have their way with me than try to protest	285.402	2.510	0.964	0.265
89	Ab	+	I sometimes take the blame for things that aren't really my fault in order to make someone else feel better	285.985	1.997	0.961	0.275
389	Or	-	I feel comfortable in a somewhat disorganized room	286.364	1.448	0.959	0.281
75	Do	-	I have little interest in leading others	287.605	2.182	0.953	0.302
374	Sd	+	Rarely, if ever, has the sight of food made me ill	288.708	0.800	0.949	0.312
164	En	+	I don't like to leave anything unfinished	288.778	1.584	0.946	0.321
33	Ex	-	I am too shy to tell jokes	289.972	2.010	0.940	0.341
344	Nu	-	I feel most worthwhile when I am helping someone who is disabled	290.114	1.821	0.939	0.343
107	Su	-	I would not like to be married to a protective person	290.309	2.057	0.937	0.347
428	En	+	I am very persistent and efficient even when I have been working for many hours without rest	291.231	0.418	0.932	0.362

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
5	Au	-	If public opinion is against me, I usually decide that I am wrong	292.192	2.170	0.925	0.377
121	Ex	-	I feel uncomfortable when people are paying attention to me	292.537	1.591	0.923	0.383
327	Su	-	When I was a child, I disliked it if my mother was always fussing over me	296.053	0.500	0.898	0.439
203	Au	+	If I have a problem, I like to work it out alone	297.031	1.369	0.890	0.454
223	Af	-	I have relatively few friends	297.937	1.811	0.883	0.468
182	Ch	+	Most people have a hard time predicting how I will respond to something they say to me	298.277	1.646	0.880	0.473
114	Ag	-	I am quite soft-spoken	299.395	1.101	0.871	0.490
424	Ch	-	I like to go to stores with which I am quite familiar	301.569	0.974	0.852	0.523
70	Ag	-	If someone does something I don't like, I seldom say anything	302.276	2.247	0.845	0.533
54	En	-	If I find it hard to get something I want, I usually change my mind and try for something else	303.690	1.550	0.832	0.554
31	Do	-	I am not very insistent in an argument	304.249	2.189	0.826	0.562
286	Sd	+	My life is full of interesting activities	304.641	0.668	0.822	0.568
119	Do	-	I would make a poor judge because I dislike telling others what to do	304.869	2.291	0.820	0.571
159	Au	+	I would like to have a job in which I didn't have to answer to anyone	305.083	1.036	0.818	0.574
202	Ag	-	If someone hurts me, I just try to forget about it	309.661	0.415	0.769	0.638

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
219	In	+	I have never seen an apple	313.466	1.584	0.725	0.687
276	Ha	-	To me, crossing the ocean in a sailboat would be a wonderful adventure	315.000	1.371	0.707	0.707
396	Sd	-	I find it very difficult to concentrate	318.708	1.530	0.659	0.751
261	Su	+	The thought of being alone in the world frightens me	321.520	0.996	0.622	0.782
252	En	+	I am willing to work longer at a project than are most people	322.630	0.889	0.606	0.794
230	En	-	I don't believe in sticking to something when there is little chance of success	324.338	1.628	0.583	0.812
295	Do	-	I would not do well as a salesman because I am not very persuasive	324.599	1.950	0.579	0.815
321	Im	+	Often I stop in the middle of one activity in order to start something else	324.904	0.452	0.574	0.818
426	De	+	If someone accused me of making a mistake, I would call his attention to a few mistakes of his own	326.768	0.693	0.548	0.836
248	Ch	-	When I find a good way to do something, I avoid experimenting with new ways	327.628	1.326	0.535	0.844
313	Au	-	I find that for most jobs the combined effort of several people will accomplish more than one person working alone	327.999	1.262	0.529	0.848
154	Sd	+	I am seldom ill	329.416	1.091	0.508	0.860
416	Un	-	There are many activities that I prefer to reading	330.033	1.061	0.499	0.866

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
365	Im	+	Most people feel that I act spontaneously	331.960	0.623	0.470	0.882
45	Ab	+	Several people have embarrassed me publicly but I always take it like a good sport	332.703	2.136	0.458	0.888
292	Ch	-	I would be content to live in the same town for the rest of my life	332.784	1.574	0.457	0.889
26	Ag	-	It doesn't bother me much to have someone get the best of me in a discussion	335.104	2.447	0.420	0.907
98	En	-	The mere prospect of having to put in long hours working makes me tired	336.949	1.021	0.391	0.920
287	Ab	-	I would resist anyone who tried to bully me	339.274	1.598	0.353	0.935
180	Ag	+	Life is a matter of "push or be shoved"	340.498	1.028	0.333	0.942
80	Nu	+	I feel very sorry for lonely people	341.737	1.053	0.313	0.949
350	Un	+	I like to read several books on one topic at the same time	342.818	0.512	0.295	0.955
251	Do	-	I would make a poor military leader	343.301	3.027	0.287	0.957
381	Cs	+	Each day I check the weather report so that I will know what to wear	344.088	0.583	0.274	0.961
81	Or	-	My personal papers are usually in a state of confusion	344.327	1.308	0.270	0.962
385	Ex	-	I don't like to do anything unusual that will call attention to myself	346.430	1.193	0.234	0.972
162	De	+	I tend to react strongly to remarks which find fault with my personal appearance	347.863	1.902	0.210	0.977
21	In	+	I was born over 90 years ago	348.292	1.385	0.202	0.979

Table 12   (continued)

Item	Scale	+ -	Statement	Angle	Vector Length	Sin	Cos
105	Se	+	I like to listen to the sound of rain falling	350.538	0.669	0.164	0.986
305	Su	+	If I ever think that I am in danger, my first reaction is to look for help from someone	351.679	0.898	0.144	0.989
153	Im	+	I have never ridden in an automobile	353.108	1.750	0.119	0.942
337	Cs	+	My work is carefully planned and organized before it is begun	353.774	1.106	0.108	0.994
439	In	-	I am able to breathe	354.359	0.813	0.098	0.995
216	Sr	-	I will not go out of my way to behave in an approved way	358.617	0.414	0.024	0.999
296	En	+	When I am working out-doors I finish what I have to do even if it is growing dark	359.114	0.646	0.015	0.999
198	Dy	+	My memory is as good as other people's	359.268	1.565	0.012	0.999
440	Dy	-	Many things make me feel uneasy	359.506	1.160	0.008	0.999

*Positive (+) and Negative (-) Signs were omitted except where the sign changes.

APPROVAL SHEET

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and the signature which appears below verifies the fact that any neces-
sary changes have been incorporated and that the dissertation is now
given final approval by the Committee with reference to content and
form.

The dissertation is therefore accepted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy.

_____10/21/81_____   _____Jack A. Kavanagh_____
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