AN APPLICATION OF GUTTMAN FACET ANALYSIS TO ATTITUDE SCALE CONSTRUCTION: A METHODOLOGICAL STUDY

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY
JOHN PAUL MAIERLE

1969

This is to certify that the

thesis entitled

AN APPLICATION OF GUTTMAN FACET ANALYSIS
TO ATTITUDE SCALE CONSTRUCTION:
A METHODOLOGICAL STUDY

presented by

John Paul Maierle

has been accepted towards fulfillment
of the requirements for

Ph. D. degree in Counseling,
Personnel Services, and
Educational Psychology

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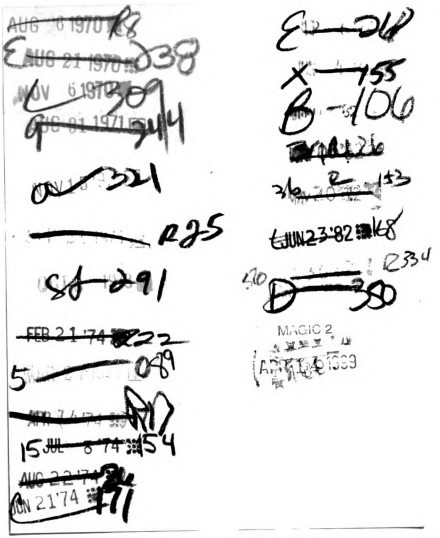
Date August 15, 1969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ABSTRACT

AN APPLICATION OF GUTTMAN FACET ANALYSIS
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Statement of Problem

Guttman, analyzing the structure of attitude items, identified four levels, or types of attitudes, generated from permutations of three facets within each item. He hypothesized that, according to his principle of contiguity, the matrix of level-by-level correlations would approximate a simplex.

Jordan extended Guttman's analysis to a five-facet six-level system. Data from a scale on attitudes toward the mentally retarded did generate simplex approximations. Jordan did not examine fully (a) his choice of specific facet permutations for each level; (b) the effect of order of administration on relative size of correlations among levels; and (c) the effect of invariant directionality in answer foils.

Several related problems therefore remained: (a) identification of all possible facet permutations; (b)

examination of effects from order of administration and from item directionality; (c) construction of an experimental instrument dealing with the emotionally disturbed rather than the mentally retarded; (d) application of appropriate statistical tests.

Research Design

Of 32 permutations of five dichotomized facets, only 12 appeared semantically possible--Jordan's six and an additional six. These 12 level members were hypothesized to be ordered within seven semantic paths; each path comprised six or four of the 12 level members. Directions for items of each level member were simplified and phrased in parallel form; all items were phrased so that all sets of answer foils were identical.

A set of experimental instruments was developed, two for each of the semantic paths (one instrument with the level members in a random order and one instrument with the level members in the hypothesized order). Items were written so that while content of answer foils remained identical, directionality of foils and grammatical emphasis within items varied randomly.

The 14 varying instruments were administered in random order, one to a subject, to 825 students in undergraduate psychology and education. Data from the 14 sub-groups were analyzed by Kaiser's $\underline{Q}^2$ procedure, which evaluates individual correlation matrices and orders the

variables within the matrices. A $\underline{Q}^2$ value was determined for the hypothesized and best orderings of level members within each semantic path; for the random-order administrations of semantic paths, the $\underline{Q}^2$ value was also determined for the particular random order of administration.

Results

For six of the seven paths analyzed, the $\underline{Q}^2$ value for the randomly administered, randomly ordered matrix was less than the $\underline{Q}^2$ value for the randomly administered, hypothetically ordered matrix; in no case did the hypothesized ordering of level members generate the best simplex approximation. On the other hand, the lack of an ordering principle obviously better than the hypothesized one and the generally close correspondence between hypothesized and best orders suggested that the hypothesized ordering principle, the level members identified, and the orders hypothesized among those level members, are useful extensions of the Guttman--Jordan formulations.

Among implications discussed were (a) the relationship of situation and content specificity to level-member specificity; and (b) possible relationships among semantic paths. Suggestions were made for related analyses of existing data and for refinements of the instrument.

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By

John Paul Maierle

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Counseling, Personnel Services
and Educational Psychology

College of Education

1969

PREFACE

This study is one in a series, jointly designed by several investigators, as an example of the "project" approach to graduate research. A common use of instrumentation, theoretical material, as well as technical and analysis procedures were both necessary and desirable.

The authors, therefore, collaborated in many aspects although the data were different in each study (Erb, 1969; Gottlieb, 1969; Hamersma, 1969; Harrelson, 1969; Morin, 1969) as well as certain design, procedural, and analyses methods. The interpretations of the data in each study are those of the author.

ACKNOWLEDGMENTS

I am deeply grateful to many people for their help with this thesis. I owe the greatest gratitude to Dr. John E. Jordan, my major advisor: his constant help and encouragement both in the completion of this thesis and in all my doctoral studies have been far more extensive and personal than his duties as major professor.

I am grateful to Dr. George Ferree, Dr. Carl Frost, and Dr. Gregory Miller for their assistance as members of my doctoral committee: their pointed questions and suggestions have been most helpful. Dr. Hiram Fitzgerald was chiefly responsible for the ease with which I obtained my experimental subjects.

Two fellow students, Dave Erb and Dick Hamersma, provided help, criticism and encouragement from original proposal to final copy: their assistance is almost as important to me as their friendship.

Several technical difficulties could not have been overcome without the help of many persons. I particularly want to thank John Draper, for his contributions to analysis procedures; Marcus Vale and Jim Hanratty, for their computer

programming and operation; Ann Brown, for her meticulous attention to typing and printing; and Pat Sullivan, for long hours of proofreading.

This study was supported in part by training grant number 20-T-67, 68 from the Rehabilitation Services Administration, Department of Health, Education and Welfare, Washington, D. C.

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CHAPTER I

INTRODUCTION

Attitude research has held a prominent place in social psychology for many years. From Allport's classic paper (Allport, 1935) to the varieties of theory and method found today, many differing definitions of attitude and many differing emphases in measurement technique have been proposed. Among other theorists, Guttman is noted for his contributions of scalogram analysis (Guttman, 1944) and facet design and analysis (Guttman, 1955).

Jordan (1968a), reviewing current attitude research, found few studies which employed many attitude items other than stereotypic ones, although Guttman (1950) had proposed that attitudes exist on various levels, from stereotypic to concrete behavioral. Jordan constructed a new attitude scale (Jordan, 1967) according to an adaptation of Guttman's proposals and found that preliminary administrations of the instrument yielded results consistent with Guttman's theory.

Need

In the construction of his scale, however, Jordan left unanswered some questions about the relationship of

his formulation to that of Guttman; some imperfections in preliminary results may have been related to those unanswered questions. Jordan constructed his scale with the "mentally retarded" as attitude object; parallel research with the "emotionally disturbed" as attitude object is non-existent.

Two needs existed, therefore: (a) the need for a reformulation of the Guttman and Jordan constructs and (b) the need for an instrument paralleling the original one of Jordan but dealing with the emotionally disturbed.

Purpose

The present study, therefore, had the following purposes: (a) to propose a reformulation of the Guttman and Jordan theories and to make a preliminary test of that reformulation; (b) to construct, according to the formulations of Guttman and Jordan and the new formulations here proposed, an attitude scale with the emotionally disturbed as attitude object.

Some additional purposes have also been served: (a) to suggest a comprehensive system for writing attitude scales with any specified person as attitude object; (b) to suggest relationships among varieties of attitudinal behavior which have not yet been investigated; and (c) to suggest a variety of implications for such areas as attitude definition and change, personality dynamics, and the relationships among such variables as beliefs,

values, laws, feelings, and overt gestures. Discussion of these additional purposes has been left to the concluding chapter.

Hypotheses

As noted in Chapters III and IV, the present study comprised a statement of a revised attitude-item construction theory and an empirical test of that theory. In particular, matrices of correlations among responses to various types of items were expected to approximate a "simplex" form (cf. Chapter IV).

Of two tests for correlation-matrix goodness-of-fit, the $\underline{Q}^2$ index (Kaiser, 1962) appeared more appropriate; however, because the distribution of $\underline{Q}^2$ is presently undefined, significance statements--and, therefore, standard statistical hypotheses--were not applicable. On the other hand, level of significance has been indicated for all correlation ratios. Further discussion of Kaiser's $\underline{Q}^2$ may be found in Chapters IV and VI.

Overview of Thesis

Chapter I, "Introduction," comprises the above background information and the following overview of the remaining chapters. Chapter II, "Review of Research and Theory," is in four parts: (a) substantive research; (b) theory and methodology; (c) directly related research projects; and (d) Guttman-type formulations.

Chapter III, "New Theory Formulation," states a new formulation of attitude-item construction theory. Two emphases are present throughout the chapter: (a) an examination of Guttman and Jordan formulations, and (b) a proposal of certain changes and extensions in those formulations.

Chapter IV, "Research Design," comprises a discussion of appropriate data-gathering and statistical methods for evaluating the theoretical system proposed in Chapter III. Additional discussion at the conclusion of Chapter IV covers specification of the particular attitude object to be considered and an indication of general scoring principles.

Chapter V, "Analysis of Results," presents the data gathered in the study and the various statistics generated from that data. Chapter VI, "Summary and Conclusions," reviews the theoretical formulations, research design, and actual data of the study, with additional discussion of implications for further study.

Because a number of terms are introduced or are given a specific technical meaning in the present study, particularly in Chapter III, a glossary has been written to aid in interpretation. In general each word in the glossary has been defined at its first appearance in the study; glossary discussions expand on those original definitions. On the other hand, a preliminary list of definitions

has not been included in the present introduction: such isolated definitions, presented out of context, did not appear useful, in view of the complexity of the proposed theoretical formulations.

Various appendices have been added to include material such as sample items and directions from Jordan's original scale, various phrasings of items considered for the present study, a complete set of items used in the present research instrument, and a summary of scoring and data-processing procedures. The final section, "References," lists the sources which are of importance for an understanding of the present study.

CHAPTER II

REVIEW OF RESEARCH AND THEORY

The literature on attitudes in general and attitudes toward emotional disturbance in particular is currently large and constantly growing. The present review, therefore, is limited to those works most directly related to the present study. The review is in four parts: (a) substantive research; (b) theory and methodology; (c) directly related projects; and (d) Guttman-type formulations.

Substantive Research

Reviewing literature on mental illness and emotional disturbance, Sinha (1966) noted that most attitude studies dealt with the attitudes of parents of schizophrenic or neurotic children and that differences found between such parents and parents of "normal" children were more of degree than of kind. Among the most widely used instruments was the "Parental Attitude Research Instrument" (PARI) (Shaefer and Bell, 1958). Thurstone (1959) also developed an instrument for measuring such parental attitudes.

Parental Attitudes

A number of studies did not include control groups. Tietze (1949) concluded that mothers of schizophrenic children were generally insecure, superficial, domineering, and rigid. In a factor-analytic study, Shepherd and Guthrie (1959) identified five factors in the attitudes of such mothers: (a) detached authoritarianism, (b) inadequacy and inconsistency, (c) pervasive control, (d) sophisticated denial of adequate mothering, and (e) annoyance and rejection. Kasanin, Knight and Sage (1934) had identified both parents of schizophrenic children as overprotecting and rejecting; Reichard and Tillman (1950) distinguished three types of schizophrenogenic parents: (a) overtly-rejecting mother; (b) covertly-rejecting mother; and (c) domineering, sadistic father. Comparing the perceptions of parents and children on child-rearing attitudes, Farina and Holzberg (1967) found the perceptions of children and parents similar but noted that the relationship between expressed attitude and overt behavior was complex and very much a function of individual differences.

Two studies utilizing similar control groups (Prout and White, 1951; Mark, 1953), although differing somewhat in specific conclusions, found few major differences among mothers of male schizophrenics. In a control-group study utilizing the PARI, Zuckerman, Oltean and Monashkin (1958)

found no support for the widely accepted hypothesis that mothers of schizophrenics are generally controlling and rejecting.

Differences between parents of schizophrenic children and parents of other children have been found. McKeown (1950) concluded that parents of schizophrenics tended to be antagonistic while parents of "normals" tended to be encouraging. On the other hand, Klebanoff (1958) found fewer pathological tendencies in mothers of schizophrenics than in mothers of brain-damaged and retarded children.

Field (1940) and Bolles, Metzger and Pitts (1941) studied parents of neurotic children and found: (a) inadequacy in parental role, (b) rejecting attitude, (c) poor marital adjustment, and (d) infantile neurotic traits. Shoben (1949) found parents of neurotic and problem children dominant, possessive, or ignoring.

Professional Attitudes

Several studies have dealt with attitudes of hospital or other mental-health personnel. Cohen and Struenning (1962) tested large numbers of hospital personnel; they then identified five factors which vary with occupation and degree of education: (a) the tendency to consider patients different and inferior; (b) approval of strong restrictions on patients during and after socialization; (c) a sense of moral obligation to help the unfortunate;

(d) professional attitudes regarding the treatability of mental illness; and (e) attitudes regarding the etiology of mental illness (Struenning and Cohen, 1963). They further developed certain occupational profiles for mental hospital personnel (Cohen and Struenning, 1963).

Stotsky and Rhetts (1967) found the same characteristics among non-trained hospital personnel. Gilbert (1954) distinguished between custodial and humanistic ideologies among hospital personnel.

In a factor-analytic study of doctors' attitudes, Taylor (1965) found no personality variables among physicians to correlate with five identified factors: (a) self-confidence in treating mental illness, (b) dogmatism and authoritarianism, (c) perceived status of psychology and psychiatry, (d) acceptance of the counseling role, and (e) a group of questions about psychiatric institutions. Wright and Klein (1966) did find that degree of education and training was directly related to positiveness of attitude toward mental illness.

Socio-cultural Factors

Recent studies have noted the relationship between socio-cultural factors and attitudes toward mental illness (Askenasy, 1963; Zavalloni and Askenasy, 1963) across cultures. In a series of studies (1965a, 1965b, and 1965c), Adis-Castro and Waisenen found that modernity and socio-economic level were directly related to attitudes about mental illness.

Such socio-cultural studies have used increasingly sophisticated methodology. Greenbaum and Wang (1965) identified semantic-differential differences among the concepts of "retarded," "mentally ill," "emotionally disturbed," and "neurotic." Swarte (1968), using a semantic-differential approach to distinguish among "criminal," "mentally ill person," "physically ill person," "ex-mental patient," and "myself," noted generally unfavorable attitudes and support for the hypothesis that authoritarian personality is related to such unfavorableness; lack of contact, however, was not found related to unfavorable attitudes.

Swarte stated that "evaluative meaning may be taken as the attitude dimension" (Swarte, 1968, p. 15). Earlier, Gatherer and Reid (1963), concluded that "lack of knowledge encourages the persistence of stereotyped ideas amounting . . . at worst, to rejection of the mentally disordered and to the continuation of stigma" (p. 42). Both studies dealt exclusively with varieties of verbal behavior; in an experimental setting, after noting that attitudes toward the mentally ill were generally unfavorable, Farina and Ring (1965) found that the perception of working with a mentally ill person improved task performance but that inadequacies in jointly performed tasks were inaccurately ascribed to the partner identified as "mentally ill."

Summary

Substantive research on attitudes toward mentally ill persons, much of it on parental or professional attitudes, has become more sophisticated. Earlier studies used no control groups and included few socio-cultural variables. Recent trends include use of control groups, cultural and cross-cultural data, and behavioral indices. Sinha's conclusion (1966, p. 36) that "methodologically superior research under a comprehensive framework is desperately needed" is perhaps somewhat less true today. On the other hand, the use of the term "attitude" remains ambiguous both in such research and in attitude theory in general. The following section deals with such general theory.

Theory and Methodology

Fishbein (1967) has collected most of the classic papers in attitude theory; Zinnes (1969) reviewed the most recent work in the special area of scaling. Proctor (1967) discussed the more obvious problems in attitude measurement. Among other general works are the data-theory emphasis of Torgerson (1958) and the scale-construction emphasis of Edwards (1957).

Among the better-known names in attitude theory are those of Allport, Thurstone, and Likert. Allport's discussion of the nature of attitudes (1935) is perhaps the classic in the field. The Likert technique (1932) is

widely used in scales designed to measure "attitudes," "opinions," "beliefs." Thurstone (1928) was among the first to suggest a specific scale construction technique.

Both theory and measurement continue to receive extensive treatment. Katz and Stotland (1959) present a comprehensive theory of attitude structure and change; a new approach to scale construction, using Stephenson's Q technique (1953) and analysis of variance procedures, has been suggested by Kerlinger (1956). Among general works appearing recently may be mentioned Shaw and Wright (1967), Insko (1967), Sherif and Sherif (1967) and Halloran (1967).

Although the term "attitude" remains ambiguous, some trend toward precision may be noted. In 1928 Symonds noted that the term could mean drive, muscular adjustment, generalized conduct, readiness, emotional response, feelings, or verbal responses (Symonds, 1928). By 1966, much of attitude theory (excluding the work of Guttman, to be discussed in a following section) agreed with the Kerlinger notion of a predisposition to perceive, think, feel, and behave (Kerlinger, 1966).

Attitudes and Personality

A number of investigators have suggested links between various patterns of attitudes and particular personality types. The so-called "authoritarian personality" (Adorno et al., 1964) was identified in research

originally designed to measure anti-semitic attitudes. Rokeach (1961), noting that the authoritarianism studied by Adorno appeared to be associated with only one end of a political ideology continuum, proposed a more general "dogmatism" scale; in his more recent work (1968), Rokeach identifies a comprehensive system of beliefs, attitudes and values within basic personality structure. Following the theoretical framework of Fishbein (1967), and using both the F scale (Adorno et al., 1964) and the Rokeach Dogmatism scale (Rokeach, 1961), Anderson (1968) concluded that degree of attitude change is a function of personality types.

Osgood and Tannenbaum proposed (1955, 1957) that congruity among various attitudes was a basic personality need. Crano and Schroder (1965) concluded, however, that only integratively simple subjects are bound by the principle of internal consistency. Among studies on the related concept of "balance" is the work of Price, Harburg and Newcomb (1966), who pointed out that attitudes must be studied in the light of reciprocity from the personal attitude object, rather than being viewed as the simple product of the isolated subject.

Attitudes and Behavior

The relation between a verbal response and an observed behavior has long been a problem in attitude research. Vinacke (1952) noted three aspects of the

problem: (a) the indirect character of attitude instruments, such that attitudes are inferred rather than measured directly; (b) the lack of an established unit for measuring attitudes; and (c) persistently low validity and reliability in attitude instruments.

Boyd assumed that unless attitudes become "established to the point of awareness, they cannot be measured by the endorsement of attitude statements" (Boyd, 1943, p. 10). Insko (1965) discovered that verbal reinforcement has an effect on responses to attitude questionnaires; Loew (1967) found that hostile responses could mediate overt aggressive behavior. Some tentative connections between verbal responses and overt behavior have therefore been identified. Tittle and Hill (1967), commenting on the generally poor correlations between verbal attitude responses and overt behavior, noted that such correlations were a function of (a) the measurement techniques used, (b) the degree to which the behaviors measured were common or unique, and (c) the repetitive or single character of the behaviors measured.

Special Problems in Item Formulation

DeBaty (1967) concluded that degree of perceived ambiguity was a function of intellectual level of the judges but was independent of the particular attitudinal position held by the judges. A particular item, therefore, might be perceived as relatively simple by one

subject--hence, easier to give assent to or to disagree with--and considerably more complex by another subject.

Anderson (1965), reversing the phrasing of questionnaire items, discovered that items phrased negatively tended to produce significantly lower subscale average ratings, although the relationships among various subscales remained constant. Total score, therefore, could be artificially lowered or raised by manipulating the direction in which items are phrased.

Related Projects

As noted in the Preface, the present study is one of several related studies. Jordan (1968a) reported on an 11-nation study of attitudes toward education and physical disability. Jordan's Attitude-Behavior Scale--MR (ABS-MR) (1967), indicated in Appendix A, is the principal instrument in the studies of Harrelson (1969), Gottlieb (1969), and Morin (1969). Hamersma and Jordan's scale (1969), a refinement of the Jordan and Hamersma scale (Jordan and Hamersma, 1969), dealing with attitudes toward Negroes and whites, has been developed from the work of Jordan (1968b) and Hamersma (1969). The original version of the scale also appears in the work of Erb (1969), who investigated racial prejudice and empathy.

The work of Jordan and of Hamersma is of two types, attitude-scale construction and substantive research.

The work of Erb, Harrelson, Gottlieb, and Morin is primarily substantive research. The present study is one in attitude-measurement theory.

Guttman-type Formulations

As indicated in Chapter III, the present study involves a reformulation of certain attitude-measurement constructs first proposed by Guttman and later refined by Jordan. The following section of the present chapter, therefore, comprises a summary of Guttman's original formulations and the adaptation proposed by Jordan.

Guttman Four-level Theory

Guttman's early work on attitude theory was concerned with the measurement of attitudes during World War II (Stouffer, 1950). In contrast to Lazarsfeld (1959), whose contribution to attitude measurement emphasized the latent continuum, Guttman stressed the simple response to a given instrument item. For Guttman, whether or not some latent structure existed was not of importance; for him the crucial point was the possibility of ordering a series of specific responses to instrument items and from that ordering to make predictions.

Guttman defined attitude as "a delimited totality of behavior with respect to something" (1950, p. 51). Within the limits of such a definition, both verbal responses and overt behaviors can be construed as attitudes--in one sense, the attitude <u>is</u> what is measured.

But if the particular response to an attitude item constituted an expression of attitude, then individual items could be analyzed to see what makes any kind of ordering possible. One form of such ordering is empirical, the Guttman contribution of "scalogram analysis" (Guttman, 1947). Another way to order responses is to examine the various semantic factors, or "facets," involved in a particular response to a particular item.

Commenting on the work of Bastide and van den Berghe (Guttman, 1959), Guttman distinguished three "facets" involved in a particular attitude response: the subject's behavior (belief or overt action), the referent (the subject's group or the subject himself), and the referent's intergroup behavior (comparative or interactive). He labeled the first of the two options, or "elements," of each facet as the "weaker." A particular attitude item, then, was as strong as the number of strong elements which appeared.

If all attitude items could be distinguished semantically in terms of three facets, then an individual item could have none, one, two, or three strong facets--a total of four combinations. Guttman further indicated a logical reason for considering only four permutations of strong-weak facets. If elements are correctly ordered within facets and facets are correctly ordered with respect to each other, a semantic analysis of attitude items

according to n dichotomous facets will reveal n + 1 types of attitude items. Guttman called these types "levels." Each level had one more strong facet than the level immediately preceding, and one less strong facet than the level immediately following.

Figures 2.01 and 2.02 are adapted from Guttman (1959). Figure 2.01 contains the three facets originally identified by Guttman and the elements identified within those facets. Figure 2.02 contains the four permutations of strong-weak facets which Guttman identified and the descriptive names which he attached to each of those permutations.

FIGURE 2.01

Basic Facets Used to Analyze Semantic Structure of an Attitude Item

Facets	A = Subject's Behavior	B = Referent	C = Referent's Intergroup Behavior
Elements	a_1 = belief	b_1 = subject's group	c_1 = comparative
	a_2 = overt action	b_2 = subject himself	c_2 = interactive

FIGURE 2.02

Level, Profile Composition, and Labels for Four Types of Attitude Item

Level	Profile	Descriptive Label
I	$a_1b_1c_1$	Stereotype
II	$a_1b_1c_2$	Norm
III	$a_1b_2c_2$	Hypothetical Interaction
IV	$a_2b_2c_2$	Personal Interaction

An example of an attitude item identified as belonging to a particular level may be helpful. The statement "All members of the ---- race are mentally defective" would be a level-I response, or stereotype, whether accepted or rejected by the subject who responds. The behavior of the subject is a belief about how the attitude object compares with other persons such as the subject's group. The statement "I have invited members of the ---- race to a dinner or party at my house" would be a level-IV response, or personal interaction. The response indicates an interaction of the subject himself, a specific overt action.

Guttman hypothesized that, according to what he called the "principle of contiguity" (cf. Foa, 1958), responses at any given level would be most closely related to the most similar levels--the levels having the largest

number of common facets--and less related to less-similar levels. Thus level-I responses would be more similar to level-II responses than to responses of any other level. If such similarities were expressed in correlation ratios, the matrix of level-by-level correlations would have a distinctive appearance. Figure 2.03 indicates what such a hypothetical matrix might approximate. Such a matrix Guttman labeled a "simplex."

FIGURE 2.03

Hypothetical Matrix of Level-by-level Correlations Illustrating Simplex Characteristic[1]

Level	I	II	III	IV
I	1.00			
II	.90	1.00		
III	.80	.90	1.00	
IV	.70	.80	.90	1.00

[1]Exact magnitude of correlations not determined; note that simplex requirement does not necessitate either identical correlations in diagonals or identical differences between diagonals: the case given is sometimes called a "perfect simplex." The fundamental requirement in any simplex is that correlations decrease as they are farther from the main diagonal.

According to Guttman, if attitude items are correctly written--i.e., to correspond to each of the hypothesized levels--then the matrix of level-by-level correlations

should approximate the simplex. If, on the other hand, a simplex did not appear, the items were incorrectly or ambiguously assigned to levels.

Jordan Six-level Adaptation

Jordan (1968a) proposed an expansion of the facet-theory analysis. According to Jordan, five facets--and, therefore, six levels--are identifiable. Figures 2.04 and 2.05, corresponding to Figures 2.01 and 2.02, indicate the facets, elements of facets, and levels identified by Jordan.

Jordan further defined the characteristics of items written for each level of response. Figure 2.06 (Jordan, 1968a), indicates "definitional statements," or specifications of the response characteristics, proper to each hypothesized level.

Jordan has prepared an instrument designed to contain the newly hypothesized six levels (Jordan, 1967). General directions and sample items from each level are given in Appendix A. Figures 2.07 and 2.08 indicate simplex approximations obtained in preliminary testing of the instrument. Similar results have been obtained in a cross-cultural study: Figure 2.09 indicates the simplex approximation obtained in Belize, Central America.

FIGURE 2.04

Basic Facets[1] Used to Determine Conjoint Struction[2] of an Attitude Universe[3]

(A) Referent	(B) Referent Behavior	(C) Actor	(D) Actor's Intergroup Behavior	(E) Domain of Actor's Behavior
a_1 others	b_1 belief	c_1 others	d_1 comparison	e_1 symbolic
a_2 self	b_2 overt action	c_2 self	d_2 inter-action	e_2 opera-tional

[1]As B qualifies A's behavior, so E qualifies C's behavior. Frequently, but not necessarily, A and C are identical. In such cases, B and E must be "consistent," i.e., some combinations seem illogical; B_1E_2. It should be noted that sometimes the subject filling out the questionnaire is identical with either referent or actor or both, but not necessarily so: i.e. in Level 1 and 2 referent and actor are identical, the subject is asked to report about them; in Level 3 the subject is identical with the referent, but not with the actor; in Level 4, 5, 6, subject, referent, and actor are identical. (See Figure 2.05).

[2]Conjoint Struction: Operationally defined as the ordered sets of these five facets from low to high across all five facets simultaneously. The more subscript "2" elements a set contains, the greater the "strength" of the attitude. It should also be noted that not all combinations are logical. The selection of a "best" group of sets is still partly a matter of judgment. Two continua run through the facets: other-self and verbal-action.

[3]Figure and notes adapted from Jordan (1968a, p. 76).

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February 9, 1966

FIGURE 2.05

Conjoint[1] Level, Profile Composition,[2] and Labels for Six Types of Attitude Struction[3]

Type-Level	Struction Profile[2]	Descriptive Conjoint Term
1	$d_1\ a_1\ c_1\ b_1\ e_1$	Societal Stereotype
2	$d_2\ a_1\ c_1\ b_1\ e_1$	Societal Interactive Norm
3	$d_2\ a_2\ c_1\ b_1\ e_1$	Personal Moral Evaluation
4	$d_2\ a_2\ c_2\ b_1\ e_1$	Personal Hypothetical Behavior
5	$d_2\ a_2\ c_2\ b_2\ e_1$	Personal Feelings
6	$d_2\ a_2\ c_2\ b_2\ e_2$	Actual Personal Behavior

[1]Conjoint order: Level 1 < level 6 and $a_1 < a_2$; $b_1 < b_2$; $c_1 < c_2$; $d_1 < d_2$; $e_1 < e_2$.

[2]Based on facet order of February 9, 1966 (see Figure 2.04).

[3]Adapted from Jordan (1968a, p. 77).

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FIGURE 2.06

A Definitional System for the Facet Analysis of Conjoint[1] and Disjoint[2] Struction of an Attitude Universe[3]

Level	Descriptive Term	Respondent Believes/Reports
1	Societal Stereotype $d_1\ a_1\ c_1\ b_1\ e_1$	(S) believes $\overset{a_1}{\text{the pop. as a whole}}$, $\overset{b_1}{\text{believes}}$, that $\overset{c_1}{\text{the pop.}}$ $\overset{e_1}{\text{as a whole, symbolically}}$ (would), $\overset{d_1}{\text{compares}}$, the disabled in $\overset{F}{\text{life situation}}$ involving $\overset{G}{\text{level of importance}}$ under $\overset{I}{\text{specified conditions}}$ via $\overset{H}{\text{evaluation process}}$ on $\overset{J}{\text{trait type}}$ and $\overset{J}{\text{trait level}}$.
2	Societal Interactive Norm $d_2\ a_1\ c_1\ b_1\ e_1$	(S) believes the $\overset{a_1}{\text{pop. as a whole}}$, $\overset{b_1}{\text{believes}}$, that $\overset{c_1}{\text{the pop.}}$ $\overset{e_1}{\text{as a whole, symbolically}}$ (would), $\overset{d_2}{\text{interacts}}$, with the disabled in (etc.).
3	Personal Moral Evaluation $d_2\ a_2\ c_1\ b_1\ e_1$	(S) believes $\overset{a_2}{\text{he himself}}$, $\overset{b_1}{\text{believes}}$, that $\overset{c_1}{\text{the population}}$ $\overset{e_1}{\text{as a whole, symbolically}}$ (ought), $\overset{d_2}{\text{interacts}}$, with the disabled in (etc.).
4	Personal Hypothetical Behavior $d_2\ a_2\ c_2\ b_1\ e_1$	(S) believes $\overset{a_2}{\text{he himself}}$, $\overset{b_1}{\text{believes}}$, that $\overset{c_2}{\text{he himself}}$, $\overset{e_1}{\text{symbolically}}$ (would), $\overset{d_2}{\text{interacts}}$, with the disabled in (etc.).
5	Personal Feeling $d_2\ a_2\ c_2\ b_2\ e_1$	(S) reports $\overset{a_2}{\text{he himself}}$, $\overset{b_2}{\text{has actual feelings}}$, such as that $\overset{c_2}{\text{he himself}}$, $\overset{e_1}{\text{symbolically}}$, $\overset{d_2}{\text{interacts}}$, with the disabled in (etc.).
6	Actual Personal Behavior $d_2\ a_2\ c_2\ b_2\ e_2$	(S) reports $\overset{a_2}{\text{he himself}}$, $\overset{b_2}{\text{has actual experiences}}$, such that $\overset{c_2}{\text{he himself}}$, $\overset{e_2}{\text{operationally}}$ (does), $\overset{d_2}{\text{interacts}}$, with the disabled in (etc.).

[1]Facets "A" through "E" denote Conjoint Struction or level.

[2]Facets "F" through "J" denote attitude item content or Disjoint Struction; the ordering system has not been developed.

[3]Adapted from Jordan (1968a, p. 82).

John E. Jordan
Michigan State University
Louis Guttman
Israel Institute for
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March 7, 1968

FIGURE 2.07

Correlation Matrix for 88 Graduate SER Students Illustrating Expected Simplex Ordering[1] of Items Constructed on Basis of Figures 2.05 and 2.06[2]

Descriptive Term	Level	1	2	3	4	5	6
Societal Stereotype	1	--					
Societal Interactive Norm	2	.56	--				
Personal Moral Evaluation	3	.17	.34	--			
Personal Hypothetical Behavior	4	.10	.12	.48	--		
Personal Feelings	5	.04	.13	.08	.24	--	
Actual Personal Behavior	6	.00	.05	.04	.13	.21	--

[1]Underlined correlations indicate instances in which simplex ordering was not maintained.

[2]Adapted from Jordan (1968a, p. 84).

FIGURE 2.08

Correlation Matrix for 633 Education Students Illustrating Expected Simplex Ordering[1] of Items Constructed on Basis of Figures 2.05 and 2.06[2]

Descriptive Term	Level	1	2	3	4	5	6
Societal Stereotype	1	--					
Societal Interactive Norm	2	.44	--				
Personal Moral Evaluation	3	.05	.21	--			
Personal Hypothetical Behavior	4	.15	.21	.15	--		
Personal Feelings	5	.17	.12	.19	.38	--	
Actual Personal Behavior	6	.01	.04	.05	.19	.22	--

[1]Underlined correlations indicate instances in which simplex ordering was not maintained.

[2]Adapted from Jordan (1968a, p. 84).

FIGURE 2.09

Correlation Matrix for 523 British Honduras Elementary School Teachers Illustrating Expected Simplex Ordering[1] of Items Constructed on Basis of Figures 2.05 and 2.06[2]

Descriptive Term	Level	1	2	3	4	5	6
Societal Stereotype	1	--					
Societal Interactive Norm	2	.22	--				
Personal Moral Evaluation	3	.11	.32	--			
Personal Hypothetical Behavior	4	.21	.28	.39	--		
Personal Feelings	5	.17	.06	.19	.31	--	
Actual Personal Behavior	6	.13	.10	.15	.32	.16	--

[1]Underlined correlations indicate instances in which simplex ordering was not maintained.

[2]Unpublished data; used with permission of J. E. Jordan, Michigan State University.

Summary

Guttman proposed a four-level system of attitude items; within the system, levels were hypothesized to be related to each other according to the principle of contiguity, so that a matrix of level-by-level correlations would approximate a simplex. Jordan proposed a five-facet, six-level adaptation of the system and has preliminary data within and across cultures on a research instrument; the data obtained support Guttman's hypotheses.

CHAPTER III

NEW THEORY FORMULATION

Introduction

In Jordan's adaptation of Guttman's original facet analysis, certain facet names have been assigned new meanings, although the adaptation corresponds in other details to Guttman's original designations. What Guttman called "referent" is now called "actor"; what Guttman called "subject" is now called "referent." Figure 3.01 indicates the original Guttman facet names and the corresponding facets and facet names in the Jordan adaptation.

FIGURE 3.01

Comparison of Guttman and Jordan Facet Designations

Designation	Facets in Jordan Adaptation				
	A	B	C	D	E
Jordan	Referent	Referent behavior	Actor	Actor's inter-group behavior	Domain of actor's behavior
Guttman	---	Subject's behavior	Referent	Referent's intergroup behavior	---

Conjoint[1] Struction Facet Analysis

Such facet designation, whether of three facets (implying four levels) or of five facets (implying six levels) is a designation of "conjoint struction"--i.e., of that part of the semantic structure of attitude items which can be determined independently of specific response situations. Corresponding to "conjoint struction" is "disjoint struction,"--i.e., that part of the semantic structure of attitude items directly dependent upon specification of a situation. Thus, both the statement "I invite ---- to parties at my house" and the statement "I work for someone who is ----" are designated as "personal interaction" (Guttman) or "actual personal behavior" (Jordan); on the other hand, the situations specified in the two statements are different; that is, the conjoint struction is identical, but the disjoint struction is not.

Element Designations

One inconsistency between Jordan and Guttman designations does appear, however. Guttman designates the elements of his facet B (referent) "subject's group" and "subject himself"; Jordan designates the corresponding facet (actor) elements "self" and "others." Similarly, Jordan designates the elements of his facet A (referent) as "self" and "others." Some of the redundant expressions which appear in Figure 2.06

---

[1]Not to be confused with "conjoint measurement" (Zinnes, 1968).

may be eliminated by re-designating the elements in the Jordan five-facet adaptation.

If facets A and C are given the element designations of "we" and "I" and facet B elements are designated "believe" and "act," while facet D elements are designated "compare" and "interact" and facet E elements are designated "symbolically" and "operationally," the lengthy definitions of Figure 2.06 can be reduced to such definitional statements as "we believe we compare symbolically . . . ."

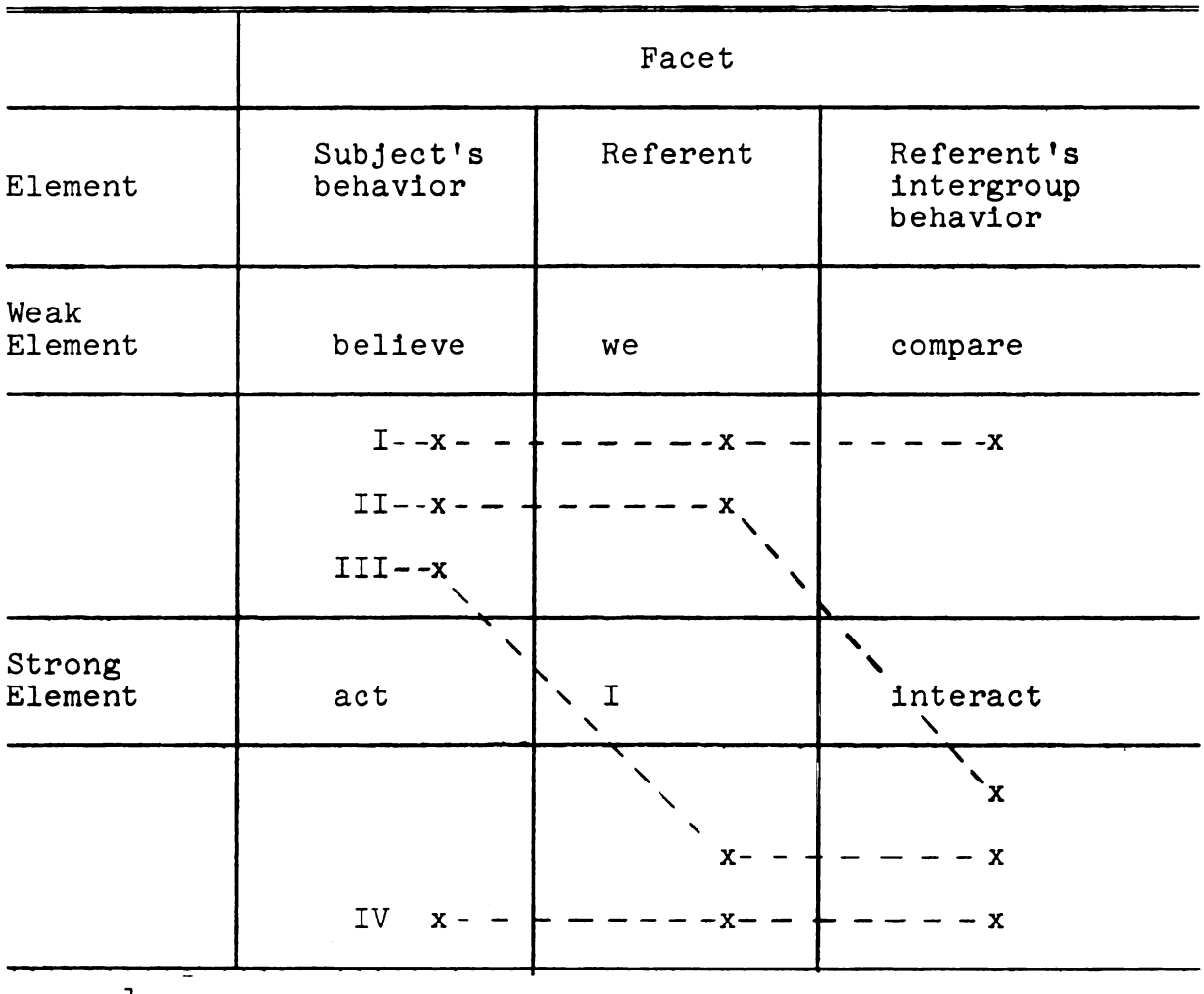
The statement "we believe we compare symbolically . . . " may be considered the operational introduction to stereotypic behavior. Thus stereotypic behavior may be considered the statement (expressed by agreement with an item) that members of a particular group ("we," not "I") believe that they themselves ("we") compare favorably with some designated outgroup on some symbolic (e.g., value-system) basis.

Schematic Comparisons

Figure 3.02 is a schematic presentation of the definitional statements corresponding to Guttman's original three-facet system. Figure 3.03 is a corresponding presentation of Jordan's five-facet system. Figure 3.04 is a presentation of Figure 3.03 superimposed on Figure 3.02 to illustrate the semantic correspondence between Guttman's four-level and Jordan's six-level systems.

FIGURE 3.02

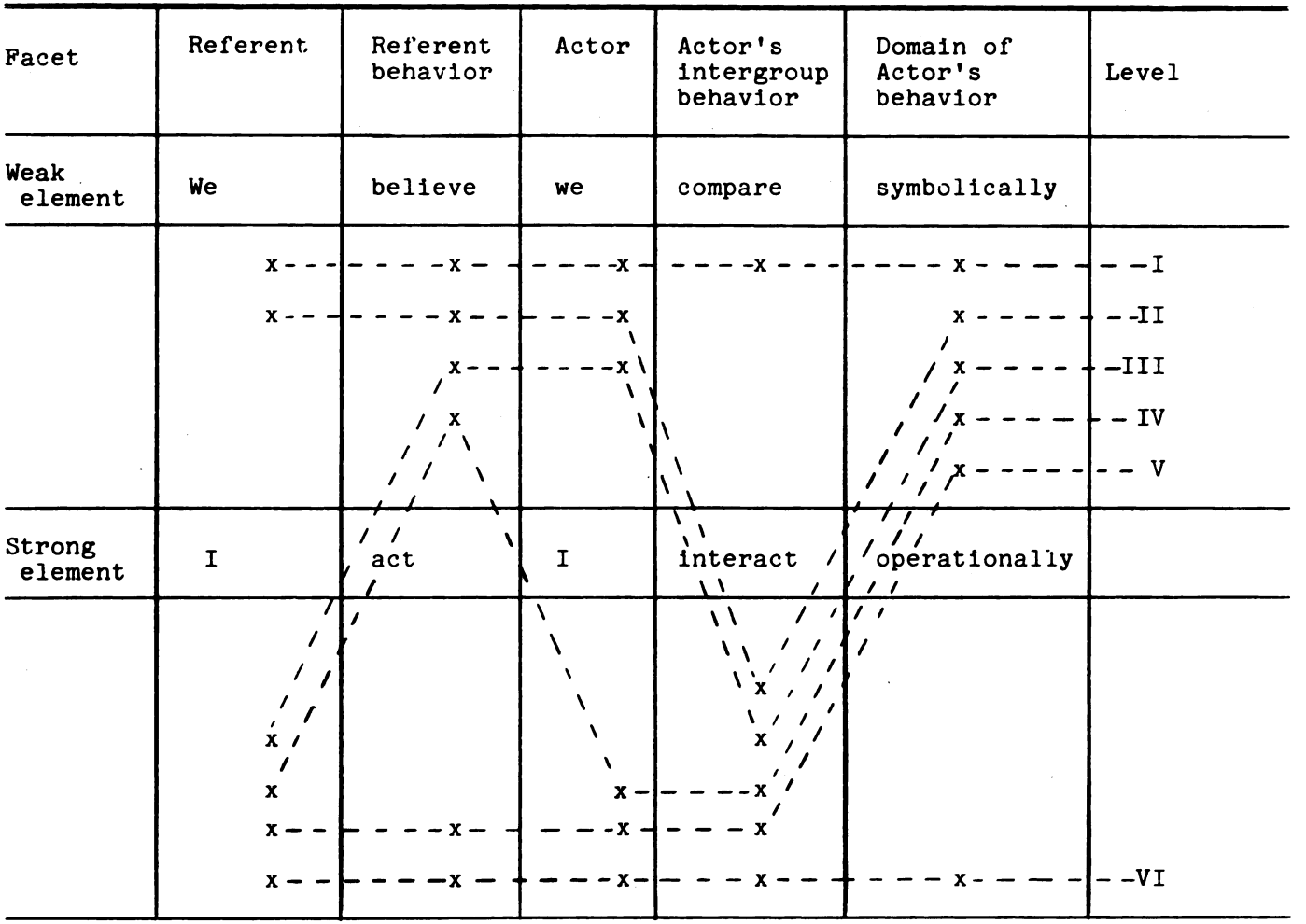
Schematic of Guttman Four-level Semantic Analysis[1]



[1]Each dotted line represents the definitional statement of a particular level of behavior and is read by reference to the column designations above each "x"; thus the definitional statement of level II in Guttman's system (norm) reads "believe we interact . . . ." Note that the definitional statement for level IV remains redundant ("act I interact"): this redundancy appears to indicate why certain combinations of elements are inconsistent or semantically impossible (see "Semantic Possibility Analysis," infra).

FIGURE 3.03

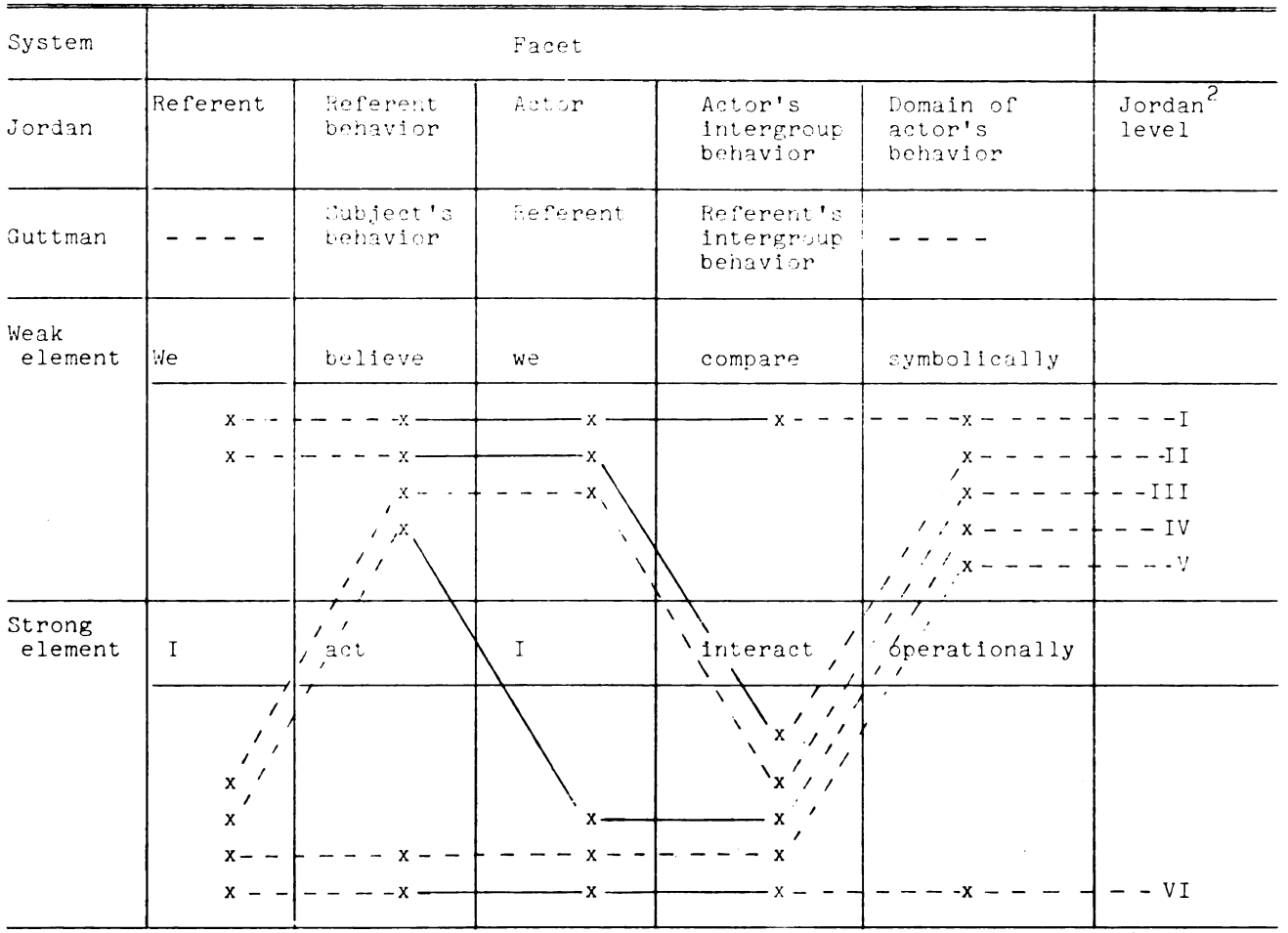
Schematic of Jordan Six-level Semantic Analysis[1]



[1]See note (1) on Figure 3.02. Note that levels V & VI have redundant definitional statements (cf. "Semantic Possibility Analysis, " infra).

FIGURE 3.04

Schematic of Guttman Four-level and Jordan Six-level Semantic Analyses: comparison[1]



[1]See note (1) on Figure 3.02 and note (1) on Figure 3.03.

[2]Guttman-level definitional statements comprise elements from only the three middle facets in the schematic; the corresponding lines are unbroken where Guttman and Jordan definitional statements coincide.

Item Formulation

Comparison and Interaction

According to the Jordan six-level system, only levels I and II involve the weaker element, comparison, of facet D, Actor's intergroup behavior. But the implication of comparison seems to appear also in his directions and answer foils for level V (see Appendix A). On the other hand, the implication of interaction, the stronger element of facet D, is found only in the content of individual items for level VI and not at all in the foils for that level. On the other hand, the comparison implied in level I items (directions and foils, but not in item content) is presented in such a way as to lead to interpretative problems: which is the "best" response? to say that members of ---- group are equal to members of other groups? or to say that the members of the specified group are superior?

A possible solution to such interpretative problems would be to write items on all levels so that all foils are the same for all items; any statement of comparison or interaction would, therefore, have to be made in the content of the item and not in the foils. Items involving comparative behavior (levels I and II) would be of the type "We believe that we have more of characteristic x than do members of group ----." Items involving interactive behavior would be of the type "We act--or think we act--in such or such a way." The set of foils for every item

could then be written "agree, uncertain, disagree"; directionality--i.e., favorableness or unfavorableness implied in the "agree" response would be entirely dependent on the content of the item; no item would contain the ambiguous "equal to" choice.

One objection to such an approach to item formulation would be that of the danger of response set, or the tendency to answer all questions with identical foils in a similar fashion, independently of the content of particular items (Guilford, 1954). Two techniques of item formulation would appear to resolve the problem raised by the response-bias objection: writing of items such that half imply favorableness toward the attitude object when the foil "agree" is marked and half imply unfavorableness; and random distribution of such "favorable" and "unfavorable" items within the set of items designed for a given level.

Directions for Various Levels

Present directions for the Jordan adaptation use the words "other people" when the weaker element of facets A or C is involved. As indicated above ("Element Designations"), if items are phrased in the first person, "we" and "I" may be preferable terms both for definitional statements of levels and for item directions. The directions for level I, therefore, would read "This section contains statements about ideas which you may share with other people . . . . " And items written for level I

would be of the form "We think that we are less ---- than members of group ----."

But how specific should the "we" be made? Two approaches seem defensible: one which leaves the specification of "we," or the "in-group" of the person responding, entirely undefined. A question might then be added to each level of a set of attitude items to determine what the individual considered as the "we" of his responses. One problem with such an approach is that, if the in-group were indicated as different for varying levels of the attitude items, interpretation from level to level would be difficult. Or, as an alternate approach, one which at least specifies the "we" as all those who are not members of the attitude-object group. Such an approach would be consistent with the assumption that those who respond to an attitude-object person can do so as members of their own in-group.

The Tense of Level VI

Items presently written for the Jordan adaptation in level VI are of the form "Have you ever done such or such?" An improvement might be made by phrasing all such items in the form "Do you do such or such?" The objection that persons who do not now have an opportunity for some specific interaction but who did interact in that way at some time would be penalized by such an emphasis on present behavior may be answered as follows: (a) the emphasis in

level VI is not on why or why not some specific behavior takes place, but on whether or not it takes place; (b) phrasing in all other levels is in the present tense, so that behavioral items of level VI might reasonably be expected to correlate more closely to items of other levels if all items emphasized present comparisons or interactions; and (c) short of reports by observers, a response to the present-tense statement "I do such and such" is the closest to actual behavior of all verbalizations--i.e., "what I do now" is closer to actual personal behavior than is "what I did then."

Summary

Uniformity of foils for all levels, specification of "we" as the weaker element of facets A and C, and phrasing of level VI items in the present tense seem defensible changes in the present item formulations of Jordan. Examples of all such changes are indicated below in the final section of this chapter, "Semantic Map of Conjoint Struction Verbalizations."

Translation of Facet-element Combinations

Nature of Response

Attitude items such as those discussed here are verbalizations of behavior, or verbal expressions of a set of behaviors. The behaviors--and, therefore, the verbalizations--

are hypothesized to be of varying types or levels. Such verbal attitude items are open to the criticisms leveled at all questionnaire-type instruments: effects of response bias and of analogous pressures such as social desirability.

Attitude and Behavior

A traditional distinction made between attitude and behavior is that between inclination to act and the action itself. The present formulation is consistent with that distinction: attitude items are considered verbalizations of behaviors, not the behaviors themselves. The behaviors, in turn, are hypothesized to exist at varying levels, so that the degree of favorableness toward an attitude object which is evidenced on one level is correlated in varying degrees with degrees of favorableness evidenced on other levels of behavior. Attitude, then, is not seen as a single psychic position, but as a "delimited totality of behavior with respect to something" (Guttman, 1950). The present study, therefore, is an analysis of systems of verbalizations which may be made by a member of an identifiable group about the behavior of his group and of himself relative to some specified non-group persons.

Implications of Elements

The present Jordan adaptation of Guttman's facet-analysis system comprises five facets of two elements each. A brief consideration of each facet and the distinction

between the weak and strong elements of each facet may be helpful.

Facet C, Actor, represents that person or persons who are stated, by response of agree or disagree, to compare or interact with the specified attitude object in some specified way. The actor, therefore, may be the person who states his own response, or the actor may be the group to which that actor belongs. Hence, the weak element of facet C, Actor, is "we," and the strong element is "I."

The actor may be seen as in comparison with or as interacting with the attitude object. Facet D, actor's intergroup behavior, comprises the weak element "compare" and the strong element "interact."

But the form of comparison or interaction may be only symbolic--e.g., hypothetical, or seen as conforming to group norms, or seen as expected of self by others--or operational--i.e., an instance of overt behavior. Facet E, therefore, domain of actor's behavior, comprises the weak element "symbolically" and the strong element "operationally."

Any behavior of the actor, as well as any status of superiority or inferiority in comparison with the attitude object, may be perceived by the actor or by the actor's group. Thus "we" may have beliefs about "us" or about "me" (i.e., about how we or I compare or interact with the attitude object). Similarly, "I" may have beliefs about how

"we" or "I" compare or interact. Facet A, the referent, therefore, comprises the weak facet "we" and the strong facet "I."

Referent behavior, Facet B, comprises the weak element "believe" and the strong element "act." Thus I or we (Facet A) may believe that I or we (Facet C) compare or interact (Facet D) either symbolically or operationally (Facet E) with the attitude object. But the corresponding statement comprising the strong element of Facet B, act, produces sentences which are either redundant (I act I act operationally, for example) or contradictory (We act I act operationally, for example). A closer analysis of semantic structure reveals that, when Facet B is expressed through the strong element, act, the elements of Facets A and C must be identical--either both "we" or both "I." A more complete analysis of semantic possibilities constitutes the following section of this chapter.

Item and Direction Formulations

The level names and choices of permutations of elements, as well as the choice of specific direction and item formulations to match particular levels, are not assumed to be the only possible ways in which such levels of attitude may be expressed. The names, permutations of elements, direction and item formulations, as well as the definitional statements proposed by Jordan and simplified

here, are assumed to be consistent with the semantic implications indicated above.

The system of verbalizations proposed here, therefore, is not assumed to be all inclusive, but is rather a convenient way to classify and relate varieties of behavior within a "limited totality of behavior." As Guttman indicates, the degree to which the matrix of level-by-level correlations approximates a simplex indicates the degree to which items have been correctly written to represent interrelated levels of behavior. The conclusion of the final section in this chapter comprises sample directions and items proposed as representative of those hypothesized levels.

Semantic Possibility Analysis

Jordan (1968a) comments that "not all combinations . . . of the ordered sets of these five facets . . . are logical" and that "the selection of a 'best' group of sets is still partly a matter of judgment." The following considerations indicate how some combinations of facet elements are illogical.

The complete set of all permutations of five facets, where each facet comprises two elements, would include 32 permutations. Figure 3.05 gives the complete listing of all such permutations. Following the original notation of Guttman, weak elements have been assigned the subscript "1" and strong elements have been assigned the subscript "2,"

so that, for example, the permutation 1 - 1 - 1 - 1 - 2 is that permutation having all weak elements except the final one. The particular order in which the permutations have been written in Figure 3.05 was chosen to correspond to the ordering of facets proposed by Jordan, although the explanations which follow are not dependent upon that ordering.

If in place of the subscripts "1" and "2" are written the first letters of the corresponding element names (e.g., W=We, B=believe, I=interact), then Figure 3.05 would appear as Figure 3.06.

For various logical or semantic reasons, however, only 12 of the 32 permutations are possible. As indicated above, when the strong element of facet B is present, items written would be redundant if expressed completely--e.g., "I act I act . . . ." But while a weak element in Facet B--viz., "believe"--can be preceded or followed by either "we" or "I," no implication of thinking about behavior is present in the strong element, "act." Basis 1 for the elimination of some permutations, therefore, is expressed "an 'a' in Facet B must be preceded and followed by identical elements, both 'w' or both 'i'.

Given the redundancy implied by the strong element "act" of Facet B, the actor's intergroup behavior (Facet D) and the referent's behavior (Facet B) must be consistent: they both refer to the same person or persons. If the

FIGURE 3.05

Permutations of Five Two-element Facets[1]

	Facets				
	A	B	C	D	E
Element Subscripts	1	1	1	1	1
	1	1	1	2	1
	2	1	1	1	1
	2	1	1	2	1
	1	1	2	1	1
	1	1	2	2	1
	2	1	2	1	1
	2	1	2	2	1
	1	2	1	1	1
	1	2	1	2	1
	2	2	1	1	1
	2	2	1	2	1
	1	2	2	1	1
	1	2	2	2	1
	2	2	2	1	1
	2	2	2	2	1
	1	1	1	1	2
	1	1	1	2	2
	2	1	1	1	2
	2	1	1	2	2
	1	1	2	1	2
	1	1	2	2	2
	2	1	2	1	2
	2	1	2	2	2
	1	2	1	1	2
	1	2	1	2	2
	2	2	1	1	2
	2	2	1	2	2
	1	2	2	1	2
	1	2	2	2	2
	2	2	2	1	2
	2	2	2	2	2

[1]Subscript "1" indicates weak element; "2" indicates strong element.

FIGURE 3.06

Permutations of Five Two-element Facets[1] and Basis of Elimination

Permutations[2]	Facets					Basis of Elimination[3]
	A	B	C	D	E	
1	w	b	w	c	s	
2	w	b	w	i	s	
3	i	b	w	c	s	
4	i	b	w	i	s	
5	w	b	i	c	s	
6	w	b	i	i	s	
7	i	b	i	c	s	
8	i	b	i	i	s	
9	w	a	w	c	s	2
10	w	a	w	i	s	
11	i	a	w	c	s	1 2
12	i	a	w	i	s	1
13	w	a	i	c	s	1 2
14	w	a	i	i	s	1
15	i	a	i	c	s	2
16	i	a	i	i	s	
17	w	b	w	c	o	2 3 4
18	w	b	w	i	o	4
19	i	b	w	c	o	3 4
20	i	b	w	i	o	4
21	w	b	i	c	o	3 4
22	w	b	i	i	o	4
23	i	b	i	c	o	3 4
24	i	b	i	i	o	4
25	w	a	w	c	o	2 3
26	w	a	w	i	o	
27	i	a	w	c	o	1 2 3
28	i	a	w	i	o	1
29	w	a	i	c	o	1 2 3
30	w	a	i	i	o	1
31	i	a	i	c	o	2 3
32	i	a	i	i	o	

[1] See Figure 3.05

[2] Numbering arbitrary, for identification only.

[3] Logical semantic analysis as follows:
Basis 1: an "a" in Facet B must be preceded and followed by identical elements, both "w" or both "i"; Basis 2: a "c" in Facet D cannot be preceded by an "a" in Facet B; Basis 3: a "c" in Facet D cannot be followed by an "o" in Facet E; Basis 4: an "o" in Facet E cannot be preceded by a "b" in Facet B
See text for explanation.

referent and actor are acting (strong element of Facet B), he or they cannot simultaneously be seen simply in comparison (weak element of Facet D). Basis 2 for the elimination of some permutations is expressed "a 'c' in Facet D cannot be preceded by an 'a' in Facet B."

The domain of the actor's behavior (Facet E) can be symbolic whether the actor's intergroup behavior is comparative or interactive, but the operational domain applies only to overt acts, so that, as basis 3 for the elimination of some permutations, "a 'c' in Facet D cannot be followed by an 'o' in Facet E."

Finally, if the domain of the actor's behavior is operational (strong element of Facet D), then the expression of belief (weak element of Facet B) would seem inconsistent--i.e., the presumption would be that although the individual or group actually performs some intergroup action overtly (operationally), they only believe they so act and do not actually act (weak element, "belief," of Facet B). Provision is made for the situation in which an individual is not certain whether a particular item--of whatever level--applies: such provision is made in the foil "uncertain." Note, however, that such uncertainty does not imply the concurrent action and unawareness of action which would be implied by the combination of a weak element, belief, in Facet B, and a strong element, operationally, in Facet E. The basis 4 for the elimination of

some permutations, therefore, may be expressed "an 'o' in Facet E cannot be preceded by a 'b' in Facet B."

The final column in Figure 3.06 indicates in summary fashion which of the bases for elimination of permutations apply to which permutations. Twelve permutations remain semantically possible. The concluding section of this chapter indicates the facet profile for each permutation, some relationships amoung the 12 permutations, and sample directions and items which can be written consistently with the requirements of each facet profile.

Semantic Map of Conjoint-struction Verbalizations

In the second part of the preceding chapter and in the preceding parts of this chapter, Guttman's original four-level system of attitude-item analysis, Jordan's six-level adaptation of the system, and some implications of that adaptation, have been described. A summary of those implications may be helpful.

Jordan suggested, as did Guttman, that the choice of a "best" system remains arbitrary. He further suggested that some permutations of five two-element facets may be semantically inconsistent. Of the 32 permutations which might be formed, only 12 seem semantically consistent. A further examination of the 12 permutations reveals that varying numbers of those permutations belong to different levels--i.e., if a level is defined by the number of

strong or weak elements found in the attitude items of that level, then one permutation exists on level I, three permutations exist on level II, four permutations exist on level III, two permutations exist on level IV, and one permutation exists on each of levels V and VI. This concluding section of Chapter 3 comprises a description of the 12 facet-element permutations which appear semantically possible and an examination of some possible relationships among those permutations.

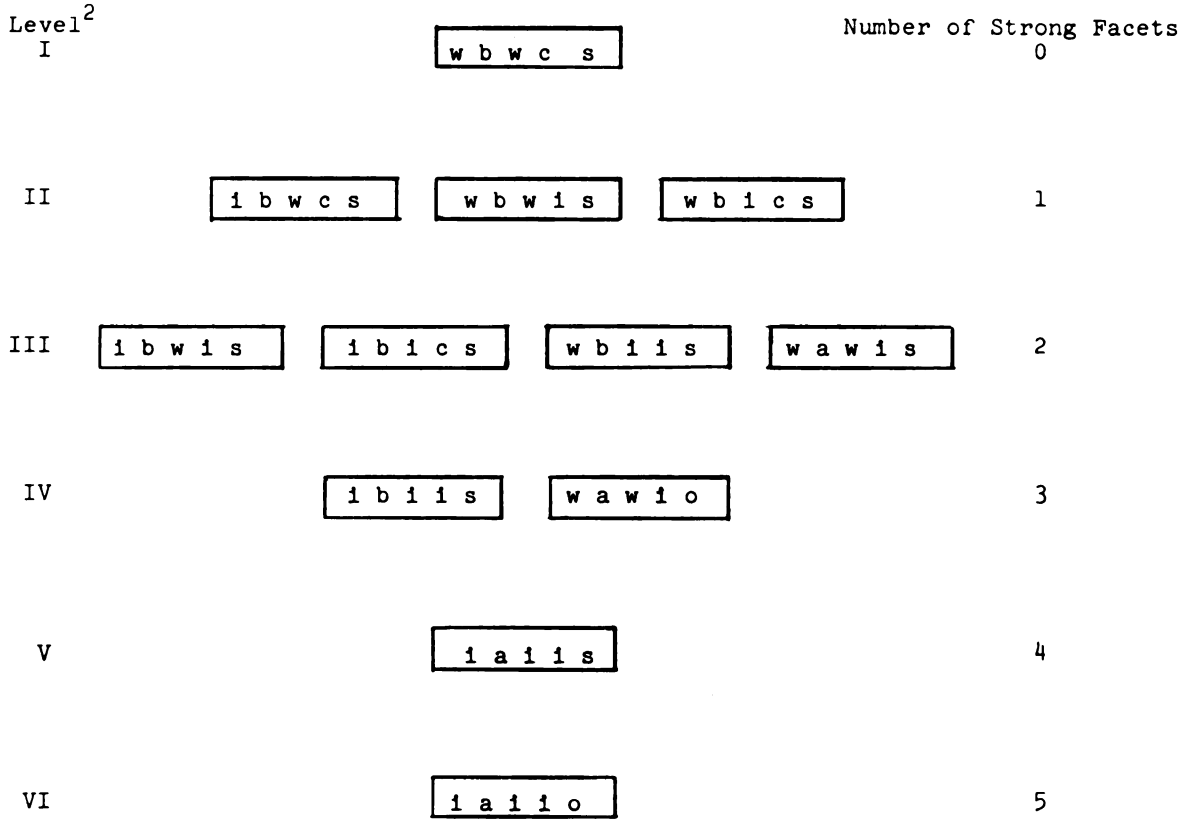
Arrangement

Assumptions

Following the formulations of Guttman and Jordan, levels of attitude-item behavior are defined by the number of strong and weak elements in the facets of items belonging to those levels. "Level members," or permutations which belong to various levels, are as follows: level members of level I have no strong elements, members of level II have one strong facet, members of level III have two strong facets, members of level IV have three strong facets, members of level V have four strong facets, and members of level VI have strong elements in all five facets. Figure 3.07 is a schematic presentation of the six levels and corresponding level members which appear possible. Following the letter designations of Figure 3.06, the 12 permutations have been identified by the first letters of

FIGURE 3.07

Five-Facet Six-Level System of Attitude Verbalizations: Twelve Hypothesized Level Members[1]



[1]See Figures 3.05 and 3.06 for identification of letters within boxes; each box contains a symbolic expression of a level-member definitional statement.

[2]All members of any one level, following the Guttman and Jordan formulations, have the same number of strong and weak facets.

the appropriate elements for each facet. To summarize: in Facet A, "w" stands for "we" and "i" stands for "I"; in Facet B, "b" stands for "believe" and "a" stands for "act"; in Facet C, "w" stands for "we" and "i" stands for "I"; in Facet D, "c" stands for "compare" and "i" stands for "interact"; and in Facet E, "s" stands for "symbolically" and "o" stands for "operationally." The definitional statement for the one permutation on level I, therefore, identified as "wbwcs," is read "we believe we compare sybolically." Figure 3.08 indicates the six levels, 12 permutations, facet profiles, and definitional statements for the hypothesized five-facet, six-level system.

An examination of Figure 3.07 reveals that only certain sequences of level-to-level facet changes have the character of progressive, irreversible element changes found in the Guttman and Jordan formulations: i.e., if a "semantic path" is defined as any sequence of level members such that each level member has one more strong facet than the immediately preceding level member and one less strong facet than the immediately following level member, and such that, within the sequence of level members, no facet becomes weak once it has been changed from weak to strong, then only a limited number of semantic paths exist within the hypothesized system. The restrictions of such a definition of semantic path are based on the assumption that addition of strong facets has a progressive, cumulative

FIGURE 3.08

Five-Facet Six-Level System of Attitude Verbalizations:[1]
Levels, Facet Profiles, and Definitional
Statements for Twelve Permutations

Level	Facet Profile	Definitional Statements[2]	Descriptive Name[3]
I	w b w c s	We believe we compare symbolically	Stereotype (group-assigned group status)
II	i b w c s	I believe we compare symbolically	Personally-assigned group status
	w b w i s	We believe we interact symbolically	Societal interactive norm
	w b i c s	We believe I compare symbolically	Group-assigned personal status
III	i b w i s	I believe we interact symbolically	Moral evaluation (perceived values)
	i b i c s	I believe I compare symbolically	Self-concept (personally-assigned personal status)
	w b i i s	We believe I interact symbolically	Proclaimed laws (group expectations)
	w a w i s	(We act) we interact symbolically	Group identity (actual group feelings)
IV	i b i i s	I believe I interact symbolically	Hypothetical personal behavior
	w a w i o	(We act) we interact operationally	Actual group behavior
V	i a i i s	(I act) I interact symbolically	Actual personal feelings
VI	i a i i o	(I act) I interact operationally	Actual personal behavior

[1]Cf. Figures 2.06, 3.05 and 3.06

[2]Words in parentheses are part of redundant but consistent statements.

[3]Alternate names in parentheses indicate relationships of various level members; cf. Figures 3.09, 3.10, and 3.11.

effect upon the strength of an item: i.e., a particular level member can be hypothesized to be stronger than a member of a preceding level if and only if the preceding level member has no strong facets which do not also appear as strong in the following level member. The system has not yet been sufficiently defined or tested to permit hypotheses about the relative strength of two level members which have the same number but not the same combination of strong and weak facets. A further discussion of semantic paths constitutes the second part of this final section of Chapter III.

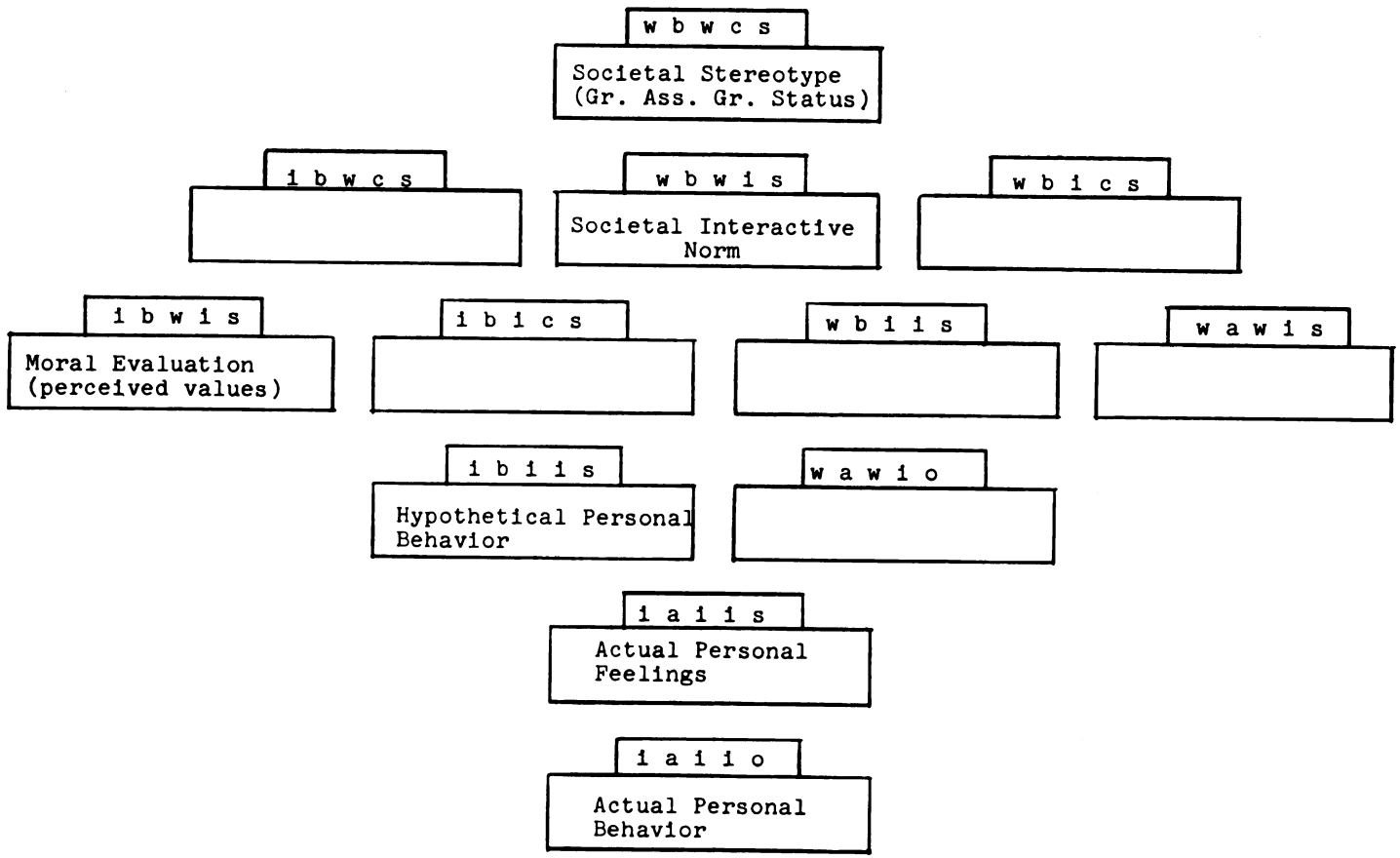
Level-member Names

Guttman assigned descriptive names to the four level members, or permutations of the three two-element facets, in his original system. Jordan similarly assigned additional descriptive names to the level members in his five-facet, six-level system. Such assignment of descriptive names was made so as to be consistent with the definitional statements for various level members (see Figures 2.02 and 2.05).

In the present study, additional descriptive names have been assigned to the six level members implied in but not stated in the Jordan adaptation. Figure 3.09, an adaptation of Figure 3.07, indicates that Jordan's original level-member names have been preserved. Figures 3.10 and 3.11, with the accompanying commentary, indicate the

FIGURE 3.09

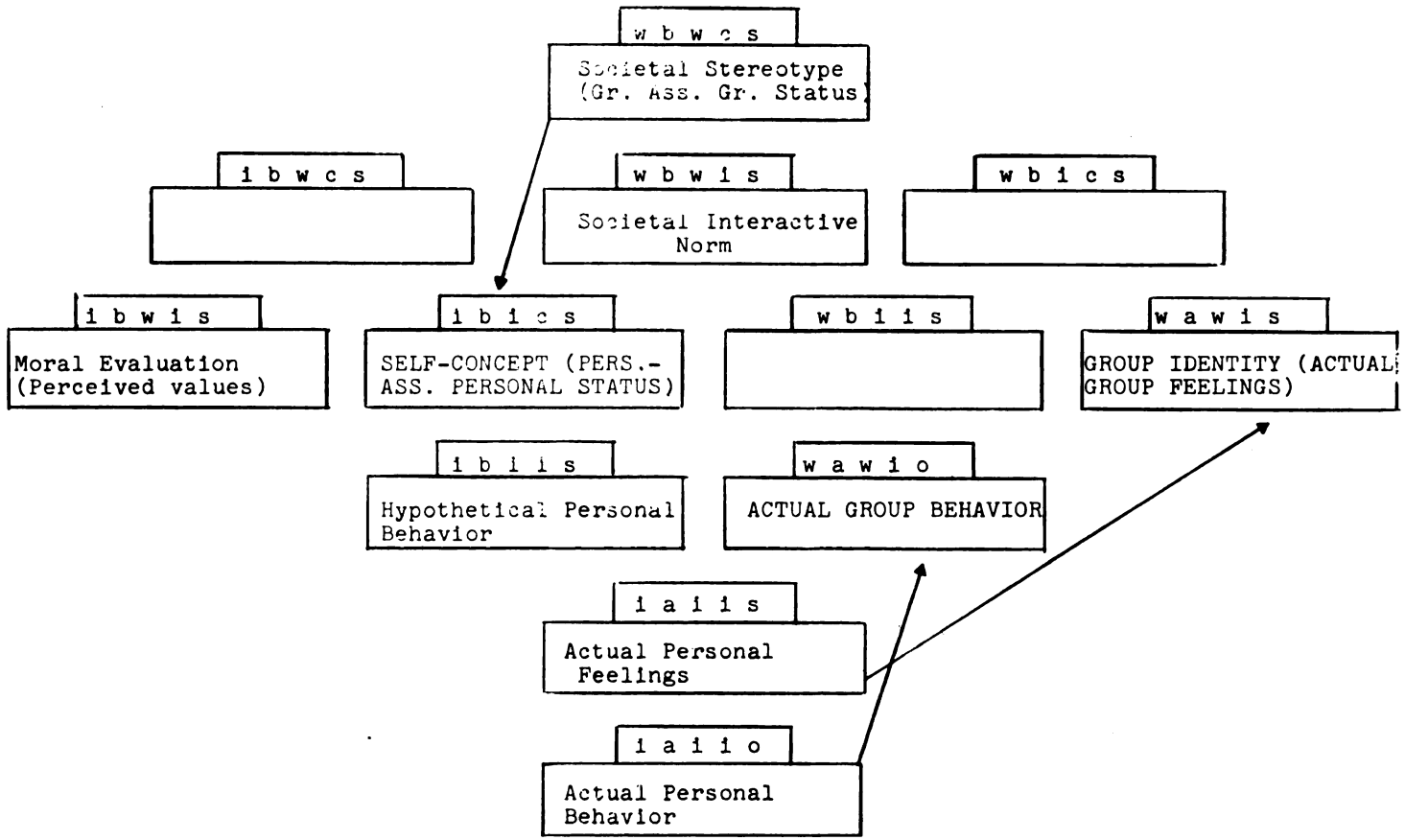
Five-Facet Six-Level System of Attitude Verbalizations:
Jordan's Set of Six Permutations[1]



[1]Cf. Figure 3.07 for design of schematization; see Figure 3.08 for names entered in boxes below symbols.

FIGURE 3.10

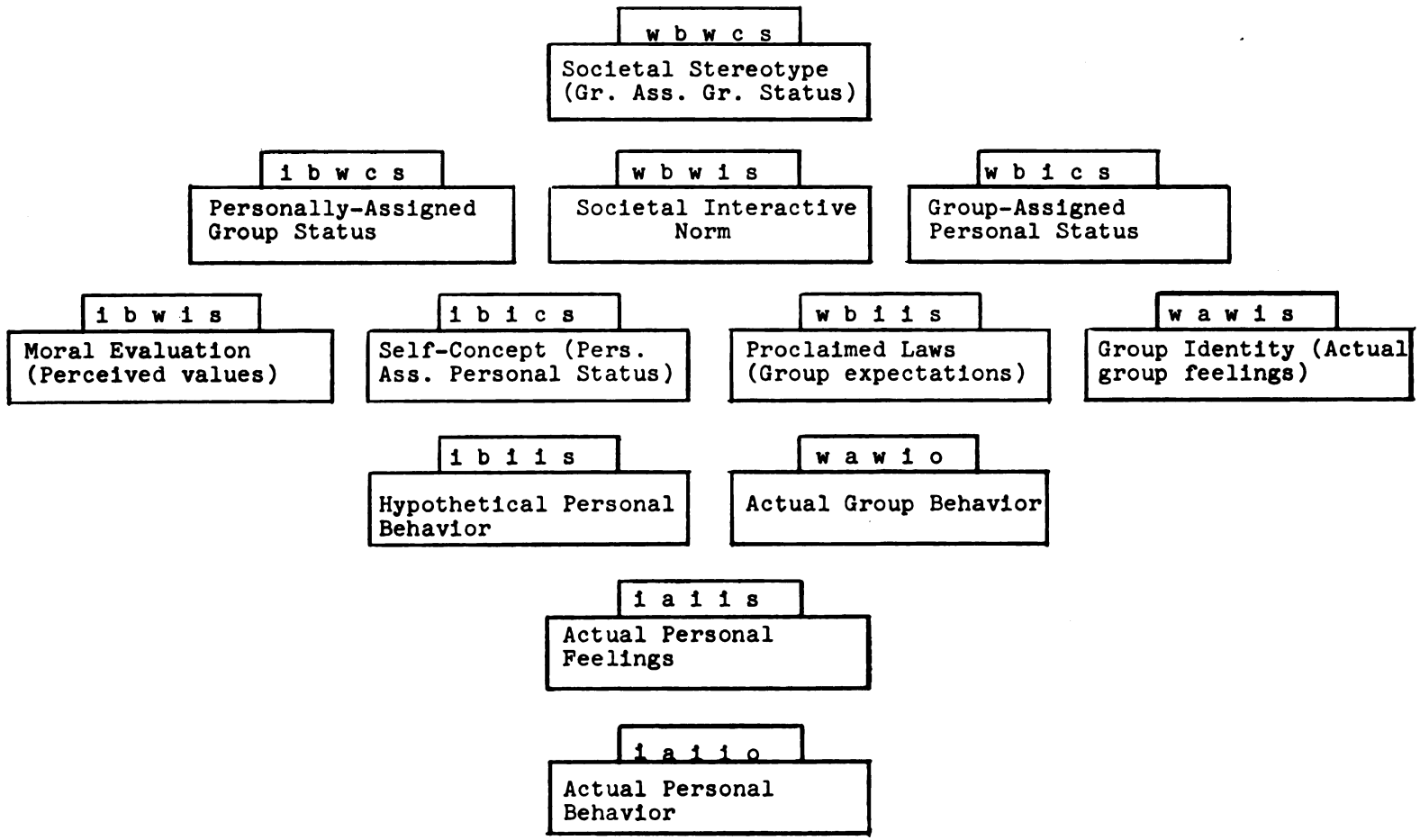
Five-Facet Six-Level System of Attitude Verbalizations: Correspondence with Jordan Names[1]



[1]Names in capital letters chosen for consistency with original Jordan names; Jordan names in capital and lower-case letters, with arrows indicating consistencies.

FIGURE 3.11

Five-Facet Six-Level System of Attitude Verbalizations: Twelve Hypothesized Level Members:[1] Definitional Statements and Descriptive Names



[1]Cf. Figure 3.08.

consistency of the new names with the original six assigned by Jordan and the inter-relationships of all level-member names.

The following paragraphs indicate general instrument directions and examples of specific items corresponding to each of the 12 hypothesized level members.

Societal Stereotype (group-assigned group status): for the definitional statement "we believe we compare symbolically" general directions would read

> This section contains statements about ideas which you may share with other people about persons who are ----. If a statement describes the ideas of most people like yourself, mark the answer "agree" . . . etc.

A sample item might be "We think that we are less intelligent than most ---- persons."

Personally-assigned group status: for the definitional statement "I believe we compare symbolically" general directions would read

> This section contains statements about ideas which you may have about yourself and others who are not ----. If a statement describes how you think, mark the answer "agree" . . . etc.

A sample item might be "I think that we are less intelligent than most ---- persons."

Societal interactive norm (group-assumed group behavior): for the definitional statement "We believe we interact symbolically" general directions would read

> This section contains statements about ways in which you and others may think you behave toward persons

> who are ----. If a statement describes how you think you behave toward ---- persons, mark the answer "agree". . . . etc.

A sample item might be "We think that we have some friends who are ----."

Group-assigned personal status: for the definitional statement "We believe I compare symbolically" general directions would read

> This section contains statements about ideas which other persons who are not ---- may have about you. If a statement describes what people like yourself think about you, mark the answer "agree" . . . etc.

A sample item might be "Other people think that I am less intelligent than most ---- persons."

Personal Moral Evaluation: for the definitional statement "I believe we interact symbolically" general directions would read

> This section contains statements about ideas which you may have about how you and others should act toward ---- persons. If a statement describes how you think you and others should act, mark the answer "agree". . . . etc.

A sample item might be "We should be friends with persons who are ----."

Self-concept (personally-assigned personal status): for the definitional statement "I believe I compare symbolically" general directions would read

> This section contains statements about ideas you may have about yourself. If a statement describes your opinion of yourself, mark the answer "agree" . . . etc.

A sample item might be "I think that I am less intelligent than most ---- persons."

Proclaimed laws (stated group expectations): for the definitional statement "We believe I interact symbolically" general directions would read

> This section contains statements about ideas which people like you may have about how you act toward ---- persons. If a statement describes how others expect you to act toward ---- persons, mark the answer "agree" . . . . etc.

A sample item might be "Other people expect me to have friends who are ----."

Group identity (actual group feelings): for the definitional statement "We act we interact symbolically" general directions would read

> This section contains statements about feelings that you and people like yourself may have about ---- persons. If a statement describes your feelings about ---- persons, mark the answer "agree". . . . etc.

A sample item might be "We are not frightened by ---- persons."

Personal Hypothetical Behavior: for the definitional statement "I believe I interact symbolically" general directions would read

> This section contains statements about how you think you would act toward ---- persons. If a statement describes how you think you would act, mark the answer "agree" . . . . etc.

A sample item might be "I would have friends who are ----."

Actual group behavior: for the definitional statement "We act we interact operationally" general directions would read

> This section contains statements about how persons like yourself actually behave toward persons who are ----. If a statement describes how you and persons like yourself actually behave, mark the answer "agree" . . . . etc.

A sample item might be "We have friends who are ----."

Personal Feelings: for the definitional statement "I act I interact symbolically" general directions would read

> This section contains statements about feelings which you yourself may have about ---- persons. If a statement describes a feeling which you have, mark the answer "agree" . . . . etc.

A sample item might be "I am not frightened by ---- persons."

Actual Personal Behavior: for the definitional statement "I act I interact operationally" general directions would read

> This section contains statements about your own behavior toward persons who are ----. If a statement describes an action of yours, mark the answer "agree" . . . . etc.

A sample item might be "I have friends who are ----."

Some remarks about the above interpretations of directions and items for various level members may be helpful. Some of the level members for which items might be written may also be open to more valid methods of measurement. For example, which is more accurate--a compilation of individuals' scores on the items of "Actual Personal Behavior" or the score of one individual on items of "Actual Group Behavior"? The answer depends upon the particular research emphasis: which is more important in a particular study--

a summary of what a group of individuals thinks about their own individual actions (many scores on "Actual Personal Behavior"), or a statement of what one group member thinks about the actions of his entire group (one score on "Actual Group Behavior")?

An examination of the above item samples reveals that item content is in part related to item definitional statement. Note, for example, that the content of "Group Identity" and "Personal Feelings" is similar, but that statements about feelings would be inappropriate in such level members as "Proclaimed Laws" or "Societal Interactive Norm." A closer examination of the item examples above, with reference to specific levels of the members involved, reveals that, as items change in definitional statement so as to become stronger--i.e., so as to include more strong and fewer weak elements--the content of the items tends to change from ideas or intellectual behavior to feelings or emotive behavior to instances of concrete overt actions. Such a trend may in part clarify what Guttman refers to as stronger and weaker items and levels.

Finally, the directions suggested above have been written so as to be independent of each other. A general set of introductory directions which would be consistent with any set of level members as indicated above would read:

> You yourself and other persons like you often behave in the same way toward persons who are ----. You also have some general ideas about yourself, about others like you, and about persons who are ----. Sometimes you behave the same way toward everyone,

> and sometimes you may behave differently toward persons who are ----.
>
> This questionnaire has statements about ideas and about behavior. Each section of this questionnaire is different from every other section, although some of the statements in each section are similar. Your answers in one section, therefore, may be the same as answers in another section, or your answers may differ from section to section.
>
> Try to mark each set of statements as accurately as possible. If you agree with a particular statement, mark the answer "agree". . . etc.

Comparisons within Levels

Because more than one level member appears within some levels of the presently hypothesized system, an examination of the various members found within levels II, III, and IV may be helpful. Three members exist on level II, four on level III, and two on level IV.

The difference between "Personally-Assigned Group Status" and "Group-Assigned Personal Status" is implied in the two descriptive names: the former is verbalized in statements about the relative status of a group by a group member; the latter is verbalized in statements about the group member's perception of status assigned to him by his group. Finally, both "Group-Assigned Personal Status" and "Personally-Assigned Group Status" differ from "Societal Interactive Norm" in the same way: the two former level members are verbalized in statements about symbolic comparisons; the latter is verbalized in statements about symbolic interactions. See Figure 3.12.

FIGURE 3.12

Members of Level II[1]

Profile	Definitional Statement	Descriptive Name
i b w c s	I believe we compare symbolically	Personally-Assigned Group Status
w b w i s	We believe we interact symbolically	Societal Interactive Norm
w b i c s	We believe I compare symbolically	Group-Assigned Personal Status

[1]cf. Figures 3.08 and 3.11.

Within level III, "Moral Evaluation" differs from "Proclaimed Laws" in that items of the former express the individual's perceptions of behavior to be expected from his group and items of the latter express group expectations as perceived by the individual. "Self-Concept" differs from "Group Identity" (Actual group feelings) in that items of the former express personal beliefs about personal actions and items of the latter express group feelings; the behavior expressed in each is, however, symbolic. See Figure 3.13. The violations of the simplex ordering which appear in Jordan's testing of his system (see Figures 2.07 and 2.08) may be due in part to the fact that four permutations, or level members, appear possible on level III: most of the violations of simplex ordering found by Jordan involve level III.

FIGURE 3.13

Members of Level III[1]

Profile	Definitional Statement	Descriptive Name
i b w i s	I believe we interact symbolically	Moral Evaluation (Perceived Values)
i b i c s	I believe I compare symbolically	Self-Concept (Personally-Assigned Personal Status)
w b i i s	We believe I interact symbolically	Proclaimed Laws (Group Expectations)
w a w i s	We interact symbolically	Group Identity (Actual Group Feelings)

[1]cf. Figures 3.08 and 3.11.

Within level IV, "Hypothetical Personal Behavior" differs from "Actual Group Behavior" in that items of the former express personal beliefs about symbolic interaction while items of the latter express actual group interaction. As indicated in the following, concluding part of this section of Chapter III, the present condition of theory formulation does not permit hypotheses about which of the two level members, "Hypothetical Personal Behavior" or "Actual Group Behavior," is closer to "Actual Personal Feelings" or "Actual Personal Behavior." See Figure 3.14.

FIGURE 3.14

Members of Level IV[1]

Profile	Definitional Statement	Descriptive Name
i b i i s	I believe I interact symbolically	Hypothetical Personal Behavior
w a w i o	We interact operationally	Actual Group Behavior

[1]cf. Figures 3.08 and 3.11.

Semantic Paths

A "semantic path" has been defined above as any sequence of level members such that each level member has one more strong facet than the immediately preceding level member and one less strong facet than the immediately following level member, and such that, within the sequence of level members, no facet becomes weak once it has been changed from weak to strong. The simplex ordering hypothesized by Guttman and tested by Jordan applies only to the set of level members found within one semantic path. By extension of Guttman's reasoning, if items are written for each of the level members of a given semantic path, then any failure to approximate a simplex (matrix of level-by-level correlations) is due to inappropriate assignment of items to levels. Discussion of the relationship of level members from different semantic paths is presented in the concluding Chapter, "Summary and Conclusions."

An examination of Figure 3.07 reveals six six-level semantic paths and one four-level semantic path (comprising levels I to IV, and excluding levels V and VI). Figures 3.15 through 3.21 indicate the combinations of permutations constituting those seven semantic paths.

FIGURE 3.15

Semantic Path A

Profile	Descriptive Name	Level
w b w c s	Societal Stereotype	I
i b w c s	Personally-Assigned Group Status	II
i b w i s	Moral Evaluation	III
i b i i s	Hypothetical Personal Behavior	IV
i a i i s	Actual Personal Feelings	V
i a i i o	Actual Personal Behavior	VI

FIGURE 3.16

Semantic Path B

Profile	Descriptive Name	Level
w b w c s	Societal Stereotype	I
i b w c s	Personally-Assigned Group Status	II
i b i c s	Self-Concept	III
i b i i s	Hypothetical Personal Behavior	IV
i a i i s	Actual Personal Feelings	V
i a i i o	Actual Personal Behavior	VI

FIGURE 3.17

Semantic Path C[1]

Profile	Descriptive Name	Level
w b w c s	Societal Stereotype	I
w b w i s	Societal Interactive Norm	II
i b w i s	Moral Evaluation	III
i b i i s	Hypothetical Personal Behavior	IV
i a i i s	Actual Personal Feelings	V
i a i i o	Actual Personal Behavior	VI

[1]Semantic path C comprises the set of "best" permutations of elements proposed by Jordan.

FIGURE 3.18

Semantic Path D

Profile	Descriptive Name	Level
w b w c s	Societal Stereotype	I
w b w i s	Societal Interactive Norm	II
w b i i s	Proclaimed laws	III
i b i i s	Hypothetical Personal Behavior	IV
i a i i s	Actual Personal Feeling	V
i a i i o	Actual Personal Behavior	VI

FIGURE 3.19

Semantic Path E

Profile	Descriptive Name	Level
w b w c s	Societal Stereotype	I
w b i c s	Group Assigned Personal Status	II
i b i c s	Self-Concept	III
i b i i s	Hypothetical Personal Behavior	IV
i a i i s	Actual Personal Feelings	V
i a i i o	Actual Personal Behavior	VI

FIGURE 3.20

Semantic Path F

Profile	Descriptive Name	Level
w b w c s	Societal Stereotype	I
w b i c s	Group-Assigned Personal Status	II
w b i i s	Proclaimed Laws	III
i b i i s	Hypothetical Personal Behavior	IV
i a i i s	Actual Personal Feelings	V
i a i i o	Actual Personal Behavior	VI

FIGURE 3.21

Semantic Path G[1]

Profile	Descriptive Name	Level
w b w c s	Societal Stereotype	I
w b w i s	Societal Interactive Norm	II
w a w i s	Group Identity (Group Feelings)	III
w a w i o	Actual Group Behavior	IV

[1]Note that (cf. Figure 3.11) present theory formulation does not specify relationship of "Actual Group Behavior" to level members outside semantic path G: in particular, theory does not provide for inclusion of levels V and VI in this particular semantic path.

Summary

Guttman identified four levels of attitude items and suggested a specific choice of level members within those levels comprising more than one member. Jordan, expanding the Guttman system to six levels, suggested that not all permutations of strong-weak facets are logical and that, among the logical permutations, the choice of a "best set" of permutations remains arbitrary.

The discussion above comprises an analysis of which permutations are possible and which sets of those permutations--i.e., which semantic paths--are subject to the criterion of simplex approximation. The design of the present study, therefore, as stated in the following Chapter, comprises a series of tests of simplex approximation of the

semantic paths identified in the present chapter. The implications are as follows: if data from the administration of items as discussed above result in a series of simplex approximations, then the implications of Guttman's original system and of Jordan's adaptation have been correctly identified; if, on the other hand, analysis of the various matrices from the identified semantic paths does not reveal a series of simplex approximations, then at least some of the implications of Guttman's system have been incorrectly identified. A more complete discussion of research-design implications is found in the following Chapter.

CHAPTER IV

RESEARCH DESIGN

Problems

As indicated in the conclusion of Chapter III, the design of the present study comprised a series of tests of simplex approximation; for each of the seven hypothesized semantic paths, the matrix of level-by-level correlations was expected to appear similar to the ideal simplex proposed by Guttman.

Two problems were implied in such a design: (a) how test the "goodness" of a particular simplex approximation? and (b) since the analysis was of attitude verbalizations, how insure that simplex approximations were more than a reflection of verbal behavior which might or might not have had any relation to non-verbal behavior? In particular, did the order in which the various level members of a semantic path were administered have any effect upon the correlations among those level members? A third problem, noted also in Chapter III, was that of uniformity of response foils. Uniformity of all foils ("1--agree; 2--uncertain; 3--disagree"), although defensible on the grounds noted in Chapter III, was open to the criticism of response bias.

Simplex Approximation Test

Figure 4.01 is a hypothetical matrix of level-by-level correlations for a five-facet six-level system; the Figure presents not an approximation of a simplex but rather one special case of a perfect simplex. Figure 4.02 is also a hypothetical matrix, an approximation of a simplex. Note that the violations of simplex requirements in Figure 4.02 are in both rows and columns; the crucial question is "how much of a violation of simplex?"

FIGURE 4.01

Hypothetical Matrix of Level-by-level Correlations Indicating a Special Case[1] of Perfect Simplex

Level	Level I	II	III	IV	V	VI
I	1.00					
II	.60	1.00				
III	.50	.60	1.00			
IV	.40	.50	.60	1.00		
V	.30	.40	.50	.60	1.00	
VI	.20	.30	.40	.50	.60	1.00

[1]The simplex requirement specifies only that, within such a matrix, the magnitude of individual correlations decreases down each column, and, from right to left from the main diagonal, across each row. The special case here involves identical correlations along each diagonal and equal sized differences among adjacent correlations.

FIGURE 4.02

Hypothetical Matrix of Level-by-level Correlations Indicating Various Violations of Simplex[1]

Level	Level I	II	III	IV	V	VI
I	1.00					
II	.58	1.00				
III	.55	.59	1.00			
IV	.53	.50	.55	1.00		
V	.48	.45	.54	.61	1.00	
VI	.30	.40	.66	.50	.62	1.00

[1]Correlations involved in a simplex violation are enclosed in boxes.

Order of Administration

Preliminary data from administration of Jordan's adaptation indicated the possibility of empirical simplex approximation. But all of Jordan's data were obtained from administration of various level-member scales in the same order: the Jordan instrument presented all items of level I first, then all items of level II, etc. Was the correlation between two levels a reflection of the relationship between the attitude levels being verbalized or a reflection of the fact that the two verbalizations were measured near to each other in time? In each of the simplex approximations (cf. Figures 2.07, 2.08, and 2.09), the correlation between levels I and II was greater than that between levels I and VI. But such a difference

might not have been due to a difference in items of the three levels. The second problem, therefore, was "does order of administration of level-member items affect the simplex approximation?"

Item Phrasing

As noted in Chapter III, a possible solution to some interpretative problems was to write items on all levels so that all foils were the same for all items. One objection to such an approach to item formulation was that of the danger of response set, or response bias, or the tendency to answer all questions with identical foils in a similar fashion, independently of the content of a specific item (Guilford, 1954).

Approaches

Two characteristics seemed necessary for any research-design approach to the problems indicated above: (a) consistency with the formulations indicated in Chapter III and (b) assurance of appropriate data for answering the questions posed. The approaches indicated below appeared to have both characteristics.

Simplex Approximation Test

Kaiser (1962) suggested a procedure

> for scaling the variables of a Guttman simplex . . . . The procedure . . . orders the variables. A measure of the goodness of fit of the scale to the data is suggested (p.155).

Kaiser's approach may be seen as performing two functions: (a) a "sorting" of virtually all possible arrangements of data so as to generate the best empirically possible simplex approximation; and (b) an assignment of a descriptive statistic, "$\underline{Q}^2$," to specified matrices. The index $\underline{Q}^2$ is a descriptive one, with a range of 0.00 to 1.00.

A computer program was developed which (a) re-ordered the level members of each semantic path, by Kaiser's procedures, so as to generate the best empirically possible simplex approximation; and (b) calculated $\underline{Q}^2$ for the hypothesized ordering and for the empirically best ordering of members in each semantic path.

At the time of the research completion, appropriate likelihood ratios for measuring goodness of fit were not available. Mukherjee (1966) suggested a method which appeared appropriate for matrices of equally spaced correlations, but neither the theory set forth in Chapter III nor the actual data suggested that the matrices in the present study had equally spaced entries.

No statistical comparisons were made across matrices--i.e., from simplex approximation to simplex approximation. Guttman (1950) indicated that such comparisons could generally be made within the framework of his "radex" theory, but that attitude scales should not be so analyzed.

Finally, because directionality and grammatical emphasis were controlled for by randomization, the analysis

of the effect of directionality and grammatical emphasis was not within the scope of the study. A follow-up study, utilizing procedures indicated at the conclusion of Appendix F, is discussed in Chapter VI.

Order of Administration

If the order in which a set of level-member verbalizations is presented has an effect upon the correlation of that level member with other level members, then sets of level-member verbalizations should generate better simplex approximations when listed by order of administration than when listed by relative position within a semantic path. One way to check such a possibility was to administer all the sub-tests representing the corresponding level members of a particular semantic path in some random order. If the matrix generated by listing correlations according to the hypothesized semantic path order remained a better simplex approximation than that generated from the random order of administration, then (a) order of administration was not of major importance in the simplex approximation, and (b) some indirect support would be given to the assumption that more than mere verbalizations were involved in the responses to a given set of items.

In other words, if the best simplex approximations are independent of order of administration, than (a) at least, individuals are able to distinguish the levels of behavior verbalized in the various level members; and (b)

although the verbalizations would remain open to the criticisms leveled at all "paper-and-pencil" tests, some assurance would exist that the specific item verbalizations being used were related to each other in an ordered fashion.

Appendix G includes a listing of each semantic path and the following information: (a) specific level members included in the path; (b) the particular random order in which the sets of items, corresponding to the various level members, were administered; and (c) the level-by-level sequence in which the level members were also administered. No hypotheses were made regarding a particular random order, but each semantic path was administered both in some random order and in the level-by-level order. Although the distribution of $\underline{Q}^2$ was not known--hence, probability statements about "better" or "worse" fits could not be made--the general hypothesis to be examined was that the level members of a particular semantic path generate the best simplex approximation--hence, are best ordered--when listed level-by-level, regardless of the order of administration.

Item Phrasing

The sample items and general directions indicated in Chapter III do not specify a particular attitude object. Further, each item has been phrased in a particular way. In the following section, the choice of "emotionally disturbed" as attitude object is discussed. The present section deals with item phrasing.

In Chapter III the sample item for level I (definitional statement: we believe we compare symbolically) was given as "We think that we are less intelligent than most ---- persons." The same item could have been phrased, without changing the directionality of the foils (agree, uncertain, disagree), "We think that most ---- persons are more intelligent than we are."

If the directionality of the foils were reversed--i.e., so that "agree" indicated a stereotypic behavior unfavorable toward the attitude object--two more variations of the same item could be written: (a) "We think that we are more intelligent than most ---- persons" and (b) "We think that most ---- persons are less intelligent than we are."

Two aspects of phrasing appear in these variations: directionality of the item and grammatical position of the "actor." An individual item could be phrased so that agreement is either favorable or unfavorable toward the attitude object; an item could also be phrased so that either the actor or the attitude object was grammatically emphasized. Each item could therefore be phrased four different ways without a change in specification of situation--i.e., without a change in "disjoint struction."

Appendix B contains examples of the four item variants used in the research instrument of the present study. Appendix C contains the actual items as administered. Each

set of disjoint-struction items (one set for each of the 12 hypothesized level members) was randomly assigned to one of the four phrasing combinations.

Such random assignment was done to control for the effect of various types of phrasing between levels: if all items on all levels were randomly distributed among the four variants of phrasing, then phrasing might be assumed to have no direct effect on the over-all pattern of level-by-level correlations.

On the other hand, since the effect of specific disjoint-struction items upon total scale score or upon score for a given level was not specified, effects of disjoint and conjoint struction interation within levels could not be specified without the construction of another instrument analogous to that indicated in Appendix C. Such construction was beyond the scope of the present study. Further discussion of conjoint-disjoint struction interaction is found in Chapter VI.

Summary

Simplex approximations could be tested by the procedures suggested by Kaiser. To test the effect of order of administration on simplex approximation, sets of level members from each semantic path were administered in a random order, so that a comparison could be made of the simplex arranged by order of administration and the simplex of the same data arranged by order of level. Further, an independent test of

simplex approximation achieved from an ordering of level members from I to VI was run to provide additional support to the validity of the present formulation as an accurate extension of Guttman's system. Finally, all items in all level members were presented in one of four variant item phrasings. Selection of the specific phrasing for each item was by random assignment, to control for the effect of various types of phrasing--in particular, the possible effect of response bias in an instrument where answer foils are uniform throughout.

Attitude Object

The sample items and general directions indicated in Chapter III do not specify a particular type of person as attitude object. One characteristic of the present formulation is that the analyses involved are independent of a particular attitude object, provided that object is some specifiable group of persons. The attitude object specified in the present study was the "emotionally disturbed" person, described in the instrument as including "those children or adults whose behaviors, feelings, or emotions cause them to have difficulties with every-day problems which they are unable to solve." Such a specification rested in part on the assumption that the term "emotionally disturbed" possessed a large enough commonality of meaning as to be susceptible to measurement by verbal report. An additional reason for the choice of this particular attitude object was the lack of research of the type proposed by Guttman and Jordan on attitudes toward the emotionally disturbed.

SAF Content

As noted in Chapter III, item content appeared in part related to item definitional statements. Note, for example, that the content of "Group Identity" and "Personal Feelings" is similar, but that statements about feelings would have been inappropriate in such level members as "Proclaimed Laws" or "Societal Interactive Norm." General content was found, in the analyses of Chapter III, to be of three types: (a) status-descriptive statements of the form "We are more intelligent than ----"; (b) action-descriptive statements of the form "We invite ---- to our home"; and (c) feeling-descriptive statements of the form "We feel loathing toward ----." "SAF" is a symbol for the three general content types: status, action, and feeling. Figure 4.03 indicates the definitional statement (cf. Chapter III) and corresponding general content for each of the 12 hypothesized level members.

In Jordan's later work (Jordan and Hamersma, 1969), content was kept constant across all levels. Such an approach, while permitting direct comparison of items across levels, required the use of such items as "We feel uncomfortable about eating with ----." In analysis of such items, a problem of interpretation arises: is the attitude object the specified person, or eating, or eating-with-the-specified-person? Since analysis of items across levels was not of primary importance in the present study, general

item content was allowed to vary in accordance with the definitional statements for each level member.

FIGURE 4.03

General Content of 12 Hypothesized Level Members

Level	Member	Definitional Statement	Content
I	1	We believe we compare symbolically	status
II	1	I believe we compare symbolically	status
	2	We believe we interact symbolically	action
	3	We believe I compare symbolically	status
III	1	I believe we interact symbolically	action
	2	I believe I compare symbolically	status
	3	We believe I interact symbolically	action
	4	We interact symbolically	feeling
IV	1	I believe I interact symbolically	action
	2	We interact operationally	action
V	1	I interact symbolically	feeling
VI	1	I interact operationally	action

Test Population

Seven semantic paths were identified in Chapter III (cf. Figures 3.15-3.21). Since all level members of a semantic path were administered to the same subject at the same time, 14 groups of subjects were required--seven groups for administration of the semantic-path level members in the I-VI order, and seven groups for administration of the same semantic-path level members in some random orders. An N of approximately 50 was set for each of the 14 groups. Access to sufficiently large and sufficiently homogeneous groups of undergraduate students was arranged through the Department of Psychology and the College of Education at Michigan State University. The subjects were all enrolled in an introductory psychology course or an introductory education course.

Administration of any one semantic path to a subject (no subject responded to more than one semantic path) took approximately 45 minutes. Sets of instruments were prepared for each of the semantic paths in the random arrangements indicated in Appendix G; additional sets of instruments were prepared with the level members assembled in order from I to VI. The first group of random sets was then randomly distributed to the first available approximately 350 subjects; the second group of sets, arranged in level-by-level order, was randomly distributed to the next available approximately 350 subjects.

Scoring

Each set of answer foils was identical in phrasing--"agree," "uncertain," "disagree." Directionality of foils was dependent upon the phrasing of each individual item. Directionality of foils for each possible variant is indicated in Appendix B. Appendix C contains the specific item variants used in the research instrument.

For computational purposes, "uncertain" was always scored "2," while the favorable response (either "agree" or "disagree," depending on item phrasing) was scored "3" and the unfavorable response was scored "1." The higher an individual scored within a given level or across levels, therefore, the more favorable, positive, or "over-favorable" responses he made. Appendices D and E indicate how items were re-scored from the original-response answer sheets.

CHAPTER V

ANALYSIS OF RESULTS

As indicated in Chapter III, the present degree of theory precision permitted analysis of only seven semantic paths, or ordered sets of level-member items. Data from analysis of these seven paths--six level members in paths A - F and four level members in Path G--are presented below.

The level members of each path were administered in two orders: (a) to one group of subjects in a random order; and (b) to a second group of subjects in the order corresponding to the level identification, level I first, level II second, etc. Data for each path are given below in the following order: (a) the matrix of level-by-level correlations for the randomly administered level members, arranged in the random order; (b) a matrix of the same correlations, arranged in the hypothesized order (I, II, III, etc.); (c) a third matrix of the same correlations, arranged in the "best" order, as determined by Kaiser's procedure; (d) the matrix of level-by-level correlations for the second administration of the

same path (administered in the hypothesized order); and (e) a matrix of this second set of correlations, arranged in the best order. The $\underline{Q}^2$ value is indicated for each matrix, as well as the critical value, at the .05 level, for the significance of correlations in the matrix.

In the final section of the chapter, results across all seven paths are summarized and discussed. Particular attention has been paid to comparisons between $\underline{Q}^2$ values for random and hypothesized orders of the same data.

Semantic Path A

Semantic path A comprises level members I 1 (Societal stereotype), II 1 (Personally-assigned group status), III 1 (Moral evaluation), IV 1 (Hypothetical personal behavior), V 1 (Actual personal feelings), and VI 1 (Actual personal behavior). The $\underline{Q}^2$ values for path A randomly administered (Figure 5.01) were: (a) order of administration: 0.617; (b) hypothesized order: 0.823; and (c) best order: 0.942. Of 15 distinct correlations, ten were significant at the .05 level. The hypothesized order, therefore, generated a better simplex approximation than did the random order; the best order of levels was I, II, V, IV, III, VI (a reversal of levels III and V from the hypothesized order).

The $\underline{Q}^2$ values for path A administered in the hypothesized order (Figure 5.02) were: (a) order of administration: 0.877; and (b) best order: 0.899. The best order

FIGURE 5.01

Semantic Path A, Randomly Administered: Correlations and Q^2 Values

Order of Administration: Q^2 = 0.617							Hypothetical Order: Q^2 = 0.823							Best Order: Q^2 = 0.942						
VI 1	1.00						I 1	1.00						I 1	1.00					
V 1	0.18	1.00					II 1	0.70	1.00					II 1	0.70	1.00				
I 1	0.17	0.27	1.00				III 1	0.07	0.15	1.00				V 1	0.27	0.31	1.00			
III 1	0.40	0.23	0.07	1.00			IV 1	0.27	0.27	0.77	1.00			IV 1	0.27	0.27	0.33	1.00		
II 1	0.11	0.31	0.70	0.15	1.00		V 1	0.27	0.31	0.23	0.33	1.00		III 1	0.07	0.15	0.23	0.77	1.00	
IV 1	0.49	0.33	0.27	0.77	0.27	1.00	VI 1	0.17	0.11	0.40	0.49	0.18	1.00	VI 1	0.17	0.11	0.18	0.49	0.40	1.00
Level member	VI 1	V 1	I 1	III 1	II 1	IV 1	Level member	I 1	II 1	III 1	IV 1	V 1	VI 1	Level member	I 1	II 1	V 1	IV 1	III 1	VI 1

Note: N = 69; critical value of r at .05 level = 0.20.

FIGURE 5.02

Semantic Path A, Administered in Hypothetical Order: Correlations and Q^2 Values

Order of Administration: Q^2 = 0.877							Best Order: Q^2 = 0.899						
I 1	1.00						II 1	1.00					
II 1	0.48	1.00					I 1	0.48	1.00				
III 1	0.23	0.24	1.00				III 1	0.24	0.23	1.00			
IV 1	0.20	0.28	0.89	1.00			IV 1	0.28	0.20	0.89	1.00		
V 1	0.34	0.11	0.44	0.57	1.00		VI 1	0.28	0.23	0.42	0.48	1.00	
VI 1	0.23	0.28	0.42	0.48	0.36	1.00	V 1	0.11	0.34	0.44	0.57	0.36	1.00
Level member	I 1	II 1	III 1	IV 1	V 1	VI 1	Level member	II 1	I 1	III 1	IV 1	VI 1	V 1

Note: N = 47; critical value of r at .05 level = 0.24.

of levels was II, I, III, IV, VI, V (a reversal of levels I and II and of levels V and VI from the hypothesized order). Of 15 distinct correlations, 11 were significant at the .05 level.

Semantic Path B

Semantic path B comprises level members I 1 (Societal stereotype), II 1 (Personally-assigned group status), III 2 (Self concept), IV 1 (Hypothetical personal behavior), V 1 (Actual personal feelings), and VI 1 (Actual personal behavior). The $\underline{Q}^2$ values for path B randomly administered (Figure 5.03) were: (a) order of administration: 0.652; (b) hypothesized order: 0.886; and (c) best order: 0.918. Of 15 distinct correlations, 12 were significant at the .05 level. The hypothesized order, therefore, generated a better simplex approximation than did the random order; the best order of levels was I, II, III, V, IV, VI (a reversal of levels IV and V from the hypothesized order).

The $\underline{Q}^2$ values for path B administered in the hypothesized order (Figure 5.04) were: (a) order of administration: 0.879; and (b) best order: 0.905. The best order of levels was I, II, III, V, IV, VI (a reversal, paralleling that occurring in the random-order administration, of levels IV and V from the hypothesized order). Of 15 distinct correlations, all 15 were significant at the .05 level.

FIGURE 5.03

Semantic Path B, Randomly Administered: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.652							Hypothetical Order: $\underline{Q}^2$ = 0.886							Best Order: $\underline{Q}^2$ = 0.918						
V 1	1.00						I 1	1.00						I 1	1.00					
II 1	0.23	1.00					II 1	0.38	1.00					II 1	0.38	1.00				
I 1	0.38	0.38	1.00				III 2	0.44	0.64	1.00				III 2	0.44	0.64	1.00			
VI 1	0.21	0.17	0.02	1.00			IV 1	0.09	0.25	0.27	1.00			V 1	0.38	0.23	0.22	1.00		
III 2	0.22	0.64	0.44	0.27	1.00		V 1	0.38	0.23	0.22	0.40	1.00		IV 1	0.09	0.25	0.27	0.40	1.00	
IV 1	0.40	0.25	0.09	0.57	0.27	1.00	VI 1	0.02	0.17	0.27	0.57	0.21	1.00	VI 1	0.02	0.17	0.27	0.21	0.57	1.00
Level member	V 1	II 1	I 1	VI 1	III 2	IV 1	Level member	I 1	II 1	III 2	IV 1	V 1	VI 1	Level member	I 1	II 1	III 2	V 1	IV 1	VI 1

Note: N = 76; critical value of $\underline{r}$ at .05 level = 0.19.

FIGURE 5.04

Semantic Path B, Administered in Hypothetical Order: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.879							Best Order: $\underline{Q}^2$ = 0.905						
I 1	1.00						I 1	1.00					
II 1	0.78	1.00					II 1	0.78	1.00				
III 2	0.72	0.81	1.00				III 2	0.72	0.81	1.00			
IV 1	0.53	0.47	0.47	1.00			V 1	0.62	0.56	0.54	1.00		
V 1	0.62	0.56	0.54	0.66	1.00		IV 1	0.53	0.47	0.47	0.66	1.00	
VI 1	0.41	0.48	0.49	0.51	0.47	1.00	VI 1	0.41	0.48	0.49	0.47	0.51	1.00
Level member	I 1	II 1	III 2	IV 1	V 1	VI 1	Level member	I 1	II 1	III 2	V 1	IV 1	VI 1

Note: N = 59; critical value of $\underline{r}$ at .05 level = 0.21.

Semantic Path C

Semantic path C comprises level members I 1 (Societal stereotype), II 2 (Societal interactive norm), III 1 (Moral evaluation), IV 1 (Hypothetical personal behavior), V 1 (Actual personal feelings), and VI 1 (Actual personal behavior). This semantic path corresponds to the set of level members first identified by Jordan and used in his original scale. The $\underline{Q}^2$ values for path C randomly administered (Figure 5.05) were (a) order of administration: 0.588; (b) hypothesized order: 0.771; and (c) best order: 0.972. Of 15 distinct correlations, 11 were significant at the .05 level. The hypothesized order, therefore, generated a better simplex approximation than did the random order; the best order of levels was I, V, IV, III, VI, II (a reversal of levels III and IV, and transposition of levels II and V from the hypothesized order).

The $\underline{Q}^2$ values for path C administered in the hypothesized order (Figure 5.06) were: (a) order of administration: 0.812; and (b) best order: 0.884. The best order of levels was I, II, VI, IV, III, V (a reversal of levels III and IV and a transposition of level VI from the hypothesized order). Of 15 distinct correlations, all 15 were significant at the .05 level.

FIGURE 5.05

Semantic Path C, Randomly Administered: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.588							Hypothetical Order: $\underline{Q}^2$ = 0.771							Best Order: $\underline{Q}^2$ = 0.972						
IV 1	1.00						I 1	1.00						I 1	1.00					
III 1	0.75	1.00					II 2	0.08	1.00					V 1	0.35	1.00				
I 1	0.16	0.14	1.00				III 1	0.14	0.34	1.00				IV 1	0.16	0.59	1.00			
VI 1	0.46	0.37	0.16	1.00			IV 1	0.16	0.38	0.75	1.00			III 1	0.14	0.37	0.75	1.00		
V 1	0.59	0.37	0.35	0.34	1.00		V 1	0.35	0.23	0.37	0.59	1.00		VI 1	0.16	0.34	0.46	0.37	1.00	
II 2	0.38	0.34	0.08	0.83	0.23	1.00	VI 1	0.16	0.83	0.37	0.46	0.34	1.00	II 2	0.08	0.23	0.38	0.34	0.83	1.00
Level member	IV 1	III 1	I 1	VI 1	V 1	II 2	Level member	I 1	II 2	III 1	IV 1	V 1	VI 1	Level member	I 1	V 1	IV 1	III 1	VI 1	II 2

Note: N = 64; critical value of $\underline{r}$ at .05 level = 0.21.

FIGURE 5.06

Semantic Path C, Administered in Hypothetical Order: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.879							Best Order: $\underline{Q}^2$ = 0.884						
I 1	1.00						I 1	1.00					
II 2	0.28	1.00					II 2	0.28	1.00				
III 1	0.35	0.34	1.00				VI 1	0.32	0.67	1.00			
IV 1	0.43	0.30	0.87	1.00			IV 1	0.43	0.30	0.53	1.00		
V 1	0.26	0.35	0.64	0.59	1.00		III 1	0.35	0.34	0.52	0.87	1.00	
VI 1	0.32	0.67	0.52	0.53	0.52	1.00	V 1	0.26	0.35	0.52	0.59	0.64	1.00
Level member	I 1	II 2	III 1	IV 1	V 1	VI 1	Level member	I 1	II 2	VI 1	IV 1	III 1	V 1

Note: N = 58; critical value of $\underline{r}$ at .05 level = 0.21.

Semantic Path D

Semantic path D comprises level members I 1 (Societal stereotype), II 2 (Societal interactive norm), III 3 (Proclaimed laws), IV 1 (Hypothetical personal behavior, V 1 (Actual personal feelings), and VI 1 (Actual personal behavior). The $\underline{Q}^2$ values for path D randomly administered (Figure 5.07) were: (a) order of administration: 0.650; (b) hypothesized order: 0.791; and (c) best order: 0.920. Of 15 distinct correlations, all 15 were significant at the .05 level. The hypothesized order, therefore, generated a better simplex approximation than did the random order; the best order of levels was I, V, IV, III, VI, II (a reversal, paralleling that in the random administration of path C, of levels III and IV, and transposition of levels II and V from the hypothesized order).

The $\underline{Q}^2$ values for path D administered in the hypothesized order (Figure 5.08) were: (a) order of administration: 0.812; and (b) best order: 0.902. The best order of levels was I, II, VI, III, IV, V (a transposition of level VI from the hypothesized order). Of 15 distinct correlations, 12 were significant at the .05 level.

Semantic Path E

Semantic path E comprises level members I 1 (Societal stereotype), II 3 (Group-assigned personal status), III 2 (Self concept), IV 1 (Hypothetical personal behavior),

FIGURE 5.07

Semantic Path D, Randomly Administered: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.650							Hypothetical Order: $\underline{Q}^2$ = 0.791							Best Order: $\underline{Q}^2$ = 0.920						
III 3	1.00						I 1	1.00						I 1	1.00					
V 1	0.40	1.00					II 2	0.29	1.00					V 1	0.40	1.00				
I 1	0.37	0.40	1.00				III 3	0.37	0.59	1.00				IV 1	0.35	0.56	1.00			
VI 1	0.61	0.49	0.39	1.00			IV 1	0.35	0.53	0.63	1.00			III 3	0.37	0.40	0.63	1.00		
IV 1	0.63	0.56	0.35	0.64	1.00		V 1	0.40	0.44	0.40	0.56	1.00		VI 1	0.39	0.49	0.64	0.61	1.00	
II 2	0.59	0.44	0.29	0.78	0.53	1.00	VI 1	0.39	0.78	0.61	0.64	0.49	1.00	II 2	0.29	0.44	0.53	0.59	0.78	1.00
Level member	III 3	V 1	I 1	VI 1	IV 1	II 2	Level member	I 1	II 2	III 3	IV 1	V 1	VI 1	Level member	I 1	V 1	IV 1	III 3	VI 1	II 2

Note: N = 61; critical value of $\underline{r}$ at .05 level = 0.21.

FIGURE 5.08

Semantic Path D, Administered in Hypothetical Order: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.812							Best Order: $\underline{Q}^2$ = 0.902						
I 1	1.00						I 1	1.00					
II 2	0.17	1.00					II 2	0.17	1.00				
III 3	0.31	0.46	1.00				VI 1	0.25	0.67	1.00			
IV 1	0.28	0.42	0.65	1.00			III 3	0.31	0.46	0.51	1.00		
V 1	0.18	0.16	0.41	0.52	1.00		IV 1	0.28	0.42	0.58	0.65	1.00	
VI 1	0.25	0.67	0.51	0.58	0.37	1.00	V 1	0.18	0.16	0.37	0.41	0.52	1.00
Level member	I 1	II 2	III 3	IV 1	V 1	VI 1	Level member	I 1	II 2	VI 1	III 3	IV 1	V 1

Note: N = 60; critical value of $\underline{r}$ at .05 level = 0.21.

V 1 (Actual personal feelings), and VI 1 (Actual personal behavior). The $\underline{Q}^2$ values for path E randomly administered (Figure 5.09) were: (a) order of administration: 0.361; (b) hypothesized order: 0.861; and (c) best order: 0.955. Of 15 distinct correlations, eight were significant at the .05 level. The hypothesized order, therefore, generated a better simplex approximation than did the random order; the best order of levels was I, II, III, VI, V, IV (a reversal of levels IV and VI from the hypothesized order).

The $\underline{Q}^2$ values for path E administered in the hypothesized order (Figure 5.10) were: (a) order of administration: 0.865; and (b) best order: 0.872. The best order of levels was I, III, II, IV, V, VI (a reversal of levels II and III from the hypothesized order). Of 15 distinct correlations, 12 were significant at the .05 level.

Semantic Path F

Semantic path F comprises level members I 1 (Societal stereotype), II 3 (Group-assigned personal status), III 3 (Proclaimed laws), IV 1 (Hypothetical personal behavior), V 1 (Actual personal feelings), and VI 1 (Actual personal behavior). The $\underline{Q}^2$ values for path F randomly administered (Figure 5.11) were: (a) order of administration: 0.845; (b) hypothesized order: 0.850; and (c) best order: 0.948. Of 15 distinct correlations,

FIGURE 5.09

Semantic Path E, Randomly Administered: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.361							Hypothetical Order: $\underline{Q}^2$ = 0.861							Best Order: $\underline{Q}^2$ = 0.955						
III 2	1.00						I 1	1.00						I 1	1.00					
IV 1	0.16	1.00					II 3	0.66	1.00					II 3	0.66	1.00				
II 3	0.48	0.14	1.00				III 2	0.57	0.48	1.00				III 2	0.57	0.48	1.00			
V 1	0.06	0.54	0.02	1.00			IV 1	0.14	0.14	0.16	1.00			VI 1	0.20	0.34	0.30	1.00		
I 1	0.57	0.14	0.66	0.01	1.00		V 1	0.01	0.02	0.06	0.54	1.00		V 1	0.14	0.14	0.16	0.56	1.00	
VI 1	0.30	0.56	0.34	0.36	0.20	1.00	VI 1	0.20	0.34	0.30	0.56	0.36	1.00	IV 1	0.01	0.02	0.06	0.36	0.54	1.00
Level member	III 2	IV 1	II 3	V 1	I 1	VI 1	Level member	I 1	II 3	III 2	IV 1	V 1	VI 1	Level member	I 1	II 3	III 2	VI 1	V 1	IV 1

Note: N = 62; critical value of $\underline{r}$ at .05 level = 0.21.

FIGURE 5.10

Semantic Path E, Administered in Hypothetical Order: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.865							Best Order: $\underline{Q}^2$ = 0.872						
I 1	1.00						I 1	1.00					
II 3	0.54	1.00					III 2	0.53	1.00				
III 2	0.53	0.63	1.00				II 3	0.54	0.63	1.00			
IV 1	0.23	0.23	0.22	1.00			IV 1	0.23	0.22	0.23	1.00		
V 1	0.25	0.23	0.11	0.65	1.00		V 1	0.25	0.11	0.23	0.65	1.00	
VI 1	0.01	0.24	0.20	0.61	0.58	1.00	VI 1	0.01	0.20	0.24	0.61	0.58	1.00
Level member	I 1	II 3	III 2	IV 1	V 1	VI 1	Level member	I 1	III 2	II 3	IV 1	V 1	VI 1

Note: N = 59; critical value of $\underline{r}$ at .05 level = 0.21.

13 were significant at the .05 level. The hypothesized order, therefore, generated a better simplex approximation than did the random order; the best order of levels was II, I, V, III, VI, IV (a reversal of levels I and II and transposition of levels IV, V, and VI from the hypothesized order).

The $\underline{Q}^2$ values for path F administered in the hypothesized order (Figure 5.12) were: (a) order of administration: 0.887; and (b) best order: 0.977. The best order of levels was II, I, V, IV, III, VI (a reversal of levels I and II and transposition of levels IV and V, somewhat paralleling the random administration of path F). Of 15 distinct correlations, 14 were significant at the .05 level.

Semantic Path G

Semantic path G comprises level members I 1 (Societal stereotype), II 2 (Societal interactive norm), III 4 (Group identity), and IV 2 (Actual group behavior). As indicated in Chapter III, the present degree of theory precision does not indicate the relationship of levels V and VI to path G. The $\underline{Q}^2$ values for path G randomly administered (Figure 5.13) were: (a) order of administration: 0.865; (b) hypothesized order: 0.514; and (c) best order: 0.965. Of six distinct correlations, five were significant at the .05 level. The hypothesized order, therefore, did not generate a better simplex approximation than did

FIGURE 5.11

Semantic Path F, Randomly Administered: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.845							Hypothetical Order: $\underline{Q}^2$ = 0.850							Best Order: $\underline{Q}^2$ = 0.948						
II 3	1.00						I 1	1.00						II 3	1.00					
III 3	0.46	1.00					II 3	0.61	1.00					I 1	0.61	1.00				
V 1	0.28	0.52	1.00				III 3	0.43	0.46	1.00				V 1	0.28	0.52	1.00			
I 1	0.61	0.43	0.52	1.00			IV 1	0.26	0.14	0.54	1.00			III 3	0.46	0.43	0.52	1.00		
VI 1	0.21	0.60	0.33	0.31	1.00		V 1	0.52	0.28	0.52	0.52	1.00		VI 1	0.21	0.31	0.33	0.60	1.00	
IV 1	0.14	0.54	0.52	0.26	0.60	1.00	VI 1	0.31	0.21	0.60	0.60	0.33	1.00	IV 1	0.14	0.26	0.52	0.54	0.60	1.00
Level member	II 3	III 3	V 1	I 1	VI 1	IV 1	Level member	I 1	II 3	III 3	IV 1	V 1	VI 1	Level member	II 3	I 1	V 1	III 3	VI 1	IV 1

Note: N = 51; critical value of $\underline{r}$ at .05 level = 0.23.

FIGURE 5.12

Semantic Path F, Administered in Hypothetical Order: Correlations and $\underline{Q}^2$ Values

Order of Administration: $\underline{Q}^2$ = 0.887							Best Order: $\underline{Q}^2$ = 0.977						
I 1	1.00						II 3	1.00					
II 3	0.70	1.00					I 1	0.70	1.00				
III 3	0.49	0.43	1.00				V 1	0.52	0.75	1.00			
IV 1	0.64	0.41	0.76	1.00			IV 1	0.41	0.64	0.75	1.00		
V 1	0.75	0.52	0.62	0.75	1.00		III 3	0.43	0.49	0.62	0.76	1.00	
VI 1	0.31	0.22	0.48	0.70	0.36	1.00	VI 1	0.22	0.31	0.36	0.70	0.48	1.00
Level member	I 1	II 3	III 3	IV 1	V 1	VI 1	Level member	II 3	I 1	V 1	IV 1	III 3	VI 1

Note: N = 46; critical value of $\underline{r}$ at .05 level = 0.24.

the random order; the best order of levels was II, IV, I, III (transpositions of all four levels from the hypothesized order but a reversal of only levels I and IV from the random order of administration).

The $\underline{Q}^2$ values for path G administered in the hypothesized order (Figure 5.14) were: (a) order of administration: 0.768; and (b) best order: 0.957. The best order of levels was I, III, II, IV (a reversal of levels II and III from the hypothesized order). Of six distinct correlations, four were significant at the .05 level.

Summary

For six of the seven paths analyzed, the $\underline{Q}^2$ value for the randomly administered, randomly ordered matrix was less than the $\underline{Q}^2$ value for the randomly administered, hypothetically ordered matrix; the one exception involved semantic path G, comprising only four level members and six distinct correlations. On the other hand, in no case--either of random administration or of hypothetically ordered administration--did the hypothesized ordering of correlations generate the best simplex approximation.

The hypothesized ordering principle, therefore (from no strong facets to all strong facets in succeeding level members), generally produced a better-than-random order but never the best order. On the other hand, no general ordering principle which would improve on the hypothesized ordering principle was immediately obvious; many of the

FIGURE 5.13

Semantic Path G, Randomly Administered: Correlations and Q^2 Values

Order of Administration: Q^2 = 0.865					Hypothetical Order: Q^2 = 0.514					Best Order: Q^2 = 0.965				
II 2	1.00				I 1	1.00				II 2	1.00			
I 1	0.38	1.00			II 2	0.38	1.00			IV 2	0.70	1.00		
IV 2	0.70	0.36	1.00		III 4	0.41	0.07	1.00		I 1	0.38	0.36	1.00	
III 4	0.07	0.41	0.23	1.00	IV 2	0.36	0.70	0.23	1.00	III 4	0.07	0.23	0.41	1.00
Level member	II 2	I 1	IV 2	III 4	Level member	I 1	II 2	III 4	IV 2	Level member	II 2	IV 2	I 1	III 4

Note: N = 60; critical value of r at .05 level = 0.21.

FIGURE 5.14

Semantic Path G, Administered in Hypothetical Order: Correlations and Q^2 Values

Order of Administration: Q^2 = 0.768					Best Order: Q^2 = 0.957				
I 1	1.00				I 1	1.00			
II 2	0.05	1.00			III 4	0.61	1.00		
III 4	0.61	0.33	1.00		II 2	0.05	0.33	1.00	
IV 2	0.05	0.82	0.27	1.00	IV 2	0.05	0.27	0.82	1.00
Level member	I 1	II 2	III 4	IV 2	Level member	I 1	III 4	II 2	IV 2

Note: N = 53; critical value of r at .05 level = 0.23.

best orders appeared to involve few reversals from the hypothesized order.

Since in all but one case the matrix generated by listing correlations according to the hypothesized semantic path order was a better simplex approximation than that generated from the random order of administration, (a) order of administration was apparently not of primary importance in simplex approximation, and (b) some indirect support was given to the assumption that more than mere verbalizations were involved in responses to a given set of items. Finally, the lack of an ordering principle obviously better than the hypothesized one, and the generally close correspondence between hypothesized and best orders, suggested that the hypothesized ordering principle, the level members identified, and the orders hypothesized among those level members, are useful extensions of the Guttman - Jordan formulations. Further discussion of results obtained, implications for the theoretical framework tested, and suggestions for further study are given in the following chapter.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The primary purpose of the present research was to examine a reformulation of the Guttman and Jordan attitude scale construction theory. A summary of that research is followed below by an extended discussion of some results, a listing of some additional problems in theory, and some suggestions for further study.

Summary of Research

The present research was primarily methodological. The problem, research design, and results are summarized below.

Statement of Problem

Guttman, analyzing the structure of attitude items, identified four levels, or types of attitudes, generated from permutations of three facets within each item. He hypothesized that, according to his principle of contiguity, the matrix of level-by-level correlations would approximate a simplex.

Jordan extended Guttman's analysis to a five-facet six-level system. Data on a scale on attitudes toward the mentally retarded did generate simplex approximations. Jordan did not examine fully (a) his choice of specific facet permutations for each level; (b) the effect of order of administration on relative size of correlations among levels; and (c) the effect of invariant directionality in answer foils.

Several related problems therefore remained: (a) identification of all possible facet permutations; (b) examination of effects from order of administration and from item directionality; (c) construction of an experimental instrument dealing with the emotionally disturbed rather than the mentally retarded; and (d) application of appropriate statistical tests.

Research Design

Of 32 permutations of five dichotomized facets, only 12 appeared semantically possible--Jordan's six and an additional six. These 12 level members were hypothesized to be ordered within seven semantic paths; each path comprised six or four of the 12 level members. Directions for items of each level member were simplified and phrased in parallel form; all items were phrased so that all sets of answer foils were identical.

A set of experimental instruments was developed, two for each of the semantic paths (one instrument with the

level members in a random order and one instrument with the level members in the hypothesized order). Items were written so that while content of answer foils remained identical, directionality of foils and grammatical emphasis within items varied randomly.

The 14 varying instruments were administered in random order, one to a subject, to 825 students in undergraduate psychology and education. Data from the 14 sub-groups were analyzed by Kaiser's $\underline{Q}^2$ procedure, which evaluates individual correlation matrices and orders the variables within the matrices. A $\underline{Q}^2$ value was determined for the hypothesized and best orderings of level members within each semantic path; for the random-order administrations of semantic paths, the $\underline{Q}^2$ value was also determined for the particular random order of administration.

Results

For six of the seven paths analyzed, the $\underline{Q}^2$ value for the randomly administered, randomly ordered matrix was less than the $\underline{Q}^2$ value for the randomly administered, hypothetically ordered matrix; in no case did the hypothesized ordering of level members generate the best simplex approximation. On the other hand, the lack of an ordering principle obviously better than the hypothesized one and the generally close correspondence

between hypothesized and best orders suggested that the hypothesized ordering principle, the level members identified, and the orders hypothesized among those level members, are useful extensions of the Guttman-Jordan formulations.

Discussion of Results

The results obtained generally supported the theory being examined. Of particular interest are: (a) semantic path B, (b) the ordering of all 12 level members, and (c) conjoint-disjoint struction interation.

Semantic Path B

Semantic path B (cf. Figs. 5.03 and 5.04) is of particular interest for several reasons. The $\underline{Q}^2$ values obtained for the hypothesized ordering of level members were, when averaged (0.883), the best of any semantic path (0.886 from the re-ordering of the random administration and 0.879 from the administration in hypothesized order). The differences between $\underline{Q}^2$ values for the hypothesized and best orders were the smallest for any semantic path. The best order, obtained by Kaiser's procedures, of the level members involved a reversal of only levels IV and V in both administrations of the path.

Semantic path B differs from the semantic path originally identified by Jordan (path C) on levels II and III. In place of Jordan's "Societal interactive norm"

on level II, path B has "Personally-assigned group status"; in place of "Moral evaluation" on level III, path B has "Self concept." Since the difference between $\underline{Q}^2$ values (an average of 0.883 for path B and 0.792 for path C) cannot be assigned statistical significance, and since examination of the level members involved, as well as of the other identified level members, is still tentative, neither path could presently be identified as "best"--i.e., as having the most psychologically useful level members and as generating the consistently best simplex approximations.

Ordering of 12 Level Members

Because some correlations among the 12 level members are missing--the level members do not appear together in the same path--a complete ordering of all 12 is impossible from the present data. Results obtained, however, would appear to justify further exploratory research, using level members across paths to obtain the missing values.

Some rough comparisons can however be made. An approximate order within levels can be estimated by averaging the available correlations for level members within the level and then re-arranging the level members to reduce the absolute number of simplex violations within each level. Figure 6.01 is a matrix of averaged

FIGURE 6.01

Matrix of Averaged Correlations Among 12 Level Members, Tentatively Ordered

Level member	I 1	II 3	II 1	II 2	III 2	III 3	III 4	III 1	IV 2	IV 1	V 1	VI 1
I 1	1.00											
II 3	.63	1.00										
II 1	.59	--	1.00									
II 2	.21	--	--	1.00								
III 2	.58	.56	.73	--	1.00							
III 3	.45	.45	--	.53	--	1.00						
III 4	.51	--	--	.20	--	--	1.00					
III 1	.20	--	.20	.34	--	--	--	1.00				
IV 2	.21	--	--	.76	--	--	.25	--	1.00			
IV 1	.30	.23	.32	.41	.28	.65	--	.32	--	1.00		
V 1	.36	.26	.30	.30	.23	.49	--	.46	--	.56	1.00	
VI 1	.23	.25	.26	.74	.32	.55	--	.43	--	.56	.38	1.00

Note: Correlations indicated are simple averages of the two or more correlations obtained (cf. Figures 5.01-5.14). Missing data occur where the two level members involved do not appear in the same semantic path. The ordering presented here is only tentative and assumes the ordering among different levels.

available correlations, arranged to reduce the number of simplex violations within levels II, III, and IV.

Conjoint-Disjoint Struction Interaction

An a priori relation between conjoint and disjoint struction was assumed in the construction of the SAF scales. As indicated in Figure 4.03, Status-descriptive items appear in level members I 1, II 1, II 3, III 2; Action-descriptive items in level members II 2, III 1, III 3, IV 1, IV 2, VI 1; and Feeling-descriptive items in levels III 4 and V 1.

The effect of varying content on simplex ordering may be of interest. In the seven semantic paths, S, A, and F content items appear in mixed arrangements; semantic path A, for example, has S content on levels I and II, followed by A content on levels III and IV, followed by F content on level V and then A content on level VI; S, A, and F contents are similarly intermingled in all seven paths. The re-ordering of level members according to Kaiser's procedures, however, in 12 of 14 cases, grouped all S content together and all A content together (only one F-content level member appears in any semantic path).

In nine cases, level members were grouped S - F - A; in two case, S - A - F, and in only one case F - S - A (path G). Order within such groupings did not appear

consistent; the general trend of such grouping therefore, (a) did not indicate a consistent ordering principle for improving on the present conjoint-struction principle; (b) suggested that conjoint and disjoint struction interact; and (c) suggested that, within disjoint struction, S-content items are weaker than F-content items, which are in turn weaker than A-content items.

Problems in Theory

For subjects in the present research, no control was established over age or sex, although undergraduate students in introductory psychology and education courses were assumed to be homogeneous enough for present purposes. The possibly high degree of education and intelligence (compared to total population) of such subjects may have had an effect on their ability to discriminate among fairly similar items--hence, on the patterns of correlations among those items. Similarly, Rokeach (1968) has suggested that degree of discrimination varies with amount of open and closed-mindedness. Jordan's preliminary data indicate that simplex patterns hold up across cultures; the evidence that such patterns hold up even within cultures but across varying levels of sophistication is less strong. Further research may be needed to establish that the discriminatory ability necessary to distinguish among varying level members is found in the less sophisticated.

As indicated in Chapter III, no claim is made that all possible phrasings of attitude items have been identified--what, for example, of "We think we should . . ." or "I expect other persons to . . ."? Such items appear to have psychological meaning but are not presently assigned to any level member in the semantic map. Of the items presently identified, some may be considerably less effective than others; a standard item analysis might be helpful.

Finally, although Kaiser's $\underline{Q}^2$ appeared sufficient for the purposes of the present study, a more rigorous test of simplex approximation is needed. Particular attention should be paid in such a test to such factors as general magnitude of correlations and the effect of equal and unequal spacings among entries.

Suggestions for Further Study

Some suggestions for further study have been made within the above discussion. The following suggestions, both for additional analyses of the present data and for the construction of new experiments, appear most useful.

Present Data

As indicated in Chapter IV, items were randomly assigned to one of four variants of directionality and grammatical emphasis. Such random assignment was performed

as a control; direct analysis of the effects and interaction of these variables is possible. Procedures for an appropriate analysis of variance are indicated at the conclusion of Appendix F. Additional variables which might be of interest in an analysis of variance are level (separate analyses for each path) and SAF content (within and across paths).

New Experiments

An ordering of all 12 level members now appears possible. Such an ordering would require at least one correlation for all combinations of two level members. A set of instruments could therefore be prepared which would include level members across various paths; such instruments would not be directly subject to the criterion of simplex approximation (cf. the conclusion of Chapter III) but would provide the data missing in a matrix such as Figure 6.01.

Although the reasons for varying SAF content across levels appeared compelling in the present study (cf. Chapter IV), the apparent interaction of conjoint and disjoint struction noted above suggests that an attempt be made to reconstruct the 12 level-member sub-scales with a common content across all 12. Results from administration of such scales would be useful in determining the exact character of such interaction.

Finally, the validation of the experimental scales here proposed remains to be done. Jordan (1968a) has suggested a variety of predictor variables related to attitude; Rokeach (1968) described personality variables which may be directly related to patterns of conjoint struction.

Conclusion

Some general conclusions may be drawn from the results of the present study: (a) Guttman facet design provides a workable approach to attitude-scale construction; (b) the particular extensions suggested within the present study are useful interpretations of the Guttman-Jordan approach; and (c) additional research is needed, particularly on conjoint-disjoint struction interaction. Such research may clarify the relationships suggested among perceptions of self and others, of group expectations and moral evaluations, of feelings and specific acts.

APPENDICES

APPENDIX A

ATTITUDE-BEHAVIOR SCALE--MR

ATTITUDE-BEHAVIOR SCALE--MR

The following directions and items are taken from the Attitude-Behavior Scale--M. R. (ABS-MR). Because of the limited purposes of the present study, the only directions and items reproduced below are those from the six sections which correspond to Jordan's (1968) hypothesized six levels (Chapter II, Figure 4).

The complete research instrument[1] contains additional items dealing with demographic data, with attitudes toward man's sense of control over his environment (efficacy), with the importance of religion, with amount and type of contact with the attitude object, and with knowledge of the attitude object. In addition each of the items within the six scale sections indicated below is matched, in the original scale, with a question of the form "How sure are you of your answer? (1) not sure; (2) fairly sure; (3) sure." This matching set of questions is designed to measure what Guttman refers to as "intensity."

Such measures of intensity have not been included in the instrument designed for the present study.

---

[1]Several studies are scheduled for completion in 1969 using the complete ABS-MR (Gottlieb, 1969; Harrelson, 1969; Jordan, 1969; Morin, 1969).

Collection of demographic and similar data was also beyond the scope of the present study, although comments about intensity analysis are included in Chapter VI, "Summary and Conclusions." Finally, only the first two items from each of the attitude-level sections are reproduced below: the purpose is only to indicate the general structure of Jordan's original instrument. The complete ABS-MR is contained in Gottlieb (1969), Horrelson (1969), and Morin (1969).

ATTITUDE BEHAVIOR SCALE--MR

by John E. Jordan

DIRECTIONS

This booklet contains statements of how people feel about certain things. In this section you are asked to indicate for each of these statements how most other people believe that mentally retarded people compared to people who are not retarded.

Directions: Section I

In the statements that follow you are to indicate on the answer sheet how other people compare mentally retarded persons to those who are not mentally retarded.

Other people generally believe the following things about the mentally retarded as compared to those who are not retarded:

1. Energy and vitality
   1. less energetic
   2. about the same
   3. more energetic

2. How sure are you of this answer?
   1. not sure
   2. fairly sure
   3. sure

3. Ability to do school work
   1. less ability
   2. about the same
   3. more ability

4. How sure are you of this answer?
   1. not sure
   2. fairly sure
   3. sure

Directions: Section II

This section contains statements of ways in which other people sometimes act toward people. You are asked to indicate for each of these statements what other people generally believe about interacting with the mentally retarded.

Other people generally believe that mentally retarded persons ought:

41. To play on the school playground with other children who are not mentally retarded:
   1. usually not approved
   2. undecided
   3. usually approved

43. To visit in the homes of other children who are not mentally retarded:

    1. usually not approved
    2. undecided
    3. usually approved

Directions: Section III

This section contains statements of the "right" or "moral" way of acting toward people. You are asked to indicate whether you yourself agree or disagree with each statement according to how you personally believe you ought to behave.

In respect to people who are mentally retarded, do you believe that it is usually right or usually wrong:

81. To take a mentally retarded child on camping trips with normal children:

    1. usually wrong
    2. undecided
    3. usually right

83. To permit a mentally retarded child to go to the movies with children who are not mentally retarded:

    1. usually wrong
    2. undecided
    3. usually right

Directions: Section IV

This section contains statements of ways in which people sometimes act toward other people. You are asked to indicate for each of these statements whether you personally would act toward mentally retarded people.

In respect to a mentally retarded person, would you

121. Share a seat on a train for a long trip:

    1. no
    2. don't know
    3. yes

123. Have such a person as a fellow worker:

1. no
2. don't know
3. yes

Directions: Section V

This section contains statements of actual feelings that people may hold toward the mentally retarded. You are asked to indicate how you feel toward people who are mentally retarded compared to people who are not mentally retarded.

How do you actually feel toward persons who are mentally retarded compared to others who are not mentally retarded:

1. Disliking

1. more
2. about the same
3. less

3. Fearful

1. more
2. about the same
3. less

Directions: Section VI

This section contains statements of different kinds of actual experiences you have had with mentally retarded persons. If the statement applies to you, mark yes. If not you should mark no.

Experiences or contacts with the mentally retarded:

41. Shared a seat on a bus, train, or plane:

1. no
2. uncertain
3. yes

43. Eaten at the same table together in a restaurant:

1. no
2. uncertain
3. yes

APPENDIX B

ITEM VARIANTS FOR 12 LEVEL MEMBERS

ITEM VARIANTS FOR 12 LEVEL MEMBERS

As indicated in Chapter IV, two aspects of phrasing appear in these variations: directionality of the item--i.e., the determination of the more favorable response, relative to the attitude object: "agree" or "disagree"; and grammatical position of the "actor." An individual item may be phrased so that agreement is either favorable or unfavorable toward the attitude object; an item may also be phrased so that either the actor or the attitude object is grammatically emphasized as subject of the clause. Each item can therefore be phrased four different ways without a change in specification of situation or "disjoint struction."

The following variants of item phrasing indicate ways in which each of the items in the research instrument could be phrased. The variants have been assigned code numbers to correspond with data-processing requirements: variants 1.1 and 1.2 are phrased so that the response "agree" implies favorableness toward the attitude object; for variants 2.1 and 2.2, "agree" implies unfavorableness. In variants 1.1 and 2.1 the actor is placed in the position of grammatical emphasis; in variants 1.2 and 2.2 the attitude object is placed in that position.

The particular variant used for each item in the research instrument was picked by random assignment. Disjoint-struction specificity--i.e., the particular situational context of each item--is discussed in the introduction to Appendix C. Appendix D contains an explanation of various data-processing operations used to re-arrange and re-score items prior to correlational analyses.

Finally, only one item from each of the twelve level members is presented here in all four variants. Appendix C includes the complete set of items actually used from each level member, coded as indicated above.

Level I, Member 1

1.1 We think that we are less intelligent than most emotionally disturbed persons.

1.2 We think that most emotionally disturbed persons are more intelligent than we are.

2.1 We think that we are more intelligent than most emotionally disturbed persons.

2.2 We think that most emotionally disturbed persons are less intelligent than we are.

Level II, Member 1

1.1 I think that we are less intelligent than most emotionally disturbed persons.

1.2 I think that most emotionally disturbed persons are more intelligent than we are.

2.1 I think that we are more intelligent than most emotionally disturbed persons.

2.2 I think that most emotionally disturbed persons are less intelligent than we are.

Level II, Member 2

1.1 We think that we have some friends who are emotionally disturbed.

1.2 We think that some of our friends are emotionally disturbed.

2.1 We do not think that we have emotionally disturbed friends.

2.2 We do not think that friends of ours are emotionally disturbed.

Level II, Member 3

1.1 Other people think that I am less intelligent than most emotionally disturbed persons.

1.2 Other people think that most emotionally disturbed persons are more intelligent than I am.

2.1 Other people think that I am more intelligent than most emotionally disturbed persons.

2.2 Other people think that most emotionally disturbed persons are less intelligent than I am.

Level III, Member 1

1.1 We should be friends with people who are emotionally disturbed.

1.2 Persons who are emotionally disturbed should be accepted as our friends.

2.1 We should not be friends with persons who are emotionally disturbed.

2.2 Persons who are emotionally disturbed should not be accepted as our friends.

Level III, Member 2

1.1 I think that I am less intelligent than most emotionally disturbed persons.

1.2 I think that most emotionally disturbed persons are more intelligent than I am.

2.1 I think that I am more intelligent than most emotionally disturbed persons.

2.2 I think that most emotionally disturbed persons are less intelligent than I am.

Level III, Member 3

1.1 Other people expect me to have friends who are emotionally disturbed.

1.2 Other people expect persons who are emotionally disturbed to be accepted as my friends.

2.1 Other people expect me not to have friends who are emotionally disturbed.

2.2 Other people expect persons who are emotionally disturbed not to be accepted as my friends.

Level III, Member 4

1.1 We are not frightened by emotionally disturbed persons.

1.2 Emotionally disturbed persons do not frighten us.

2.1 We are frightened by emotionally disturbed persons.

2.2 Emotionally disturbed persons frighten us.

Level IV, Member 1

1.1 I would have friends who are emotionally disturbed.

1.2 Persons who are emotionally disturbed would be accepted as my friends.

2.1 I would not have friends who are emotionally disturbed.

2.2 Persons who are emotionally disturbed would not be accepted as my friends.

Level IV, Member 2

1.1 We have friends who are emotionally disturbed.

1.2 Some of our friends are emotionally disturbed.

2.1 We do not have friends who are emotionally disturbed.

2.2 None of our friends are emotionally disturbed.

Level V, Member 1

1.1 I am not frightened by emotionally disturbed persons.

1.2 Emotionally disturbed persons do not frighten me.

2.1 I am frightened by emotionally disturbed persons.

2.2 Emotionally disturbed persons frighten me.

Level VI, Member 1

1.1 I have friends who are emotionally disturbed.

1.2 Some of my friends are emotionally disturbed.

2.1 I do not have any friends who are emotionally disturbed.

2.2 None of my friends are emotionally disturbed.

APPENDIX C

ATTITUDE-BEHAVIOR SCALES

SAF SCALE: FORM ED-1

ATTITUDE-BEHAVIOR SCALES

SAF SCALE: FORM ED-1

The twelve sets of 20 questions presented here are the actual sets of item variants used in the present research. Each of the sets of 20 questions represents a specific level number (see Chapters III and IV). No subject was asked to respond to more than six sets of 20 questions; the particular sets of questions to be given as a unit have been specified in Chapters III and IV. Since, however, some sets of 20 questions appeared in several of the various 6-set and 4-set combinations, corresponding to specified semantic paths, duplication of every set of questions from every combination appears unnecessarily repetitive.

In the instruments presented to subjects, each item was numbered sequentially, depending upon the position of the item within the set of 20 questions and the position of that set within the entire group of four or six sets. An item might therefore be number 36 for one subject and number 96 for another subject. In this Appendix the items of each set (corresponding to one of the 12 level members) have been numbered 1-20 for identification purposes (see Appendix E). This identifying number is in parentheses below the phrasing code for each item.

The code number at the beginning of each set of 20 questions indicates the level (Roman numeral) and member (Arabic numeral) which that set of questions represents: thus SAF:III2 indicates that the questions belong to the second member of level III. A corresponding code is given at the end of the set of 20 items, with the number "2" in parentheses to indicate the second of two pages comprising the specified items. In the actual instruments, all sets of 20 questions were followed by the directions "Go on to the next page" except the final set. The final set would, of course, be either level-member IV2 if semantic path G were presented to the subject level by level, or level-member VI1 if any other semantic path were presented to the subject level by level. When levels are randomized, the appropriate directions must be placed at the end of each set of 20 items.

In addition to the sheets containing items from various level members, each subject was presented a cover-sheet of directions; the cover sheet included a specified "series number"--a number which identified the particular semantic path and the order (random or level-by-level) in which the level members of that path were assembled. As indicated in Chapter IV, various semantic paths were randomly distributed to subjects, so that such identification was necessary; such identification preserved the anononymity of each subject.

Finally, administrators were provided with a standardized set of administration instructions. A copy of these instructions is included in this Appendix.

The number preceding each item is the code which indicates both directionality (numeral before the decimal point: "1" indicates an item for which the response "agree" implies favorableness toward the attitude object and "disagree" implies unfavorableness); and grammatical form (numeral after the decimal point: "1" indicates an item in which the actor is grammatically emphasized). Similarly, "2" before the decimal point indicates an item for which "agree" implies unfavorableness toward the attitude object; "2" after the decimal point indicates an item in which the attitude object is grammatically emphasized. Appendix B indicates representative items from all level members; the items differ there in both directionality and grammatical form.

The specific content, or "disjoint struction," of the items used in the research instrument was suggested by items from the original scale of Jordan and from the later work of Jordan and Hamersma (1969). As indicated in Chapter VI, specification and analysis of disjoint struction is presently in a very early stage. Items used in the present instrument, therefore, may not be representative of the universe of disjoint-struction item specificity; the items used, however, do represent the hypothesized universe of 12 level members presently identified by conjoint struction specifications.

SAF Scale: Form ED-1

Information for Administrators

Thank you for your cooperation. Your interruption of regular class routines is very much appreciated. The following information may be helpful to you and to your students.

The supply of scales which has been provided is of varying types randomly arranged. Please do not rearrange the scales before distributing them to your students; the order of distribution--e.g., left to right or back to front of your class--does not make any difference, since the types of scales have been mixed together in random order.

Please distribute the scales, one to a person; then the IBM answer sheets and scoring pencils. Then read the following comments to your students:

> The questionnaires which you are being asked to fill out have questions about your own beliefs and actions and about the beliefs and actions of other persons. Some of the questionnaires have 120 items and some have only 80 items.
>
> The first page of your questionnaire contains a sample item and an explanation of the different types of items which you are being asked to mark. Please be careful to do these four things:
>
> (1) Use the IBM answer sheet; do not mark on the questionnaire itself.
>
> (2) Do not put your name either on the questionnaire or on the answer sheet.
>
> (3) At the bottom of the first page of your questionnaire is a "series number" underlined which has an arrow pointing to it; put that number on the upper right-hand corner of your answer sheet. This number does not identify you; it identifies only which particular set of questions you answered.
>
> (4) Please answer every question: note that the second-choice answer for every item is "uncertain."

These items have been prepared in accordance with the theoretical formulations of Louis Guttman about attitude-item construction--in particular, the Guttman concept of "facet design." The authors of the present scale will provide both theoretical explanations and summaries of actual data from the scale to interested faculty and students upon request.

Paul Maierle
John E. Jordan
College of Education

SAF Scale: Form ED-1

Directions

You yourself and other persons like you often behave in the same way toward persons who are emotionally disturbed. You also have some general ideas about yourself, about others like you, and about persons who are emotionally disturbed. Sometimes you behave the same way toward everyone, and sometimes you may behave differently toward persons who are emotionally disturbed.

The words "emotionally disturbed" are used in the statements in this scale. Where these words are used, they include those children or adults whose behaviors, feelings, or emotions cause them to have difficulties with every-day problems which they are unable to solve.

This scale has statements about ideas and about behavior. Each section of this scale is different from every other section, although some of the statements in each section are similar. Your answers in one section, therefore, may be the same as answers in another section, or your answers may differ from section to section.

Try to mark each set of statements as accurately as possible. If you agree with a particular statement, mark the answer number 1, "agree." If you disagree with a particular statement, mark the answer number 3, "disagree." If you are uncertain whether you agree or disagree, mark the answer number 2, "uncertain."

Here is a sample statement:

I think that most emotionally disturbed persons are taller than I am:

(1) agree (2) uncertain (3) disagree

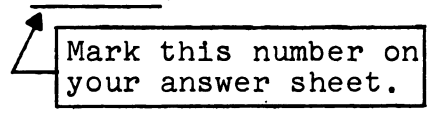
If you do in fact think that most emotionally disturbed persons are taller than you are, you would mark the answer number 1, "agree": If you are using an IBM answer sheet, you would mark a heavy dark line on the answer sheet as follows:

(1) ▮▮▮▮ (2) ----- (3) ----- (4) ----- (5) -----

If you are told to mark your answers on this booklet, you would indicate the same answer, number 1, "agree," by making a circle around the number 1 as follows:

(1) agree (2) uncertain (3) disagree

Do not put your name on this booklet or on your answer sheet. Your booklet is one of a series; please mark that series number on the upper right-hand corner of your answer sheet: the series number of this booklet is _____.



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SAF:I1 This section contains statements about ideas which you may share with other people about persons who are emotionally disturbed. If a statement describes the ideas of most people like yourself, mark the answer number 1, "agree." If the statement does not describe your ideas, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

2.2 (1) We think that most emotionally disturbed persons are lazier than we are.
(1) agree (2) uncertain (3) disagree

2.2 (2) We think that most emotionally disturbed persons are less intelligent than we are.
(1) agree (2) uncertain (3) disagree

2.1 (3) We think that we are more sexually attractive than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (4) We think that most emotionally disturbed persons are cleaner than we are.
(1) agree (2) uncertain (3) disagree

1.1 (5) We think that we are less cooperative than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (6) We think that we are less friendly than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.1 (7) We think that we are more mature than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (8) We think that most emotionally disturbed persons are more helpful than we are.
(1) agree (2) uncertain (3) disagree

2.2 (9) We think that most emotionally disturbed persons are more cruel than we are.
(1) agree (2) uncertain (3) disagree

2.1 (10) We think that we are more loyal than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (11) We think that we are less energetic than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (12) We think that most emotionally disturbed persons are better looking than we are.
(1) agree (2) uncertain (3) disagree

2.1 (13) We think that we are less prejudiced than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (14) We think that most emotionally disturbed persons are more careless than we are.
(1) agree (2) uncertain (3) disagree

2.2 (15) We think that most emotionally disturbed persons are less understanding than we are.
(1) agree (2) uncertain (3) disagree

1.1 (16) We think that we are less reliable than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (17) We think that most emotionally disturbed persons are happier than we are.
(1) agree (2) uncertain (3) disagree

1.2 (18) We think that most emotionally disturbed persons are more honest than we are.
(1) agree (2) uncertain (3) disagree

2.1 (19) We think that we are more talented than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (20) We think that we are less healthy than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:I1(2) GO ON TO THE NEXT PAGE.

SAF:III This section contains statements about ideas which you may have about yourself and about others who are not emotionally disturbed. If a statement describes how you yourself think, mark the answer number 1, "agree." If the statement does not describe how you think, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

2.2 (1) I think that most emotionally disturbed persons are lazier than people like myself.
(1) agree (2) uncertain (3) disagree

2.2 (2) I think that most emotionally disturbed persons are less intelligent than people like myself.
(1) agree (2) uncertain (3) disagree

2.1 (3) I think that people like myself are more sexually attractive than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (4) I think that most emotionally disturbed persons are cleaner than people like myself.
(1) agree (2) uncertain (3) disagree

1.1 (5) I think that persons like myself are less cooperative than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (6) I think that people like myself are less friendly than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.1 (7) I think that people like myself are more mature than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (8) I think that most emotionally disturbed persons are more helpful than people like myself.
(1) agree (2) uncertain (3) disagree

2.2 (9) I think that most emotionally disturbed persons are more cruel than people like myself.
(1) agree (2) uncertain (3) disagree

2.1 (10) I think that persons like myself are more loyal than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (11) I think that people like myself are less energetic than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (12) I think that most emotionally disturbed persons are better looking than people like myself.
(1) agree (2) uncertain (3) disagree

2.1 (13) I think that people like myself are less prejudiced than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (14) I think that most emotionally disturbed persons are more careless than people like myself.
(1) agree (2) uncertain (3) disagree

2.2 (15) I think that most emotionally disturbed persons are less understanding than people like myself.
(1) agree (2) uncertain (3) disagree

1.1 (16) I think that people like myself are less reliable than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (17) I think that most emotionally disturbed persons are happier than people like myself.
(1) agree (2) uncertain (3) disagree

1.2 (18) I think that most emotionally disturbed persons are more honest than people like myself.
(1) agree (2) uncertain (3) disagree

2.1 (19) I think that people like myself are more talented than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (20) I think that people like myself are less healthy than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:III(2) GO ON TO THE NEXT PAGE.

SAF:II2 This section contains statements about ways in which you and others may think you behave toward persons who are emotionally disturbed. If a statement describes how you think you behave, mark the answer number 1, "agree." If the statement does not describe how you think you behave, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

1.2 (1) We think that some people who eat with us are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (2) We think that some of the people from whom we accept help are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (3) We do not think that persons for whom we work are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (4) We do not think that we live near emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (5) We do not think that anyone who is emotionally disturbed is invited to our home.
(1) agree (2) uncertain (3) disagree

2.2 (6) We do not think that anyone who is under our authority is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (7) We do not think that we rent things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (8) We do not think that we date emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (9) We do not think that we avoid persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (10) We do not think that we borrow money from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (11) We think that persons with whom we fight are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (12) We do not think that anyone to whom we lend things is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (13) We think that some of us are married to emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (14) We think that we rent things to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (15) We think that we borrow things from some persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (16) We think that some of our friends are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (17) We think that some of the people we help are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (18) We think that we loan money to some persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (19) We think that some of the persons we enjoy sexually are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (20) We do not think that we work with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:II2(2) GO ON TO THE NEXT PAGE.

SAF:II3 This section contains statements about ideas which other people who are not emotionally disturbed may have about you. If a statement describes what people like yourself think about you, mark the answer number 1, "agree." If the statement does not describe what other people think about you, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

2.2 (1) Other people think that most emotionally disturbed persons are lazier than I am.
(1) agree (2) uncertain (3) disagree

2.2 (2) Other people think that most emotionally disturbed persons are less intelligent than I am.
(1) agree (2) uncertain (3) disagree

2.1 (3) Other people think that I am more sexually attractive than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (4) Other people think that most emotionally disturbed persons are cleaner than I am.
(1) agree (2) uncertain (3) disagree

1.1 (5) Other people think that I am less cooperative than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (6) Other people think that I am less friendly than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.1 (7) Other people think that I am more mature than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (8) Other people think that most emotionally disturbed persons are more helpful than I am.
(1) agree (2) uncertain (3) disagree

2.2 (9) Other people think that most emotionally disturbed persons are more cruel than I am.
(1) agree (2) uncertain (3) disagree

2.1 (10) Other people think that I am more loyal than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (11) Other people think that I am less energetic than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (12) Other people think that most emotionally disturbed persons are better looking than I am.
(1) agree (2) uncertain (3) disagree

2.1 (13) Other people think that I am less prejudiced than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (14) Other people think that most emotionally disturbed persons are more careless than I am.
(1) agree (2) uncertain (3) disagree

2.2 (15) Other people think that most emotionally disturbed persons are less understanding than I am.
(1) agree (2) uncertain (3) disagree

1.1 (16) Other people think that I am less reliable than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (17) Other people think that most emotionally disturbed persons are happier than I am.
(1) agree (2) uncertain (3) disagree

1.2 (18) Other people think that most emotionally disturbed persons are more honest than I am.
(1) agree (2) uncertain (3) disagree

2.1 (19) Other people think that I am more talented than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (20) Other people think that I am less healthy than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:II3(2) GO ON TO THE NEXT PAGE.

SAF;IIIl This section contains statements about ideas you may have about how you and others should act toward emotionally disturbed persons. If a statement describes how you think you and others should act, mark the answer number 1, "agree." If the statement does not describe how you think you and others should act, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

1.2 (1) Persons who are emotionally disturbed should be allowed to eat with us.
(1) agree (2) uncertain (3) disagree

1.2 (2) Persons who are emotionally disturbed should be asked for help
(1) agree (2) uncertain (3) disagree

2.2 (3) Persons who are emotionally disturbed should not be our bosses.
(1) agree (2) uncertain (3) disagree

2.1 (4) We should not live near persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (5) Persons who are emotionally disturbed should not be invited to our home.
(1) agree (2) uncertain (3) disagree

2.2 (6) Persons who are emotionally disturbed should not be under our authority.
(1) agree (2) uncertain (3) disagree

2.1 (7) We should not rent things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (8) We should not date persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (9) We should not avoid persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (10) We should not borrow money from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (11) Persons who are emotionally disturbed should be fought.
(1) agree (2) uncertain (3) disagree

2.2 (12) Persons who are emotionally disturbed should not be loaned things.
(1) agree (2) uncertain (3) disagree

1.1 (13) We should marry persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (14) We should rent things to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (15) We should borrow things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (16) Persons who are emotionally disturbed should be accepted as our friends.
(1) agree (2) uncertain (3) disagree

1.2 (17) Persons who are emotionally disturbed should be helped by us.
(1) agree (2) uncertain (3) disagree

1.1 (18) We should loan money to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (19) Persons who are emotionally disturbed should be enjoyed sexually.
(1) agree (2) uncertain (3) disagree

2.1 (20) We should not work with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:IIII(2) GO ON TO THE NEXT PAGE.

SAF:III2 This section contains statements about ideas you may have about yourself. If a statement describes your opinion of yourself, mark the answer number 1, "agree." If the statement does not describe your opinion, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

2.2 (1) I think that most emotionally disturbed persons are lazier than I am.
(1) agree (2) uncertain (3) disagree

2.2 (2) I think that most emotionally disturbed persons are less intelligent than I am.
(1) agree (2) uncertain (3) disagree

2.1 (3) I think that I am more sexually attractive than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (4) I think that most emotionally disturbed persons are cleaner than I am.
(1) agree (2) uncertain (3) disagree

1.1 (5) I think that I am less cooperative than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (6) I think that I am less friendly than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.1 (7) I think that I am more mature than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (8) I think that most emotionally disturbed persons are more helpful than I am.
(1) agree (2) uncertain (3) disagree

2.2 (9) I think that most emotionally disturbed persons are are cruel than I am.
(1) agree (2) uncertain (3) disagree

2.1 (10) I think that I am more loyal than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (11) I think that I am less energetic than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (12) I think that most emotionally disturbed persons are better looking than I am.
(1) agree (2) uncertain (3) disagree

2.1 (13) I think that I am less prejudiced than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (14) I think that most emotionally disturbed persons are more careless than I am.
(1) agree (2) uncertain (3) disagree

2.2 (15) I think that most emotionally disturbed persons are less understanding than I am.
(1) agree (2) uncertain (3) disagree

1.1 (16) I think that I am less reliable than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (17) I think that most emotionally disturbed persons are happier than I am.
(1) agree (2) uncertain (3) disagree

1.2 (18) I think that most emotionally disturbed persons are more honest than I am.
(1) agree (2) uncertain (3) disagree

2.1 (19) I think that I am more talented than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (20) I think that I am less healthy than most emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:III2(2) GO ON TO THE NEXT PAGE.

SAF:III3 This section contains statements about ideas which people may have about how you will act toward emotionally disturbed persons. If a statement describes how others expect you to act toward emotionally disturbed persons, mark the answer number 1, "agree." If the statement does not describe how others expect you to act, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

1.2 (1) Other people expect that some of the persons with whom I eat will be emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (2) Other people expect that persons who are emotionally disturbed will be asked for help by me.
(1) agree (2) uncertain (3) disagree

2.2 (3) Other people expect that persons for whom I work will not be emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (4) Other people expect me not to live near emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (5) Other people expect that no one who is emotionally disturbed will be invited to my home.
(1) agree (2) uncertain (3) disagree

2.2 (6) Other people expect that no one who is emotionally disturbed will be under my authority.
(1) agree (2) uncertain (3) disagree

2.1 (7) Other people expect me not to rent things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (8) Other people expect me not to date persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (9) Other people expect me not to avoid persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (10) Other people expect me not to borrow money from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (11) Other people expect that persons who are emotionally disturbed will be fought by me.
(1) agree (2) uncertain (3) disagree

2.2 (12) Other people expect that no one who is emotionally disturbed will be loaned things by me.
(1) agree (2) uncertain (3) disagree

1.1 (13) Other people expect me to marry someone who is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (14) Other people expect me to rent things to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (15) Other people expect me to borrow things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (16) Other people expect that persons who are emotionally disturbed will be accepted as my friends.
(1) agree (2) uncertain (3) disagree

1.2 (17) Other people expect that persons who are emotionally disturbed will be helped by me.
(1) agree (2) uncertain (3) disagree

1.1 (18) Other people expect me to loan money to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (19) Other people expect that persons who are emotionally disturbed will be enjoyed sexually by me.
(1) agree (2) uncertain (3) disagree

2.1 (20) Other people expect me not to work with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:III3(2) GO ON TO THE NEXT PAGE.

SAF:III4 This section contains statements about feelings which you and people like yourself may have about emotionally disturbed persons. If a statement describes your feelings about emotionally disturbed persons, mark the answer number 1, "agree." If the statement does not describe your feelings, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

2.2 (1) Emotionally disturbed persons displease us.
(1) agree (2) uncertain (3) disagree

2.2 (2) Emotionally disturbed persons make us feel negative.
(1) agree (2) uncertain (3) disagree

2.1 (3) We feel dislike for emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (4) Emotionally disturbed persons do not make us feel tense.
(1) agree (2) uncertain (3) disagree

1.1 (5) We are not frightened by emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (6) Emotionally disturbed persons do not anger us.
(1) agree (2) uncertain (3) disagree

1.1 (7) We do not feel contempt for emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (8) We do not feel uncomfortable near emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (9) Emotionally disturbed persons do not make us feel dismay.
(1) agree (2) uncertain (3) disagree

2.1 (10) We feel loathing for emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (11) We feel attracted to emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (12) Emotionally disturbed persons make us feel unsympathetic.
(1) agree (2) uncertain (3) disagree

2.1 (13) We do not feel at ease with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 Emotionally disturbed persons make us feel unhappy.
(14) (1) agree (2) uncertain (3) disagree

2.2 Emotionally disturbed persons make us feel confusion.
(15) (1) agree (2) uncertain (3) disagree

1.2 Emotionally disturbed persons do not repulse us.
(16) (1) agree (2) uncertain (3) disagree

1.1 We feel secure near emotionally disturbed persons.
(17) (1) agree (2) uncertain (3) disagree

1.2 Emotionally disturbed persons attract us sexually.
(18) (1) agree (2) uncertain (3) disagree

2.1 We feel restless near emotionally disturbed persons.
(19) (1) agree (2) uncertain (3) disagree

2.1 We are not calm near emotionally disturbed persons.
(20) (1) agree (2) uncertain (3) disagree

SAF:III4(2) GO ON TO THE NEXT PAGE.

SAF:IV1 This section contains statements about how you think you would act toward emotionally disturbed persons. If a statment describes how you think you would act, mark the answer number 1, "agree." If the statement does not describe how you would act, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

1.2 (1) Persons who are emotionally disturbed would be allowed to eat with me.
(1) agree (2) uncertain (3) disagree

1.2 (2) Persons who are emotionally disturbed would be asked for help by me.
(1) agree (2) uncertain (3) disagree

2.2 (3) Persons who are emotionally disturbed would not be accepted as my bosses.
(1) agree (2) uncertain (3) disagree

2.1 (4) I would not live near emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (5) Persons who are emotionally disturbed would not be invited to my home.
(1) agree (2) uncertain (3) disagree

2.2 (6) Persons who are emotionally disturbed would not be accepted under my authority.
(1) agree (2) uncertain (3) disagree

2.1 (7) I would not rent things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (8) I would not date persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (9) I would not avoid persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (10) I would not borrow money from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (11) Persons who are emotionally disturbed would be fought by me.
(1) agree (2) uncertain (3) disagree

2.2 (12) Persons who are emotionally disturbed would not be loaned things by me.
(1) agree (2) uncertain (3) disagree

1.1 (13) I would marry someone who is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (14) I would rent things to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (15) I would borrow things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (16) Persons who are emotionally disturbed would be accepted as my friends.
(1) agree (2) uncertain (3) disagree

1.2 (17) Persons who are emotionally disturbed would be helped by me.
(1) agree (2) uncertain (3) disagree

1.1 (18) I would loan money to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (19) Persons who are emotionally disturbed would be enjoyed sexually by me.
(1) agree (2) uncertain (3) disagree

2.1 (20) I would not work with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:IV1(2) GO ON TO THE NEXT PAGE.

SAF:IV2 This section contains statements about how persons like yourself actually behave toward persons who are emotionally disturbed. If a statement describes how you and persons like yourself actually behave, mark the answer number 1, "agree." If the statement does not describe how you and others behave, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

1.2 (1) Some of the people who eat with us are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (2) Some of the people from whom we accept help are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (3) No one for whom we work is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (4) We do not live near emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (5) No one who is emotionally disturbed is invited to our home.
(1) agree (2) uncertain (3) disagree

2.2 (6) No one under our authority is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (7) We do not rent things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (8) We do not date emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (9) We do not avoid persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (10) We do not borrow money from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (11) Persons with whom we fight are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (12) No one to whom we lend things is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (13) Some of us are married to emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (14) We rent things to some persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (15) We borrow things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (16) Some of our friends are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (17) Some of the persons we help are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (18) We loan money to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (19) Some of the persons we enjoy sexually are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (20) We do not work with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:IV2 THANK YOU FOR YOUR COOPERATION. Please be sure that you have answered every question and that you have marked the series number of this booklet on the upper right-hand corner of your answer sheet: the series number is indicated on the bottom of the first page of this booklet.

SAF:V1 This section contains statements about feelings which you yourself may have about emotionally disturbed persons. If a statement describes a feeling which you have personally, mark the answer number 1, "agree." If the statement does not describe a feeling which you have, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

2.2 (1) Emotionally disturbed persons displease me.
(1) agree (2) uncertain (3) disagree

2.2 (2) Emotionally disturbed persons make me feel negative.
(1) agree (2) uncertain (3) disagree

2.1 (3) I feel dislike for emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (4) Emotionally disturbed persons do not make me feel tense.
(1) agree (2) uncertain (3) disagree

1.1 (5) I am not frightened by emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (6) Emotionally disturbed persons do not anger me.
(1) agree (2) uncertain (3) disagree

1.1 (7) I do not feel contempt for emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.1 (8) I do not feel comfortable near emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.2 (9) Emotionally disturbed persons do not make me feel dismay.
(1) agree (2) uncertain (3) disagree

2.1 (10) I feel loathing for emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (11) I feel attracted to emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (12) Emotionally disturbed persons make me feel unsympathetic.
(1) agree (2) uncertain (3) disagree

2.1 (13) I do not feel at ease with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 Emotionally disturbed persons make me feel unhappy.
(14) (1) agree (2) uncertain (3) disagree

2.2 Emotionally disturbed persons make me feel confusion.
(15) (1) agree (2) uncertain (3) disagree

1.2 Emotionally disturbed persons do not repulse me.
(16) (1) agree (2) uncertain (3) disagree

1.1 I feel secure near emotionally disturbed persons.
(17) (1) agree (2) uncertain (3) disagree

1.2 Emotionally disturbed persons attract me sexually.
(18) (1) agree (2) uncertain (3) disagree

2.1 I feel restless near emotionally disturbed persons.
(19) (1) agree (2) uncertain (3) disagree

2.1 I am not calm near emotionally disturbed persons.
(20) (1) agree (2) uncertain (3) disagree

SAF;V1(2) GO ON TO THE NEXT PAGE.

SAF:VI1 This section contains statements about your own behavior toward persons who are emotionally disturbed. If a statement describes an action of yours, mark the answer number 1, "agree." If the statement does not describe your actions, mark the answer number 3, "disagree." If you are uncertain about the statement, mark the answer number 2, "uncertain."

1.2 (1) Some of the people who eat with me are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (2) Some of the persons from whom I accept help are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (3) No one for whom I work is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (4) I do not live near emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.2 (5) No one who is emotionally disturbed is invited to my home.
(1) agree (2) uncertain (3) disagree

2.2 (6) No one under my authority is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (7) I do not rent things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (8) I do not date emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

1.1 (9) I do not avoid emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

2.1 (10) I do not borrow money from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (11) Persons with whom I fight are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.2 (12) No one to whom I lend things is emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (13) I am married to an emotionally disturbed person.
(1) agree (2) uncertain (3) disagree

1.1 (14) I rent things to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (15) I borrow things from persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (16) Some of my friends are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (17) Some of the people I help are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.1 (18) I loan money to persons who are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

1.2 (19) Some of the persons I enjoy sexually are emotionally disturbed.
(1) agree (2) uncertain (3) disagree

2.1 (20) I do not work with emotionally disturbed persons.
(1) agree (2) uncertain (3) disagree

SAF:VI1(2) THANK YOU FOR YOUR COOPERATION. Please be sure that you have answered every question and that you have marked the series number of this booklet on the upper right-hand corner of your answer sheet: the series number is indicated on the bottom of the first page of this booklet.

APPENDIX D

DATA CODING AND RE-SCORING

DATA CODING AND RE-SCORING

As indicated in Chapters IV and V and in Appendices B, C, and E, original responses from subjects were to items randomly distributed in directionality and grammatical form, while the correlational analyses were performed on data so arranged that the larger the numerical score on any item (or total from a set of items, or total across all sets), the more positive the attitude of the subject. A procedure was needed to change some of the response data so that each item for every subject could be scored in exactly the same way--i.e., so that "1" across all subjects and items would indicate the least favorable response.

In addition to the original response of each subject to each item, entered on IBM answer sheets, each item could be identified by its position within a set of twenty, by the set (corresponding to level member) to which it belonged, by its general content (see Chapter IV), by the semantic path to which it belonged, and, of particular importance for appropriate coding, by its directionality and grammatical form. A complete code book follows in Appendix E; Appendices B and C indicate the specific coding adopted for directionality and grammatical form.

The purpose of this Appendix is to indicate, by presentation of instructions written for the original scoring procedures (punching of cards directly from answer sheets) and for the coding and re-scoring procedures (addition of directionality and grammatical form data and re-scoring of appropriate items), how sets of 20-item responses were re-scored so that scores across all items for all subjects were analogous--i.e., so that "1" (indicating either "agree" or "disagree" in the original response, depending on the directionality of the item) could be universally interpreted as the least favorable response.

The data were first transferred directly from the answer sheets, with additional subject-identifying data, and then re-scored. Separation of these operations was preferable to a one-step operation in which data would be transferred from answer sheets and re-scored simultaneously for two reasons: (a) the intermediate step provided an additional opportunity for checking on the accuracy of data-recording procedures; (b) to enter item-coding data and to rescore response data would have required several "runs," or duplication of procedures in transferring of data from answer sheet to card, whereas the method adopted required only one "run" per card at the transfer point and one additional "run" per card at the re-scoring point.

The instructions presented below are therefore in two parts: (a) scoring instructions for transfer of data from

answer sheets to IBM cards; and (b) coding and re-scoring instructions. The latter are given here in their entirety, while only the instructions for one set of answer sheets are given. Answer sheets were sorted, prior to card-punching, into the 14 sets of data collected (7 semantic paths; each path administered once in random order and once in level-by-level order); the instructions for each of the other 13 sets of answer sheets paralleled those for the set given here as an example.

The instructions presented below were intended for data-processing personnel. Interpretation of an entry in any column requires use of the code book (Appendix E).

SCORING INSTRUCTIONS: SAF data, set 1 (n=69)

General: 69 answer sheets; data on each sheet to be punched in 6 parts on 6 cards, one part to a card, as follows:

Card	Columns[1]	Data
1	1-4	4-digit ID number on answer sheet (in area marked "student number")
	5-8	1612 (punch this 4-digit number)
	10-29	Items 1-20 on answer sheet
	30-end	leave open
2	1-4	ID
	5-8	2513
	10-29	Items 21-40

[1]Column 9 automatically used by scoring office to indicate number of cards to be punched to given specifications.

Card	Columns	Data
3	1-4	ID
	5-8	3111
	10-29	Items 41-60
4	1-4	ID
	5-8	4312
	10-29	Items 61-80
5	1-4	ID
	5-8	5211
	10-29	Items 81-100[1]
6	1-4	ID
	5-8	6412
	10-29	Items 101-120

[1]Sets 7 and 14 (semantic path F randomly and level-by-level administered) have only 80 items--hence, only 4 cards.

SAF Data-transfer Instructions[1]

1. Number of cards/subject
   a. sets 1-6, 8-13: 6 cards
   b. sets 7, 14: 4 cards

2. Card number: col. 5 on all cards, all sets

3. Subject number: cols. 1-4, all cards, all sets

4. Set (14)
   a. each set (n=50+) run separately
   b. within each set, data transferred by one of 4 variant instructions (specific variant to be used with each card of each set is indicated on master sheet accompanying that set; see following pages for 4 variants)

5. General instructions across all cards, sets, variants
   a. cols. 1-9 transferred as is
   b. cols. 12, 15, 18 ... 69
      (1) add as indicated in variant instructions
      (2) only "1" or "2" legitimate
   c. cols. 10, 13, 16 ... 67
      (1) add as indicated in variant instructions
      (2) only "1" or "2" legitimate
      (3) cols. contain coding information for immediately following cols.:
          "1"--following data reflected:
              1=3
              2=2
              3=1
              4=3=1
              0=0
          "2"--following data OK: transfer as is
   d. cols. 11, 14, 17 ... 68: item responses
      (1) only "1," "2," "3," or "0" legitimate on original
      (2) "4" on original = "3" on original
      (3) "5," "6," "7," "8," and "9" on original = on original

6. Note that an item response of "4" on original may become "3" or "1" on new card, depending on preceding code (see 5, c, (3) above).

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[1]The author is indebted to Mr. Marcus Vale, of the M. S. U. Computer Center, for the computer program which performed the operations described above.

SAF Data-transfer Instructions, Variant 1: all cards with "1" in col. 8 of source card.

(Item number, modulo 20)	Col	Source Col	Source ADD
	1	1	
	2	2	
	3	3	
	4	4	
	5	5	
	6	6	
	7	7	
	8	8	
	9	9	
	10		2
1	11	10	
	12		2
	13		2
2	14	11	
	15		2
	16		2
3	17	12	
	18		1
	19		1
4	20	13	
	21		2
	22		1
5	23	14	
	24		1
	25		1
6	26	15	
	27		1
	28		2
7	29	16	
	30		1
	31		1
8	32	17	
	33		2
	34		2
9	35	18	
	36		2
	37		2
10	38	19	
	39		1
	40		1
11	41	20	
	42		1
	43		1
12	44	21	
	45		2
	46		2
13	47	22	
	48		1
	49		2
14	50	23	
	51		2
	52		2
15	53	24	
	54		2
	55		1
16	56	25	
	57		1
	58		1
17	59	26	
	60		2
	61		1
18	62	27	
	63		2
	64		2
19	65	28	
	66		1
	67		1
20	68	29	
	69		1

SAF Data-transfer Instructions, Variant 2: all cards with "2" in col. 8 of source card.

(Item number, modulo 20)	Col	Source Col	Source ADD
	1	1	
	2	2	
	3	3	
	4	4	
	5	5	
	6	6	
	7	7	
	8	8	
	9	9	
	10		1
1	11	10	
	12		2
	13		1
2	14	11	
	15		2
	16		2
3	17	12	
	18		2
	19		2
4	20	13	
	21		1
	22		2
5	23	14	
	24		2
	25		2
6	26	15	
	27		2
	28		2
7	29	16	
	30		1
	31		2
8	32	17	
	33		1
	34		1
9	35	18	
	36		1
	37		2
10	38	19	
	39		1
	40		2
11	41	20	
	42		2
	43		2
12	44	21	
	45		2
	46		1
13	47	22	
	48		1
	49		1
14	50	23	
	51		1
	52		1
15	53	24	
	54		1
	55		1
16	56	25	
	57		2
	58		1
17	59	26	
	60		2
	61		1
18	62	27	
	63		1
	64		1
19	65	28	
	66		2
	67		2
20	68	29	
	69		1

SAF Data-transfer Instructions, Variant 3; all cards with "2" in col. 8 of source card except cards from sets 7, 14

(Item number, modulo 20)	Col	Source Col	Source ADD
	1	1	
	2	2	
	3	3	
	4	4	
	5	5	
	6	6	
	7	7	
	8	8	
	9	9	
	10		2
1	11	10	
	12		2
	13		2
2	14	11	
	15		2
	16		2
3	17	12	
	18		1
	19		1
4	20	13	
	21		2
	22		1
5	23	14	
	24		1
	25		1
6	26	15	
	27		2
	28		1
7	29	16	
	30		1
	31		2
8	32	17	
	33		1
	34		1
9	35	18	
	36		2
	37		2
10	38	19	
	39		1
	40		1
11	41	20	
	42		1
	43		2
12	44	21	
	45		2
	46		2
13	47	22	
	48		1
	49		2
14	50	23	
	51		2
	52		2
15	53	24	
	54		2
	55		1
16	56	25	
	57		2
	58		1
17	59	26	
	60		1
	61		1
18	62	27	
	63		2
	64		2
19	65	28	
	66		1
	67		2
20	68	29	
	69		1

SAF Data-transfer Instructions, Variant 4: all cards from sets 7 and 14 with a "3" in col. 8 of source card.

(Item number, modulo 20)	Col	Source Col	Source ADD
	1	1	
	2	2	
	3	3	
	4	4	
	5	5	
	6	6	
	7	7	
	8	8	
	9	9	
	10		2
1	11	10	
	12		2
	13		2
2	14	11	
	15		2
	16		2
3	17	12	
	18		1
	19		1
4	20	13	
	21		2
	22		1
5	23	14	
	24		1
	25		1
6	26	15	
	27		2
	28		1
7	29	16	
	30		1
	31		1
8	32	17	
	33		1
	34		1
9	35	18	
	36		2
	37		2
10	38	19	
	39		1
	40		1
11	41	20	
	42		1
	43		2
12	44	21	
	45		2
	46		2
13	47	22	
	48		1
	49		2
14	50	23	
	51		2
	52		2
15	53	24	
	54		2
	55		1
16	56	25	
	57		2
	58		1
17	59	26	
	60		1
	61		1
18	62	27	
	63		2
	64		2
19	65	28	
	66		1
	67		2
20	68	29	
	69		1

Note: although the general instructions and specific notes at the top of each variant-instuction listing indicated which variant was to be used with each card of each set, a listing like the following was also provided with each set of cards:

SAF Data-transfer Instructions, Set 1

General: 69 subjects, 6 cards per subjects; see accompanying sheets for variants indicated below:

Card	Variant to be Used
1	2
2	3
3	1
4	2
5	1
6	2

APPENDIX E

CODE BOOK

CODE BOOK

Introduction

As noted in Appendix C, many of the 12 sets of 20 items, corresponding to the 12 hypothesized level members, appear in more than one semantic path. To duplicate the coding for each repetition of the same items appears unnecessary. The appropriate interpretations for each 20-item set are therefore given below only once; as in Appendix C, items are numbered within each 20-item set for identification purposes.

The interpretative material given below is applicable only to the card decks now available for the research administration of the SAF instrument; as indicated in Appendix D, data on that set of cards have been recoded from original responses. This code book, therefore, applies to the card decks available for analysis; it does not apply directly to the original answer seets or to intermediate decks of cards used in recoding procedures. The author is available to assist in defining re-coding procedures for paralled instruments using other item or order-of-level variations.

Coding

A "0" in any column, any card, any set, any subject indicates "missing data"--i.e., either the item is not applicable or the subject did not respond. The following coding interpretations are given in two parts: (a) columns 1-9, applicable to all cards, all sets, all subjects; and (b) columns 10-69, applicable to the specified sets of cards for all cards and subjects within that set.

An explanation of the brief coding information for some columns may be helpful:

Col. 8: "Content SAF"--see Chapter 4;
"Scoring variant"--see Appendix D

Cols. 10, 13, 16 . . . 67 (see Appendix D):

"1"--response data in following column reflected from original response:
1=3
2=2
3=1
"2"--response data in following column as in original

Cols. 11, 14, 17 . . . 68: response data
If preceded by "1," then a response code of "1," indicating "agree" on the answer sheet, is here scored as "3" (see level member I1, item 4): the largest numerical value is therefore here scored for the response most favorable to the attitude object.

If preceded by "2," then a response code of "1," indicating "agree" on the answer sheet, is here scored as "1" (see level member I1, item 1): the smallest numerical value is therefore here scored for the response least favorable to the attitude object.

Cols. 12, 15, 18 . . . 69: see Appendices B and C

Code: All cards, subjects, SETS in columns 1-9

Col.	Scale/Item	Content	Code	
1	SET ID[1]	Semantic path	1	path A
			2	path B
			3	path C
			4	path D
			5	path E
			6	path F
			7	path G
2	SET ID	Order of path administration	1	random
			2	level-by-level
3-4	Subject ID	Subject number within SET	01 - 99	
5	Level ID and Card #	Position in sequence of sets administered	1	first set[2]
			2	second set
			3	third set
			4	fourth set
			5	fifth set
			6	sixth set
6	Level ID	Semantic position[3] (Guttman level)	1	level 1
			2	level 2
			3	level 3
			4	level 4
			5	level 5
			6	level 6

[1] SET comprises a group of six or four 20-item sets; SETS are: 11, 21, 31, 41, 51, 61, 71, 12, 22, 32, 42, 52, 62, 72, and correspond to a random or level-by-level administration of one semantic path.

[2] Set here indicates any 20-item group of questions, corresponding to a level member, within any 6-set SET or 4-set SET.

[3] When a semantic path is administered level-by-level, semantic position of level and order of administration are identical.

Col.	Scale/Item	Content	Code	
7	Member ID	Semantic position within level	1 2 3 4	member 1 member 2 member 3 member 4
8	Content	Content and scoring variant	1 2 3	S, variant 1 A, variant 2 F; SETS 11-61, 12-62: variant 3; SETS 71, 72: variant 4
9	Reproduction control column--no significance for analysis.			

Code: Level member I1 (all cards, all SETS with "1" in col. 6 and "1" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	2	
11	1	Response: edp lazier	1	agree
			2	uncertain
			3	disagree
12	1	Grammatical form	2	
13	2	D	2	
14	2	R: edp less intelligent	1	agree
			2	uncertain
			3	disagree
15	2	G	2	
16	3	D	2	
17	3	R: we more sexually attractive	1	agree
			2	uncertain
			3	disagree
18	3	G	1	
19	4	D	1	
20	4	R: edp cleaner	1	disagree
			2	uncertain
			3	agree
21	4	G	2	
22	5	D	1	
23	5	R: we less cooperative	1	disagree
			2	uncertain
			3	agree
24	5	G	1	
25	6	D	1	
26	6	R: we less friendly	1	disagree
			2	uncertain
			3	agree
27	6	G	1	
28	7	D	2	
29	7	R: we more mature	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item		Content	Code	
31	8	D		1	
32	8	R:	edp more helpful	1	disagree
				2	uncertain
				3	agree
33	8	G		2	
34	9	D		2	
35	9	R:	edp more cruel	1	agree
				2	uncertain
				3	disagree
36	9	G		2	
37	10	D		2	
38	10	R:	we more loyal	1	agree
				2	uncertain
				3	disagree
39	10	G		1	
40	11	D		1	
41	11	R:	we less energetic	1	disagree
				2	uncertain
				3	agree
42	11	G		1	
43	12	D		1	
44	12	R:	edp better looking	1	disagree
				2	uncertain
				3	agree
45	12	G		2	
46	13	D		2	
47	13	R:	we less prejudiced	1	agree
				2	uncertain
				3	disagree
48	13	G		1	
49	14	D		2	
50	14	R:	edp more careless	1	agree
				2	uncertain
				3	disagree
51	14	G		2	
52	15	D		2	
53	15	R:	edp less understanding	1	agree
				2	uncertain
				3	disagree
54	15	G		2	

Col.	Item	Content	Code
55	16	D	1
56	16	R: we less reliable	1 disagree 2 uncertain 3 agree
57	16	G	1
58	17	D	1
59	17	R: edp happier	1 disagree 2 uncertain 3 agree
60	17	G	2
61	18	D	1
62	18	R: edp more honest	1 disagree 2 uncertain 3 agree
63	18	G	2
64	19	D	2
65	19	R: we more talented	1 agree 2 uncertain 3 disagree
66	19	G	1
67	20	D	1
68	20	R: we less healthy	1 disagree 2 uncertain 3 agree
69	20	G	1

Code: Level member III (all cards, all SETS with "2" in col. 6 and "1" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	2	
11	1	Response: edp lazier	1	agree
			2	uncertain
			3	disagree
12	1	Grammatical form	2	
13	2	D	2	
14	2	R: edp less intelligent	1	agree
			2	uncertain
			3	disagree
15	2	G	2	
16	3	D	2	
17	3	R: I more sexually attractive	1	agree
			2	uncertain
			3	disagree
18	3	G	1	
19	4	D	1	
20	4	R: edp cleaner	1	disagree
			2	uncertain
			3	agree
21	4	G	2	
22	5	D	1	
23	5	R: I less cooperative	1	disagree
			2	uncertain
			3	agree
24	5	G	1	
25	6	D	1	
26	6	R: I less friendly	1	disagree
			2	uncertain
			3	agree
27	6	G	1	
28	7	D	2	
29	7	R: I more mature	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code
31	8	D	1
32	8	R: edp more helpful	1 disagree 2 uncertain 3 agree
33	8	G	2
34	9	D	2
35	9	R: edp more cruel	1 agree 2 uncertain 3 disagree
36	9	G	2
37	10	D	2
38	10	R: I more loyal	1 agree 2 uncertain 3 disagree
39	10	G	1
40	11	D	1
41	11	R: I less energetic	1 disagree 2 uncertain 3 agree
42	11	G	1
43	12	D	1
44	12	R: edp better looking	1 disagree 2 uncertain 3 agree
45	12	G	2
46	13	D	2
47	13	R: I less prejudiced	1 agree 2 uncertain 3 disagree
48	13	G	1
49	14	D	2
50	14	R: edp more careless	1 agree 2 uncertain 3 disagree
51	14	G	2

Col.	Item	Content	Code
52	15	D	2
53	15	R: edp less understanding	1 agree 2 uncertain 3 disagree
54	15	G	2
55	16	D	1
56	16	R: I less reliable	1 disagree 2 uncertain 3 agree
57	16	G	1
58	17	D	1
59	17	R: edp happier	1 disagree 2 uncertain 3 agree
60	17	G	2
61	18	D	1
62	18	R: edp more honest	1 disagree 2 uncertain 3 agree
63	18	G	2
64	19	D	2
65	19	R: I more talented	1 agree 2 uncertain 3 disagree
66	19	G	1
67	20	D	1
68	20	R: I less healthy	1 disagree 2 uncertain 3 agree
69	20	G	1

Code: Level member II2 (all cards, all SETS with "2" in col. 6 and "2" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	1	
11	1	Response: edp eat with us	1	disagree
			2	uncertain
			3	agree
12	1	Grammatical form	2	
13	2	D	1	
14	2	R: helpers are edp	1	disagree
			2	uncertain
			3	agree
15	2	G	2	
16	3	D	2	
17	3	R: superiors not edp	1	agree
			2	uncertain
			3	disagree
18	3	G	2	
19	4	D	2	
20	4	R: we do not live near	1	agree
			2	uncertain
			3	disagree
21	4	G	1	
22	5	D	2	
23	5	R: edp not invited	1	agree
			2	uncertain
			3	disagree
24	5	G	2	
25	6	D	2	
26	6	R: subordinates not edp	1	agree
			2	uncertain
			3	disagree
27	6	G	2	
28	7	D	2	
29	7	R: renters not edp	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code	
31	8	D	2	
32	8	R: we do not date	1	agree
			2	uncertain
			3	disagree
33	8	G	1	
34	9	D	1	
35	9	R: we do not avoid	1	disagree
			2	uncertain
			3	agree
36	9	G	1	
37	10	D	2	
38	10	R: we do not borrow $	1	agree
			2	uncertain
			3	disagree
39	10	G	1	
40	11	D	2	
41	11	R: persons fought are edp	1	agree
			2	uncertain
			3	disagree
42	11	G	2	
43	12	D	2	
44	12	R: borrowers not edp	1	agree
			2	uncertain
			3	disagree
45	12	G	2	
46	13	D	1	
47	13	R: we are married to edp	1	disagree
			2	uncertain
			3	agree
48	13	G	1	
49	14	D	1	
50	14	R: we rent to edp	1	disagree
			2	uncertain
			3	agree
51	14	G	1	

Col.	Item	Content	Code	
52	15	D	1	
53	15	R: we borrow things from	1	disagree
			2	uncertain
			3	agree
54	15	G	1	
55	16	D	1	
56	16	R: friends are edp	1	disagree
			2	uncertain
			3	agree
57	16	G	2	
58	17	D	1	
59	17	R: people helped are edp	1	disagree
			2	uncertain
			3	agree
60	17	G	2	
61	18	D	1	
62	18	R: we loan money to	1	disagree
			2	uncertain
			3	agree
63	18	G	1	
64	19	D	1	
65	19	R: we enjoy edp sexually	1	disagree
			2	uncertain
			3	agree
66	19	G	2	
67	20	D	2	
68	20	R: we do not work with	1	agree
			2	uncertain
			3	disagree
69	20	G	1	

Code: Level member II3 (all cards, all SETS with "2" in col. 6 and "3" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	2	
11	1	Response: edp lazier	1	agree
			2	uncertain
			3	disagree
12	1	Grammatical form	2	
13	2	D	2	
14	2	R: edp less intelligent	1	agree
			2	uncertain
			3	disagree
15	2	G	2	
16	3	D	2	
17	3	R: I more sexually attractive	1	agree
			2	uncertain
			3	disagree
18	3	G	1	
19	4	D	1	
20	4	R: edp cleaner	1	disagree
			2	uncertain
			3	agree
21	4	G	2	
22	5	D	1	
23	5	R: I less cooperative	1	disagree
			2	uncertain
			3	agree
24	5	G	1	
25	6	D	1	
26	6	R: I less friendly	1	disagree
			2	uncertain
			3	agree
27	6	G	1	
28	7	D	2	
29	7	R: I more mature	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code
31	8	D	1
32	8	R: edp more helpful	1 disagree 2 uncertain 3 agree
33	8	G	2
34	9	D	2
35	9	R: edp more cruel	1 agree 2 uncertain 3 disagree
36	9	G	2
37	10	D	2
38	10	R: I more loyal	1 agree 2 uncertain 3 disagree
39	10	G	1
40	11	D	1
41	11	R: I less energetic	1 disagree 2 uncertain 3 agree
42	11	G	1
43	12	D	1
44	12	R: edp better looking	1 disagree 2 uncertain 3 agree
45	12	G	2
46	13	D	2
47	13	R: I less prejudiced	1 agree 2 uncertain 3 disagree
48	13	G	1
49	14	D	2
50	14	R: edp more careless	1 agree 2 uncertain 3 disagree
51	14	G	2

Col.	Item	Content	Code	
52	15	D	2	
53	15	R: edp less understanding	1	agree
			2	uncertain
			3	disagree
54	15	G	2	
55	16	D	1	
56	16	R: I less reliable	1	disagree
			2	uncertain
			3	agree
57	16	G	1	
58	17	D	1	
59	17	R: edp happier	1	disagree
			2	uncertain
			3	agree
60	17	G	2	
61	18	D	1	
62	18	R: edp more honest	1	disagree
			2	uncertain
			3	agree
63	18	G	2	
64	19	D	2	
65	19	Re: I more talented	1	agree
			2	uncertain
			3	disagree
66	19	G	1	
67	20	D	1	
68	20	R: I less healthy	1	disagree
			2	uncertain
			3	agree
69	20	G	1	

Code: Level member IIIl (all cards, all SETS with "3" in col. 6 and "1" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	1	
11	1	Response: edp allowed to eat	1	disagree
			2	uncertain
			3	agree
12	1	Grammatical form	2	
13	2	D	1	
14	2	Re: edp asked for help	1	disagree
			2	uncertain
			3	agree
15	2	G	2	
16	3	D	2	
17	3	R: edp not superiors	1	agree
			2	uncertain
			3	disagree
18	3	G	2	
19	4	D	2	
20	4	R: we should not live near	1	agree
			2	uncertain
			3	disagree
21	4	G	1	
22	5	D	2	
23	5	R: edp not invited	1	agree
			2	uncertain
			3	disagree
24	5	G	2	
25	6	D	2	
26	6	R: edp not subordinates	1	agree
			2	uncertain
			3	disagree
27	6	G	2	
28	7	D	2	
29	7	R: we should not rent from	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code	
31	8	D	2	
32	8	R: we should not date	1	agree
			2	uncertain
			3	disagree
33	8	G	1	
34	9	D	1	
35	9	R: we should not avoid	1	disagree
			2	uncertain
			3	agree
36	9	G	1	
37	10	D	2	
38	10	R: we should not borrow $ from	1	agree
			2	uncertain
			3	disagree
39	10	G	1	
40	11	D	2	
41	11	R: edp should be fought	1	agree
			2	uncertain
			3	disagree
42	11	G	2	
43	12	D	2	
44	12	R: edp not loaned things	1	agree
			2	uncertain
			3	disagree
45	12	G	2	
46	13	D	1	
47	13	R: we should marry edp	1	disagree
			2	uncertain
			3	agree
48	13	G	1	
49	14	D	1	
50	14	R: we should rent to edp	1	disagree
			2	uncertain
			3	agree
51	14	G	1	

Col.	Item	Content	Code
52	15	D	1
53	15	R: we should borrow from	1 disagree 2 uncertain 3 agree
54	15	G	1
55	16	D	1
56	16	R: edp accepted as friends	1 disagree 2 uncertain 3 agree
57	16	G	2
58	17	D	1
59	17	R: edp helped by us	1 disagree 2 uncertain 3 agree
60	17	G	2
61	18	D	1
62	18	R: we should loan $ to	1 disagree 2 uncertain 3 agree
63	18	G	1
64	19	D	1
65	19	R: edp enjoyed sexually	1 disagree 2 uncertain 3 agree
66	19	G	2
67	20	D	2
68	20	R: we should not work with	1 agree 2 uncertain 3 disagree
69	20	G	1

Code: Level member III2 (all cards, all SEIS with "3" in col. 6 and "2" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	2	
11	1	Response: edp lazier	1	agree
			2	uncertain
			3	disagree
12	1	Grammatical form	2	
13	2	D	2	
14	2	R: edp less intelligent	1	agree
			2	uncertain
			3	disagree
15	2	G	2	
16	3	D	2	
17	3	R: I more sexually attractive	1	agree
			2	uncertain
			3	disagree
18	3	G	1	
19	4	D	1	
20	4	R: edp cleaner	1	disagree
			2	uncertain
			3	agree
21	4	G	2	
22	5	D	1	
23	5	R: I less cooperative	1	disagree
			2	uncertain
			3	agree
24	5	G	1	
25	6	D	1	
26	6	R: I less friendly	1	disagree
			2	uncertain
			3	agree
27	6	G	1	
28	7	D	2	
29	7	R: I more mature	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code	
31	8	D	1	
32	8	R: edp more helpful	1	disagree
			2	uncertain
			3	agree
33	8	G	2	
34	9	D	2	
35	9	R: edp more cruel	1	agree
			2	uncertain
			3	disagree
36	9	G	2	
37	10	D	2	
38	10	R: I more loyal	1	agree
			2	uncertain
			3	disagree
39	10	G	1	
40	11	D	1	
41	11	R: I less energetic	1	disagree
			2	uncertain
			3	agree
42	11	G	1	
43	12	D	1	
44	12	R: edp better looking	1	disagree
			2	uncertain
			3	agree
45	12	G	2	
46	13	D	2	
47	13	R: I less prejudiced	1	agree
			2	uncertain
			3	disagree
48	13	G	1	
49	14	D	2	
50	14	R: edp more careless	1	agree
			2	uncertain
			3	disagree
51	14	G	2	

Col.	Item	Content	Code	
52	15	D	2	
53	15	R: edp less understanding	1	agree
			2	uncertain
			3	disagree
54	15	G	2	
55	16	D	1	
56	16	R: I less reliable	1	disagree
			2	uncertain
			3	agree
57	16	G	1	
58	17	D	1	
59	17	R: edp happier	1	disagree
			2	uncertain
			3	agree
60	17	G	2	
61	18	D	1	
62	18	R: edp more honest	1	disagree
			2	uncertain
			3	agree
63	18	G	2	
64	19	D	2	
65	19	R: I more talented	1	agree
			2	uncertain
			3	disagree
66	19	G	1	
67	20	D	1	
68	20	R: I less healthy	1	disagree
			2	uncertain
			3	agree
69	20	G	1	

Code: Level member III3 (all cards, all SETS with "3" in col. 6 and "3" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	1	
11	1	Response: edp eat with	1	disagree
			2	uncertain
			3	agree
12	1	Grammatical form	2	
13	2	D	1	
14	2	R: edp asked for help	1	disagree
			2	uncertain
			3	agree
15	2	G	2	
16	3	D	2	
17	3	R: superiors not edp	1	agree
			2	uncertain
			3	disagree
18	3	G	2	
19	4	D	2	
20	4	R: I do not live near	1	agree
			2	uncertain
			3	disagree
21	4	G	1	
22	5	D	2	
23	5	R: edp not invited	1	agree
			2	uncertain
			3	disagree
24	5	G	2	
25	6	D	2	
26	6	R: subordinates not edp	1	agree
			2	uncertain
			3	disagree
27	6	G	2	
28	7	D	2	
29	7	R: I do not rent from	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code	
31	8	D	2	
32	8	R: I do not date	1	agree
			2	uncertain
			3	disagree
33	8	G	1	
34	9	D	1	
35	9	R: I do not avoid	1	disagree
			2	uncertain
			3	agree
36	9	G	1	
37	10	D	2	
38	10	R: I do not borrow $ from	1	agree
			2	uncertain
			3	disagree
39	10	G	1	
40	11	D	2	
41	11	R: edp fought	1	agree
			2	uncertain
			3	disagree
42	11	G	2	
43	12	D	2	
44	12	R: edp not loaned things	1	agree
			2	uncertain
			3	disagree
45	12	G	2	
46	13	D	1	
47	13	R: I marry edp	1	disagree
			2	uncertain
			3	agree
48	13	G	1	
49	14	D	1	
50	14	R: I rent to	1	disagree
			2	uncertain
			3	agree
51	14	G	1	
52	15	D	1	
53	15	R: I borrow things from	1	disagree
			2	uncertain
			3	agree
54	15	G	1	

Col.	Item	Content	Code	
55	16	D	1	
56	16	R: edp accepted as friends	1	disagree
			2	uncertain
			3	agree
57	16	G	2	
58	17	D	1	
59	17	R: edp helped	1	disagree
			2	uncertain
			3	agree
60	17	G	2	
61	18	D	1	
62	18	R: I loan $ to	1	disagree
			2	uncertain
			3	agree
63	18	G	1	
64	19	D	1	
65	19	R: edp enjoyed sexually	1	disagree
			2	uncertain
			3	agree
66	19	G	2	
67	20	D	2	
68	20	R: I do not work with	1	agree
			2	uncertain
			3	disagree
69	20	G	1	

Code: Level member III4 (all cards, all SETS with "3" in col. 6 and "4" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	2	
11	1	Response: edp displease	1	agree
			2	uncertain
			3	disagree
12	1	Grammatical form	2	
13	2	D	2	
14	2	R: we negative	1	agree
			2	uncertain
			3	disagree
15	2	G	2	
16	3	D	2	
17	3	R: we dislike	1	agree
			2	uncertain
			3	disagree
18	3	G	1	
19	4	D	1	
20	4	R: edp do not make us tense	1	disagree
			2	uncertain
			3	agree
21	4	G	2	
22	5	D	1	
23	5	R: we are not frightened by	1	disagree
			2	uncertain
			3	agree
24	5	G	1	
25	6	D	1	
26	6	R: edp do not anger us	1	disagree
			2	uncertain
			3	agree
27	6	G	2	
28	7	D	1	
29	7	R: we do not feel contempt	1	disagree
			2	uncertain
			3	agree
30	7	G	1	

Col.	Item	Content	Code
31	8	D	1
32	8	R: we are not uncomfortable near	1 disagree 2 uncertain 3 agree
33	8	G	1
34	9	D	1
35	9	R: edp do not dismay us	1 disagree 2 uncertain 3 agree
36	9	G	2
37	10	D	2
38	10	R: we loath	1 agree 2 uncertain 3 disagree
39	10	G	1
40	11	D	1
41	11	R: we are attracted	1 disagree 2 uncertain 3 agree
42	11	G	1
43	12	D	2
44	12	R: edp make us unsympathetic	1 agree 2 uncertain 3 disagree
45	12	G	2
46	13	D	2
47	13	R: we are not at ease near	1 agree 2 uncertain 3 disagree
48	13	G	1
49	14	D	2
50	14	R: edp make us unhappy	1 agree 2 uncertain 3 disagree
51	14	G	2

Col.	Item	Content	Code	
52	15	D	2	
53	15	R: edp confuse us	1	agree
			2	uncertain
			3	disagree
54	15	G	2	
55	16	D	1	
56	16	R: edp do not repulse	1	disagree
			2	uncertain
			3	agree
57	16	G	2	
58	17	D	1	
59	17	R: we feel secure near	1	disagree
			2	uncertain
			3	agree
60	17	G	1	
61	18	D	1	
62	18	R: edp attract us sexually	1	disagree
			2	uncertain
			3	agree
63	18	G	2	
64	19	D	2	
65	19	R: we are restless near	1	agree
			2	uncertain
			3	disagree
66	19	G	1	
67	20	D	2	
68	20	R: we are not calm near	1	agree
			2	uncertain
			3	disagree
69	20	G	1	

Code: Level member IV1 (all cards, all SETS with "4" in col. 6 and "1" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	1	
11	1	Response: edp eat with	1	disagree
			2	uncertain
			3	agree
12	1	Grammatical form	2	
13	2	D	1	
14	2	R: edp asked for help	1	disagree
			2	uncertain
			3	agree
15	2	G	2	
16	3	D	2	
17	3	R: superiors not edp	1	agree
			2	uncertain
			3	disagree
18	3	G	2	
19	4	D	2	
20	4	R: I would not live near	1	agree
			2	uncertain
			3	disagree
21	4	G	1	
22	5	D	2	
23	5	R: edp not invited	1	agree
			2	uncertain
			3	disagree
24	5	G	2	
25	6	D	2	
26	6	R: subordinates not edp	1	agree
			2	uncertain
			3	disagree
27	6	G	2	
28	7	D	2	
29	7	R: I would not rent from	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code
31	8	D	2
32	8	R: I would not date	1 agree 2 uncertain 3 disagree
33	8	G	1
34	9	D	1
35	9	R: I would not avoid	1 disagree 2 uncertain 3 agree
36	9	G	1
37	10	D	2
38	10	R: I would not borrow $ from	1 agree 2 uncertain 3 disagree
39	10	G	1
40	11	D	2
41	11	R: edp fought	1 agree 2 uncertain 3 disagree
42	11	G	2
43	12	D	2
44	12	R: edp not loaned things	1 agree 2 uncertain 3 disagree
45	12	G	2
46	13	D	1
47	13	R: I would marry edp	1 disagree 2 uncertain 3 agree
48	13	G	1
49	14	D	1
50	14	R: I would rent to	1 disagree 2 uncertain 3 agree
51	14	G	1

Col.	Item	Content	Code	
52	15	D	1	
53	15	R: I would borrow things from	1	disagree
			2	uncertain
			3	agree
54	15	G	1	
55	16	D	1	
56	16	R: edp accepted as friends	1	disagree
			2	uncertain
			3	agree
57	16	G	2	
58	17	D	1	
59	17	R: edp helped	1	disagree
			2	uncertain
			3	agree
60	17	G	2	
61	18	D	1	
62	18	R: I would loan $ to	1	disagree
			2	uncertain
			3	agree
63	18	G	1	
64	19	D	1	
65	19	R: edp enjoyed sexually	1	disagree
			2	uncertain
			3	agree
66	19	G	2	
67	20	D	2	
68	20	R: I would not work with	1	agree
			2	uncertain
			3	disagree
69	20	G	1	

Code: Level member IV2 (all cards, all SETS with "4" in col. 6 and "2" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	1	
11	1	Response: edp eat with	1	disagree
			2	uncertain
			3	agree
12	1	Grammatical form	2	
13	2	D	1	
14	2	R: edp asked for help	1	disagree
			2	uncertain
			3	agree
15	2	G	2	
16	3	D	2	
17	3	R: superiors not edp	1	agree
			2	uncertain
			3	disagree
18	3	G	2	
19	4	D	2	
20	4	R: we do not live near	1	agree
			2	uncertain
			3	disagree
21	4	G	1	
22	5	D	2	
23	5	R: edp not invited	1	agree
			2	uncertain
			3	disagree
24	5	G	2	
25	6	D	2	
26	6	R: subordinates not edp	1	agree
			2	uncertain
			3	disagree
27	6	G	2	
28	7	D	2	
29	7	R: We do not rent from	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code	
31	8	D	2	
32	8	R: we do not date	1	agree
			2	uncertain
			3	disagree
33	8	G	1	
34	9	D	1	
35	9	R: we do not avoid	1	disagree
			2	uncertain
			3	agree
36	9	G	1	
37	10	D	2	
38	10	R: we do not borrow $ from	1	agree
			2	uncertain
			3	disagree
39	10	G	1	
40	11	D	2	
41	11	R: edp fought	1	agree
			2	uncertain
			3	disagree
42	11	G	2	
43	12	D	2	
44	12	R: edp not loaned things	1	agree
			2	uncertain
			3	disagree
45	12	G	2	
46	13	D	1	
47	13	R: we marry edp	1	disagree
			2	uncertain
			3	agree
48	13	G	1	
49	14	D	1	
50	14	R: we rent to	1	disagree
			2	uncertain
			3	agree
51	14	G	1	
52	15	D	1	
53	15	R: we borrow things from	1	disagree
			2	uncertain
			3	agree
54	15	G	1	

Col.	Item	Content	Code	
55	16	D	1	
56	16	R: edp accepted as friends	1	disagree
			2	uncertain
			3	agree
57	16	G	2	
58	17	D	1	
59	17	R: edp helped	1	disagree
			2	uncertain
			3	agree
60	17	G	2	
61	18	D	1	
62	18	R: we loan $ to	1	disagree
			2	uncertain
			3	agree
63	18	G	1	
64	19	D	1	
65	19	R: edp enjoyed sexually	1	disagree
			2	uncertain
			3	agree
66	19	G	2	
67	20	D	2	
68	20	R: we do not work with	1	agree
			2	uncertain
			3	disagree
69	20	G	1	

Code: Level member V1 (all cards, all SETS with "5" in col. 6 and "1" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	2	
11	1	Response: edp displease	1	agree
			2	uncertain
			3	disagree
12	1	Grammatical form	2	
13	2	D	2	
14	2	R: I negative	1	agree
			2	uncertain
			3	disagree
15	2	G	2	
16	3	D	2	
17	3	R: I dislike	1	agree
			2	uncertain
			3	disagree
18	3	G	1	
19	4	D	1	
20	4	R: edp do not make me tense	1	disagree
			2	uncertain
			3	agree
21	4	G	2	
22	5	D	1	
23	5	R: I am not frightened by	1	disagree
			2	uncertain
			3	agree
24	5	G	1	
25	6	D	1	
26	6	R: edp do not anger me	1	disagree
			2	uncertain
			3	agree
27	6	G	2	
28	7	D	1	
29	7	R: I do not feel contempt	1	disagree
			2	uncertain
			3	agree
30	7	G	1	

Col.	Item	Content	Code
31	8	D	2
32	8	R: I am not comfortable near	1 agree 2 uncertain 3 disagree
33	8	G	1
34	9	D	1
35	9	R: edp do not dismay me	1 disagree 2 uncertain 3 agree
36	9	G	2
37	10	D	2
38	10	R: I loath	1 agree 2 uncertain 3 disagree
39	10	G	1
40	11	D	1
41	11	R: I am attracted	1 disagree 2 uncertain 3 agree
42	11	G	1
43	12	D	2
44	12	R: edp make me unsympathetic	1 agree 2 uncertain 3 disagree
45	12	G	2
46	13	D	2
47	13	R: I am not at ease near	1 agree 2 uncertain 3 disagree
48	13	G	1
49	14	D	2
50	14	R: edp make me unhappy	1 agree 2 uncertain 3 disagree
51	14	G	2

Col.	Item	Content	Code	
52	15	D	2	
53	15	R: edp confuse me	1	agree
			2	uncertain
			3	disagree
54	15	G	2	
55	16	D	1	
56	16	R: edp do not repulse me	1	disagree
			2	uncertain
			3	agree
57	16	G	2	
58	17	D	1	
59	17	R: I feel secure near	1	disagree
			2	uncertain
			3	agree
60	17	G	1	
61	18	D	1	
62	18	R: edp attract me sexually	1	disagree
			2	uncertain
			3	agree
63	18	G	2	
64	19	D	2	
65	19	R: I am restless near	1	agree
			2	uncertain
			3	disagree
66	19	G	1	
67	20	D	2	
68	20	R: I am not calm near	1	agree
			2	uncertain
			3	disagree
69	20	G	1	

Code: Level member VI1 (all cards, all SETS with "6" in col. 6 and "1" in col. 7)

Col.	Item	Content	Code	
10	1	Directionality	1	
11	1	Response: edp eat with	1	disagree
			2	uncertain
			3	agree
12	1	Grammatical form	2	
13	2	D	1	
14	2	R: edp asked for help	1	disagree
			2	uncertain
			3	agree
15	2	G	2	
16	3	D	2	
17	3	R: superiors not edp	1	agree
			2	uncertain
			3	disagree
18	3	G	2	
19	4	D	2	
20	4	R: I do not live near	1	agree
			2	uncertain
			3	disagree
21	4	G	1	
22	5	D	2	
23	5	R: edp not invited	1	agree
			2	uncertain
			3	disagree
24	5	G	2	
25	6	D	2	
26	6	R: subordinates not edp	1	agree
			2	uncertain
			3	disagree
27	6	G	2	
28	7	D	2	
29	7	R: I do not rent from	1	agree
			2	uncertain
			3	disagree
30	7	G	1	

Col.	Item	Content	Code
31	8	D	2
32	8	R: I do not date	1 agree 2 uncertain 3 disagree
33	8	G	1
34	9	D	1
35	9	R: I do not avoid	1 disagree 2 uncertain 3 agree
36	9	G	1
37	10	D	2
38	10	R: I do not borrow $ from	1 agree 2 uncertain 3 disagree
39	10	G	1
40	11	D	2
41	11	R: edp fought	1 agree 2 uncertain 3 disagree
42	11	G	2
43	12	D	2
44	12	R: edp not loaned things	1 agree 2 uncertain 3 disagree
45	12	G	2
46	13	D	1
47	13	R: I marry edp	1 disagree 2 uncertain 3 agree
48	13	G	1
49	14	D	1
50	14	R: I rent to	1 disagree 2 uncertain 3 agree
51	14	G	1

Col.	Item	Content	Code
52	15	D	1
53	15	R: I borrow things from	1 disagree 2 uncertain 3 agree
54	15	G	1
55	16	D	1
56	16	R: edp accepted as friends	1 disagree 2 uncertain 3 agree
57	16	G	2
58	17	D	1
59	17	R: edp helped	1 disagree 2 uncertain 3 agree
60	17	G	2
61	18	D	1
62	18	R: I loan $ to	1 disagree 2 uncertain 3 agree
63	18	G	1
64	19	D	1
65	19	R: edp enjoyed sexually	1 disagree 2 uncertain 3 agree
66	19	G	2
67	20	D	2
68	20	R: I do not work with	1 agree 2 uncertain 3 disagree
69	20	G	1

APPENDIX F

IDENTIFICATION OF VARIABLES

IDENTIFICATION OF VARIABLES

Introduction

As indicated in Chapters III and IV, the scope of the present study does not include complete analysis of individual items or of the varying effects upon individual scores from such variables as directionality of items, grammatical form of items, or general content of items. The data have however, been identified and coded to make such analyses possible.

By a combination of card-sorting and programming procedures, response data (in columns 11, 14, 17 . . . 68) of all cards can be identified in various ways. Among the variables of interest are: (a) conjoint-struction specificity--how do varying level members affect scoring patterns? (b) directionality--does item directionality affect response? (c) grammatical form--does grammatical emphasis affect response? (d) general content (see Chapter IV)--do response patterns vary across different types of disjoint struction? (e) sematic path--does the SET of level members as a whole affect responses to individual level-member items? (f) order of administration of semantic path--are some orders of administration more effective in producing discriminating scores? (g) position within

administered sequence--do scores reflect how early or late in a particular instrument sets of items are placed? and (h) SET--comparisons across SETS must be done under the limitation that subjects varied, in the original data, from SET to SET; the analyses which comprise the main part of Chapter V have been done within rather than across SETS.

The Code Book (Appendix E) contains all information necessary for the identification of data according to such variable requirements. The following examples may be of use in such identification.

Variable Identification

Conjoint-struction specificity may be of interest: 12 level members have been identified; level number is given in column 6 and member number in column 7. For example,

Level member I1

appears on varying cards in all 14 SETS;

is identified in column 6 ("1" and column 7 ("1");

and comprises

SET	Card[1]	SET	Card
11	3	12	1
21	3	22	1
31	3	32	1
41	3	42	1
51	5	52	1
61	4	62	1
71	2	72	1

[1]See Appendix G

Directionality of items may affect responses: agreement with some items indicates a favorable attitude toward the attitude object; agreement with other items indicates an unfavorable attitude. For example, those items for which "agree" indicates a favorable attitude in SET 11, card 1 (level member VI_1)

are coded in columns 10, 13, 16 . . . 67 (code "1");

appear in columns 11, 14, 17 . . . 68;

and comprise:

Coding Column	Data Column	(Item)
10	11	1
13	14	2
34	35	9
46	47	13
49	50	14
52	53	15
55	56	16
58	59	17
61	62	18
64	65	19

A computer routine to identify and analyse such data would (a) read coding column (10, 13, 16, etc.): if "1" record data in following column; if "2" skip next two columns; (b) read next coding column . . . etc.

Grammatical form of items may affect responses: the "actor" is grammatically emphasized in some items; in other items the attitude object is grammatically emphasized. For example, those items in which the actor is grammatically emphasized in SET 11, card 1

are coded in columns 12, 15, 18 . . . 69;

appear in columns 11, 14, 17 . . . 68;

and comprise:

Coding Column	Data Column	(Item)
21	20	4
30	29	7
33	32	8
36	35	9
39	38	10
48	47	13
51	50	14
54	53	15
63	62	18
69	68	20

General content (S, A, or F: see Chapter IV) can be identified by sorting on column 8. S - content, coded "1," is found in level members I1, III1, II3, III2. A - content, coded "2," is found in level members II2, III1, III3, IV1, IV2, VI1. Content F, coded "3," is found in level members III4 and V1. An individual item appears in parallel forms in identical position across all level members of the same general content. For example, item 1:

I1: We think that most emotionally disturbed persons are lazier than we are.

II1: I think that most emotionally disturbed persons are lazier than people like myself.

II3: Other people think that most emotionally disturbed persons are lazier than I am.

III2: I think that most emotionally disturbed persons are lazier than I am.

Semantic paths may have varying characteristics. For example, path A (code "1" in column 1, all cards) comprises

SET 11 all cards (path A, random order),

SET 12 all cards (path A, level-by-level order).

Order of administration, whether level-by-level or random, may affect the relationship of level members within a semantic path. For example, all randomly-ordered semantic paths

are coded in column 2 (code "1"),

and comprise

SET	All cards
11	" "
21	" "
31	" "
41	" "
51	" "
61	" "
71	" "

Position within a given sequence of level members may affect response. For example, the level member administered fourth in any semantic path, any order, is

coded in column 5 (same as card number),

and comprises

SET	Card	Level member
11	4	III1
21	4	VI1
31	4	VI1
41	4	VI1
51	4	V1
61	4	I1
71	4	III4
12	4	IV1
22	4	IV1
32	4	IV1
42	4	IV1
52	4	IV1
62	4	IV1
72	4	IV2

SETS, corresponding to random or level-by-level administrations of semantic paths, constituted the basic units for the analyses described in Chapters IV and V. As indicated in the Code Book, any semantic path can be identified in column 1 (path) and column 2 (order of administration) of all cards.

Conclusion

Combinations of sorting and programming procedures can be used to isolate and analyse the variables indicated above. Further analyses, such as a two-by-two analysis of variance utilizing directionality of item and grammatical form of item might also be of interest. For such an analysis, a routine could be devised which would sum in four different totals, from columns 11, 14, 17 . . . 68, those items which are: (a) preceded by "1" and followed by "1"; (b) preceded by "1" and followed by "2"; (c) preceded by "2" and followed by "1"; and (d) preceded by "2" and followed by "2." The resulting data would belong to the following cells of an ANOVA table: (a) agree=favorable, actor emphasized; (b) agree=favorable, object emphasized; (c) agree=unfavorable, actor emphasized; and (d) agree=unfavorable, object emphasized.

APPENDIX G

SEQUENCE OF LEVEL MEMBERS IN SEMANTIC PATHS

SEQUENCE OF LEVEL MEMBERS IN SEMANTIC PATHS

As indicated in Chapter IV, each semantic path was administered in two orders: (a) a random order; and (b) level-by-level. The following summary may be of help in conjunction with Appendices E ("Code Book") and F ("Identification of Variables").

Path	Level Members	Sequence Random	Sequence Level-by-level
A	I1	3	1
	II1	5	2
	III1	4	3
	IV1	6	4
	V1	2	5
	VI1	1	6
B	I1	3	1
	II1	1	2
	III2	5	3
	IV1	6	4
	V1	1	5
	VI1	4	6
C	I1	3	1
	II2	6	2
	III1	2	3
	IV1	1	4
	V1	5	5
	VI1	4	6
D	I1	3	1
	II2	6	2
	III3	1	3
	IV1	5	4
	V1	2	5
	VI1	4	6

Path	Level Members	Sequence Random	Sequence Level-by-level
E	I1	5	1
	II3	3	2
	III2	1	3
	IV1	2	4
	V1	4	5
	VI1	6	6
F	I1	4	1
	II3	1	2
	III3	2	3
	IV1	6	4
	V1	3	5
	VI1	5	6
G	I1	2	1
	II2	1	2
	III4	4	3
	IV2	3	4

GLOSSARY

GLOSSARY

Approximation--see "simplex approximation."

Attitude--"delimited totality of behavior with respect to something" (Guttman, 1950, p. 51).

Conjoint struction--see also "struction," "disjoint struction"--"operationally defined as the ordered sets of . . . five facets from low to high across all five facets simultaneously" (Jordan, 1968a, p. 76); that part of the semantic structure of attitude items which can be determined independently of specific response situations.

Content--situation (action, feeling, comparison, circumstances) indicated in an attitude item; generally corresponds to "disjoint struction."

Definitional statement--specification of characteristics proper to an item of a given level member, typically stated in phrase or clause form.

Definitional system--ordered group of definitional statements or of the corresponding level members; typically either the group constituting a "semantic path" or the complete group of 12 level members in the "semantic map."

Directionality--characteristic of an item, sometimes called positive or negative, determining agreement with the item as indicating favorableness or unfavorableness toward the attitude object.

Disjoint struction--see also "struction," "conjoint struction"--that part of the semantic structure of attitude items which is directly dependent on specification of situation and object; a more precise term than "content."

Element--one of two or more ways in which a facet may be expressed; in the present system, all conjoint facets are dichotomous, expressed in one of two ordered elements.

Emotionally disturbed--"those children or adults whose behaviors, feelings, or emotions cause them to have difficulties with every-day problems which they are unable to solve (SAF Scale, Form ED-1; Appendix C)."

Facet--one of several semantic units distinguishable in the verbal expression of an attitude; in the present system, five dichotomous facets are noted within the conjoint struction; see Chapter VI for discussion of disjoint struction.

Facet profile--see "struction profile."

Level--degree of attitude strength specified by the number of strong and weak facets in the member(s) of that level; in the present system, six ordered levels are

identified: level I is characterized by the unique member having five weak facets; level II, by members having four weak and one strong facet . . . level VI, by the unique member having five strong facets.

Level member--one of one or more permutation(s) of strong and weak facets which are common to a given level; in the present system, 12 level members have been identified: three on level II, four on level III, two on level IV, and one each on levels I, V, and VI.

Map--see "semantic map."

Member--see "level member."

Path--see "semantic path."

Profile--see "struction profile."

Reversal--change in a specified order of levels or of correlations, involving only the two indicated levels or correlations.

Semantic--pertaining to or arising from the varying meanings, grammatical forms, or stylistic emphasis of words, phrases, or clauses.

Semantic map--two-dimensional representation of hypothesized relationships among six levels and among 12 level members (cf. Chapter III).

Semantic path--ordered set of level members, typically six, such that each member has one more strong facet than the immediately preceding member and one less strong facet than the immediately following member.

Semantic possibility analysis--linguistic discussion of the implications of the five dichotomous conjoint facets identified in the present system; of 32 permutations, only 12 are considered logically consistent.

Simplex--specific form of (correlation) matrix, diagonally dominated and decreasing in magnitude away from the main diagonal; see Chapter VI for comparison of equally spaced and unequally-spaced diagonals.

Simplex approximation--matrix which approaches more or less perfectly the simplex form; existing tests (Kaiser, 1962; Mukherjee, 1966) reflect both ordering of individual entries and sizes of differences between entries and between diagonals.

Strong(er)--opposite of weak(er)--term functionally assigned to one of two elements, to a facet expressed by its strong element, or to a level member characterized by more strong facets than another level member; the strong - weak continuum is presently examined as unidimensional; see Chapters II and III for identification of strong and weak elements.

Struction--see also "conjoint struction," "disjoint struction"--semantic pattern identifiable in any attitude item, or the system of such identifications.

Struction profile--specification, typically indicated by small letters and numerical subscripts, of the permutation(s) of weak and strong elements or facets in

a level member or a set of level members; or of permutations of disjoint elements or facets.

Transposition--change in a specified order of levels or of correlations involving a change in position of one level or correlation and the corresponding one-place shift in the position of following or preceding levels or correlations.

Weak--opposite of "strong" (which see).

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