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## The Usefulness of the Spranger Values in the Determination of Basic Values

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THE USEFULNESS OF THE SPRANGER VALUES IN THE  
DETERMINATION OF BASIC VALUES

by

Eugene H. Welsand

A Dissertation Submitted to the Faculty of the Graduate School of  
Loyola University in Partial Fulfillment of  
the Requirements for the Degree of  
Doctor of Philosophy

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## LIFE

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## CHAPTER I

### STATEMENT OF THE PROBLEM

#### A. A Proposed Meaning of Value

The problem of this study is the assessment of the Spranger values, as basic values. Implicit to it, however, is the question: what is value?

The statement of the question should be carefully noted. The question asked is: what is value? It does not ask: what is valuable? Whatever is valuable can be valuable only in terms of value. Consequently, sidestepping the meaning of value obscures an inquiry concerning value. Unlike Lee (174, p. 338) and Morris (196, p. 211; 197, pp. 9-10), this writer concurs with Pepper (208, pp. 78-79) that, to be meaningful, a study of values presupposes a definition of value.

The definition of value, however, has challenged many energetic thinkers. Each in his own way essayed to improve upon the efforts of his predecessors and to scatter the skepticism enveloping the quest. But, each in his own way, like Hall (131) with his metalinguistic analysis, Dewey (64; 147, pp. 158-161) with his instrumental orientation, and Hilliard (148) with his hedonistic elaborations failed to reach a universally acceptable solution. In contrast to Hall who concludes, "Our essay has ended with the unsayable. We cannot in correct language formulate an answer to our question, what is value?" (131, p. 247), axiologists have been actively concerned with the integration of value, as a kind of standard, with behavior. Samplings of the varied interpretations of



value, (102, 147, 176, 177, 186, 197, 205, 206), however, demonstrate that the nature of that standard has not been determined among them.

Attempts to categorize the explications of value further illustrate the dissension concerning the meaning of value. Friedman (102, pp. 41-48), for example, analyzed them in terms of 16 criteria, such as "value as feeling," "value as attitude or set towards," "value as feeling and attitude," "value as action, activity, behavior," and "value as consummatory behavior." A philosophical orientation characterized Hill's (147) principle of division: affective, hedonistic, idealistic, pragmatic, and realistic theories of value. Morris (197, pp. 10-12) reduced the diverse meanings of value into "operative values," "conceived values," and "object values." Moreover, he proposed with reservations, that such usages have a common denominator in "preferential behavior." Kluckhohn aptly described the situation, when he commented:

Reading the voluminous, and often vague and diffuse, literature on the subject in the various fields of learning, one finds values considered as attitudes, motivations, objects, measurable quantities, substantive areas of behavior, affect-laden customs or traditions, and relationships such as those between individuals, groups, objects, events (166, p. 290).

Dukes reported a similar observation (70, pp. 25-26).

The current status of axiology, therefore, decides the first task of the value investigator. Perry delineated it as follows:

The problem is not to discover a present meaning--there are only too many meanings.

The problem is not solved, however, by simply enumerating these many meanings. This job is already done by unabridged dictionaries ....The problem is to define, that is, give a meaning to the term, either by selecting from its existing meanings, or by creating a new meaning (209, p. 2).

But, Whitehead's counsel to Lee effectively suggests that the problem is not so

easily resolved:

"When you have a new concept, and consider by what name you want to call it, you can do either of two things: you can use an old word which you redefine, but if you do, you will always be misunderstood; or you can invent a new word, but, if you do, you will never be understood. Take your choice" (175, p. 178).

Without purporting to develop a theory of his own, the writer believes that contemporary speculations on the nature of value neglect a vital distinction between value and valued object. Its explicit acknowledgment could clarify their interdependent relationship and could alleviate the widespread ambiguity in the language of value. Accordingly, he--without polemic intent--considers value to be an orienting principle according to which action is organized toward the realization of a generalized good. He would regard the valued object as a tangible or a directly observable event capable of functioning as a means through which value becomes manifest. Such conceptualizations may provide the generic definition of value needed for a meaningful investigation of value.

As it was already stated, the propounding of an extensively theoretical structure to support these formulations is not intended. To argue at this time the precise or preferred meaning of value, important as the task may be, would necessarily deflect this investigation from its original purpose. A brief commentary, however, on the concepts proposed is compatible with the objective of this study.

Inasmuch as the project is concerned with the Spranger values specifically, an illustration using them may simplify the exposition of the meaning of value and valued object. Let the object in question be a bowl of apples. According to Spranger there are six value interpretations of it. The apples in terms of the (a) Theoretical value: can be considered as fruits and thereby establish

their position in an objective order of reality; (b) Economic value: can be viewed as a means for sustaining life as a biological process and thereby serve some useful function; (c) Aesthetic value: can be arranged as a decorative centerpiece for a table and thereby provide an outlet for creative or appreciative activity by means of which the self can be externalized; (d) Social value: can be shared with others and thereby effect a bond of loyalty and solidarity in human interrelationships; (e) Political value: can be doled to others and thereby testify to a sense of power in the doler; (f) Religious value: can be seen as divinely sent gifts and thereby deepen the realization of the finite nature of worldly possessions.

Thus, the personal significance of the object varies with the value specification. In each instance the object is valued--but from a different perspective. These differences constitute alternatives of valuation, one of which is chosen and expressed in the value judgment about the object. A prevenient influence inclines the choice to an alternative. Such a directional influence describes value, as an orienting principle.

The empirical import of this choice emerges through action, or goal-directed behavior. Since the choice signifies a commitment to observe a standard in conduct, ensuing action will manifest such observance. Before choice, the range of possible actions in the value situation is, theoretically, unlimited; after choice, the range is focalized to such action as is appropriate to the principle governing the choice. Action is channelized in one direction, rather than in another, so that the behavioral sequence conforms to the determinative value. Because value orients, it orders the relationship of discrete acts to a remote goal. Value would not state the action that takes

place nor would it dictate an absolute or juridical imperative. But, it would merely affirm a mandate, if a preferred end is to be achieved or if a certain outcome is to be maximized, as specified by a generalized good.

Inductively, the experience of good antecedes the concept of generalized good. It is common to speak of "a good picture," "a good teacher," "a good secretary," "a good worker," "a good student," "a good knife," and "a good man." The interpretation of "good," as a qualifier of the listed substantives, might differ respectively as follows: aesthetics, effectiveness, efficiency, industry, scholarship, utility, and virtue. Such interpretations are usually not interchangeable, so that "good," as virtuous, need not apply to a knife and picture. Yet under scientific scrutiny a single empirically specifiable element, an arousal of desire, seems to pervade each example. To be good is to be desired; to induce an attraction, potentially, rather than actually.

The qualitative differences among "goods" does not preclude the possibility of qualitative similarities among them. Phenomena, like being generally helpful to others, concern for community improvements without personal aggrandizement, and love of family reflect specific "goods." Each taken separately shows individuating characteristics. But, a component of an interest in others permeates their specificity. Similarly, the championing of ethical principles in all departments of human endeavor, the mystical contemplation of the divine, and the promotion of religious revivals reflect a theistic finalism. "An interest in others" and "a theistic finalism" are inductive generalizations from particular "goods," embodying higher "goods." Each induction conveys a "generalized good." It represents that constituent of such "goods" as render them comparable to one another. Accordingly, "goods" can be classified into

categories, each category being marked by a generalized good.

Like a particular good, a generalized good may also be desired. This condition may be indicated either by the kinds of objects that are desired, or in the manner that an object is desired, as it was exemplified by the bowl of apples.

Furthermore, like a particular good, a generalized good is not a goal-object, as a whole, but merely an aspect of it. Goals are concrete, as opposed to the abstract quality of the generalized good. The achievement of suitable goals, nevertheless, can assure the realization of a generalized good, since the particular "goods" subordinated to it, as species is to genus, inhere in the qualified goals, as essential properties. A careful selection of goals is necessary for the attainment of the generalized good, whereby desire is fulfilled. Action is accordingly organized by the value consistent with the generalized good in question. Thus, achievement of a generalized good implies clearly satisfaction, as a consummation of action.

A relationship, therefore, exists between value and desire because of the generalized good. Value would not be coextensive with desire nor with activity associated with its satisfaction. At most, it would merely endorse a desire, insofar as that which is desired is a generalized good.

Because of the plurality of "generalized goods" values are distinguishable from one another in terms of the generalized good proper to each. Alternatives of valuation correspond to the quality of the generalized good intrinsic to a particular value. Hence, the choice of an alternative indicates the choice of the generalized good distinctive to a value through the selection of proper goals toward which action is directed. Thus, values, diverse as they may be,

share in a common nature by virtue of the generalized good.

According to this conception, then, value serves an anticipatory function. In orienting choice and action it portends the occurrence of a gratification. As an orienting principle, it ordains a sequence of events leading to a preferred end. For the writer, therefore, value is not: (a) a future state, as Dewey (64; 147, pp. 158-161), Lasswell and Kaplan (171), Parker (205), and Smith (257) would proclaim; (b) an effect, like pleasure, as the hedonists postulate (147, pp. 191-208); (c) a cultural setting, as Lee (174) asserts; and (d) a consequence of another psychological process as with Perry. Similarly, value is not concerned specifically with what ought to be after the fashion of the idealists (147, pp. 273-288), since this belief results in the domain of ethics monopolizing value. Consequently, the writer's view differs sharply from that of Creagan for whom the "psychology of religion is the crux of the psychology of value" (57, p. 959).

Consider, briefly, the bowl of apples from the point of view of the Spranger Economic value in the light of the foregoing exposition. The alternative valuation, "means of sustaining life as a biological process," is chosen in preference to the other alternatives listed. An appropriate action, then, is eating. It precludes other actions, like using the apples for a decorative centerpiece or sharing them with others without profit. The generalized good toward which eating is directed is utility. Such "generalized goods," like creative self-expression and humanitarianism, are of no consequence within the Economic frame of reference. Thus, the bowl of apples, as a means of self-preservation, becomes a manifestive expression of the Economic value.

Against such a perspective, then, an object is valued because of value.

The generalized good characteristic of a value is realized through it. The object, being invested with "value-meaning," becomes a means of identifying the value due to its relevance to the orientation implicit to a value. As a vehicle of value, the object does not add intrinsically to value. The particular usage of an object in the satisfaction of desire points to the particular goal subtended by a generalized good. The object becomes valuable, because it complies with the end toward which value orients choice and action; because it serves the purpose intended by a person to realize a generalized good. Because value does not inhere in the object as one of its properties, value is not an adjectival modifier of the object in the sense that the terms, value and valuable, are synonymous. In like manner, value is not a valence, as Mumford (201, pp. 125-130) suggests. Rather, value confers valence on the valued object. Thus, friendship, health, holiness, love of family, and prestige are valued objects, but not values, even though popular parlance may refer to them as values. "Valued object" in such a context is analogous to Allport's "means-value" (1, pp. 352-356), Morris' "operative values," and Perry's interpretation of value as an "object of interest" (209, p. 34).

To make the relationship between value and valued object more intelligible, the example of the Spranger values and the bowl of apples illustrates how one and the same object may conceivably elicit different valuations. Some objects, however, can be valued in only one way. They can be sorted into sets, each set being associated with a particular value, because the objects assigned thereto share in the properties pertinent to that value. The objects are homogeneous with respect to the possibility of the generalized good of the value being actualized through them. Moreover, a subset composed of any combination of

such objects, varying in number from 1 to ( $N - 1$ ) objects in the set, may suffice to indicate the particular value operating in a specified situation. Different subsets of objects may reveal the value influencing choice and action under given circumstances. The items in the Allport-Vernon-Lindzey Study of Values (AVL) exemplify such singular valuations. The items would constitute individualized instances of manifestive expressions of value. Within the framework of this investigation they are valued objects rather than values. Accordingly, value may be further described as implying a "functional unity," or a factor common to a diversity of elements which it binds together.

Such a relationship between value and valued object defends the thesis that value exists independently of the object, but functionally depends upon it for recognition. Value can be considered apart from any application to a particular object. It is an abstraction knowable through a concrete valued object. Congruent with the criticisms of Lopley (177, p. 8) and Robinson (231, p. 26) value is not a thing, like a dog, house, and tree. Such an approach to the meaning of value does not attribute a "substantive" nature to value.

This interpretation of value and its relationship to a valued object are posited as being basic premises for this study.

### B. Basic Values

Since an object's association with a value fixes the quality of the valuation of that object, the question can be posed: are there such values according to which all valued objects can be exhaustively classified? If so, they would constitute the basic values. Their number need be relatively few. Their identification would obviate the definition of new values to explain behavioral phenomena, hitherto unclassifiable because of incomplete and,



perhaps, vague value schemata. Simon (252, pp. 63-64) illustrated an advantage of such a program in his criticism of power, as a value.

To be maximally efficient, a schematization of basic values, therefore, should have universal validity. Such universality should extend along the dimensions of: (a) geography, in that such values would not particularize a specific region; (b) population, in that they would not discriminate societies; and (c) time, in that they would not typify an era. According to Dodd and Catton (65, p. 491) such values would be permanent. Permanency implies that they are constants to be found in any place for any group of valuing persons at any time.

Even though the basic values would be universal, objects valued in terms of them need not be so. Valued objects may have generic characteristics in common. Nevertheless, they vary according to circumstances of time and place as to species. The items, as valued objects, in the AVL, for example, may be satisfactory for the American scene, but not altogether so for the cultural settings of India, New Guinea, and Russia. The collation of other items becomes mandatory without vitiating, however, the prime purpose of the AVL.

Assuming, then, the unchangeability of the basic values, they form a system. Their position within the system depends upon the priority assigned to their respective generalized good. A hierarchy of values results according to which selective perceptions of objects to be valued occur, which describe the "life style" of the valuing person. Acting as a selector mechanism, the hierarchy orders actions consistent with the standards defined by the relative dominance of the operating values. The Spranger Social value, for example, would be relatively more dominant than the Economic value in the employer whose

concern for the welfare of his employees exceeds that for monetary profit. The two values in this instance might both be influencing his behavior, but not to an equal degree. Whatever the nature of the hierarchy may be, it exacts from the valuing person an habitual observance of rules in his conduct, some of which take precedence over others. The relative importance of goals toward which action is directed corresponds to the configuration of the basic values in the hierarchy. Such a system approximates the broader aspects of "value orientation" presented by Kluckhohn (166, p. 411) and Parsons, Shils, and Olds (207, pp. 59-60).

A patterning of valued objects parallels the hierarchy of basic values. The higher the position of the value the more preferred will be objects manifesting that value, since the threshold of sensitivity of appropriate objects will vary with the relative dominance of the value in the hierarchy. The number of objects so valued, thus, becomes an index of the rank order of values, as orienting principles structuring personal experience. Objects among themselves, also, then, are relegated to points along a scale of preference. The location of an object along such a continuum is analogous to Lasswell and Kaplan's interpretation of "value position" (171, p. 57).

If a hierarchy of basic values knowable through a distribution of valued objects exists, how may those values be definitively enumerated? Everett (86), Parker (204), and Spranger (264) have developed schemata of "basic values." It should be noted, however, that their conceptualizations of value differ from that heretofore outlined.

Since this study is concerned only with the Spranger classification, can the writer, then, adapt the Spranger values to his interpretation of value? He

would suggest that truth, utility, form (beauty), love, power, and unity, as the goals of the Theoretical, Economic, Aesthetic, Social, Political, and Religious values respectively, are reconcilable with the concept of "generalized good." Each being such a good, each is an inductive generalization based on a series of tangible events of comparable quality. The desire for power, for example, describes a preference for certain patterns of response to environmental stimuli over others. Power does not exist in itself as independent of a collection of fitting objects.

The question to be answered by this investigation, therefore, is: how useful are the Spranger values, as qualified by the writer's interpretation of value, in the measurement of a person's value system? Are they sufficiently comprehensive so as to provide a basis for the exploration of his pattern of life?

## CHAPTER II

### TECHNIQUES OF VALUE<sup>1</sup> MEASUREMENT

#### A. General Statement

It was stated that there was no one meaning of value. The existing disagreement, nevertheless, has not discouraged objective analyses of value, as an investigative element in human behavior. That value need not be confined to humanistic and ontological discourses has many defenders among the behavioral and social scientists (15, 20, 31, 32, 38, 47, 53, 79, 97, 99, 193, 156, 165, 167, 190, 191, 240, 258, 270, 295, 296, 303; 201. p. 122; 230, p. 950). An accounting of human behavior is incomplete without value. Unless empirical explanations of human behavior are to border upon sterility in a final reckoning, they cannot be void of fitting statements concerning the relationship of value to other characteristics of human activity. Such statements, obviously, would need to be indited in the tradition of measurement. Without this injunction their empirical quality would be sacrificed for a crude and, probably, inappropriate "armchair" philosophizing.

But, the measurement of value has a relatively brief history. Thurstone's (274, 275) presentation of the applicability of the psycho-physical methods for the quantification of value represented a significant milestone in that

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<sup>1</sup>For the sake of simplicity the meaning of "value" in this chapter was not limited to that of the writer.

narrative. More recently, Gulliksen (127) wrote four equations for the measurement of subjective values; and Thurstone and Jones (276) tried to define the absolute zero in the Law of Comparative Judgment. The Study of Values, a scale introduced by Vernon and Allport (282) and later revised by them with the collaboration of Lindsay (2), occupies a prominent position in that history, inasmuch as it supplied an unequalled as well as an unprecedented impetus in the measurement of value. The experimental definition of basic values, however, still remains to be recorded in that account.

Investigative enthusiasm and interest in values, nevertheless, have been highly diversified. The use of varied methods forwarded the accessibility of value to objective observation. Difference in orientation accentuated differences in the kinds of values to be described in human behavior and personality organization. The behavioral and social scientist have not been idle in the adaptation of the standard tools of measurement to obtain quantitative indices of value.

Questions relative to the role of value in human behavior and experience that have been formulated and examined empirically can be placed in evidence to support the sundry curiosities of the value investigator. Because in many instances the Study of Values played an important part in the answers to those questions, that scale became a logical starting point for the survey of the methods used in the investigation of values.

The widespread usage of the Study of Values in its original and revised formats in a large variety of indagative designs, reviewed by Cantril and Allport (41), Duffy (66), and Dukes (70), obviated a description of that instrument in this place. That usage, for the sake of brevity and completeness,

can be simply reported according to broadly defined categories by citations of studies. Such a classification can revolve around the following points of reference: (a) Attitudes, like ethnic (85) and social radicalism (236); (b) Cognitive processes, like concept span (194), critical thinking (27), extra-sensory perception (241), perceptual phenomena (130, 188, 216, 217, 260), and word association (30, 34); (c) Curricular preferences and vocational interests (4, 10, 14, 67, 90, 92, 100, 111, 137, 185, 211, 213, 237, 239, 244, 245, 263, 286); (d) Group differences, like between air force personnel and civilians (122), between creative and uncreative copy writers in an advertising agency (277), race (71, 118, 223), between rural and urban dwellers (169), sex (278), between university faculty and students (135), and between veterans and non-veterans (263); (e) Interpersonal relations, like friends and nonfriends (226) and intrafamily (96, 192, 242); (f) Personality variables, like empathy (132), halo effect (89), handwriting characteristics (42, 43), ideals (93), insight into one's values, as a function of age (5), neuroticism (215), philosophy of life (197), physiognomy (50, 187, 255), and voice qualities (88); (g) Scholastic achievement (234); and (h) Stability of values (9, 290, 291).

Other methods, however, which also had been devised for the measurement of values, could not be so perfunctorily dismissed. Empirical analyses of values did not comply with the prescriptions of a single model. The subjective quality of values did not endorse any one procedure for their objectification. Accordingly, either only one technique was used in a method or techniques were combined in designs differing in complexity.

In this chapter, therefore, procedures--with emphasis on psychometric forms--that have been invented or adapted to explore valuation were delineated

briefly. The specific content of questionnaires, scales, and tests was documented, rather than reproduced, whenever it was possible. Laboratory studies of values (6, 11, 22, 35, 36, 37, 62, 63, 68, 69, 77, 78, 106, 109, 124, 153, 178, 193, 210, 218, 222, 243, 259, 268) were excluded, because the measurement of value was not an objective.

To assure optimal clarity and conciseness, each method used in an investigation was described separately. Attention was focused upon it, rather than upon the problem for the solution of which it was especially developed. The nature of the method provided a principle of division sufficiently comprehensive and flexible to allow for subdivisions, wherever they arose. This procedure was not without its limitations. Regardless of the system finally adopted, however, it would not have been wholly free of shortcomings of some kind.

Thus, three major groupings of methods were defined: (a) Psychometric techniques with structured or controlled responses; (b) Qualitative analyses of free responses; and (c) Natural observation. In a few isolated instances categories a and b were fused to accommodate mixed approaches to the behavioral and social studies of value.

#### B. Psychometric Techniques

In this class of investigative procedures the user of a psychometric technique coded a S's responses in terms of preselected values. In this manner such responses, indicative of a S's values, were controlled or structured. Psychometric techniques included: (a) check lists; (b) forced choices; (c) forced distributions (d) paired comparisons; (e) rankings; and (f) ratings, both graphic and sociometric. They were used either alone or in varied combinations. The survey of psychometric techniques in value research was

systematized in the following manner: (a) the use of one technique in the order already listed; (b) an arrangement of studies the designs of which provided for an increasing refinement in the use of a technique, like 5-, 7-, 10-, and 11-point rating scales; (c) an alphabetical listing of investigators for each level of refinement, wherever such levels existed; and (d) an alphabetical listing of investigators for combinations of techniques arranged according to the number used.

### 1. Check List

Bond (29) prepared 12 to 15 statements expressing degrees of favorable and unfavorable attitudes toward 19 religious activities, objects, and institutions, to measure Christian values. His students checked statements reflecting personal beliefs.

Cohen (52), using Seashore and Havner's modification of the Thurstone method of attitude scale construction, developed two forms of a scale, to quantify the Spranger Aesthetic value. In each form 20 items (52, pp. 76-77) were distributed into 11 categories. His Se marked items with which they agreed and disagreed.

Kingsbury (163) tendered 61 motives pertinent to church going behavior. His Se picked items corresponding to their religious values.

Shorr (249) scaled 80 items (249, pp. 268-271) by the method of equal appearing intervals, to differentiate 10 levels of intensity for the Spranger Aesthetic, Economic-Political (combined), Social, and Theoretical values. Two items were assigned to each level and appropriately scored from 1 to 10. High school seniors and college sophomores chose items consistent with their value orientations.



Sommer and Killian (261) instructed Negro and white college females to identify those traits in a catalogue of 69 traits (261, p. 239), which would be appropriate in Negro behavior. The two groups of Ss were differentiated from each other along five value dimensions (261, p. 244).

## 2. Forced Choice

Haer (129) described six situations (129, p. 345), each of which could be interpreted from a conservative or a radical point of view, to contest the association of conservatism with a rural community. His Ss chose one of the listed alternatives, as an index of either value. The responses were analyzed by means of Guttman's scaling technique.

Piana and Gage (212) administered an inventory of 36 pairs of items, to assess teacher and pupil interaction. One item in each pair was keyed for a cognitive value and the other for an affective one. This inventory, Choosing Things about Teachers, was used with the Minnesota Teacher Attitude Inventory, Leed's My Teacher inventory, and pupil measures of a teacher's general, cognitive, and affective merit.

Tureen and Palmer (279) retained items in the Cornell Selectee Index, Form C, which could betray an acceptance of cultural values. American soldiers and German prisoners of war: (a) admitted to or denied personal anxiety in a list of 64 signs of anxiety; (b) revealed self-insight on 51 questions; and (c) expressed preferences for 44 occupations by encircling "good," "fair," or "?". Four classes of values (279, pp. 310-311) discriminated the two samples.

Langner (170) was concerned with the perception of five ethnic groups in the American culture (170, p. 549) by Spanish, Anglos, and American Indian pre-adolescents and adolescents. They compared the five ethnic groups to other

groups in the American culture in terms of 30 personality traits (170, p. 549). Differential judgments were expressed by marking "more," "less," or "the same" for each trait.

McGranahan (189) investigated intercultural differences between American and German youth with respect to obedience to authority and independent action and decision. He wrote 14 questions relevant for the two behaviors (189, pp. 248-256). "Yes," "no," and "no answer" constituted alternative precoded responses.

Bills (24) constructed a counselling test composed to hypothetical situations, to discover the relationship between the final grade for a course in child development and the amount of the student's assimilation of the instructor's values with respect to child development. His students selected one of five possible solutions for each problem. These solutions ranged from counsellor's unwillingness to relinquish complete control over a counsellee's behavior to a counsellor's shifting to a counsellee the complete control over his own behavior. They were also scored from 1 to 5, to expedite correlational analysis.

Friedman (102) based her questionnaire concerning the use of money and time by high school students on three values (102, p. 205), promulgated by the school administration. She provided 28 situations with six alternative choices (102, pp. 207-214). Two choices were keyed for each of the three values. Her Ss checked the most suitable choice in each situation.

### 3. Forced Distribution

Thompson and Nishimura (269) paired Ss, who were friends, to test the hypothesis of the compatibility of personal ideals in the culling of others, as

potential friends. The Ss sorted 100 personality traits into nine classes under each of the following conditions: (a) their own personality; (b) their ideal; (c) their friend's personality; and (d) the personality of an acquaintance, who was not a close friend.

Rosenthal (232) collected 10 statements in each of three contrasting categories of behavior (232, pp. 432-433), designated as the Moral Values Q Sample, to ascertain changes of moral values in psychotherapy. The Ss sorted the 60 statements (232, p. 433) into 11 intervals indicative of the intensity of their acceptance or rejection of a statement. The AVL, Frank's Symptom-Disability Check List, and the Butler-Haigh set of 100 statements were also administered.

#### 4. Paired Comparison

Eberhart (72) paired each of 20 offenses (72, p. 6) with one another, to determine the relationship between age and the perception of the gravity of an offense. The offenses illustrated four categories of violations (72, p. 6). Elementary school, high school, and adult males judged the relative seriousness of the offense in each pair.

#### 5. Ranking

Hart (136) directed his students to rank 114 experiences according to the degree of happiness or unhappiness that each would produce for them. To facilitate statistical analysis, the rankings were converted into numerical indices from -100 to 100.

Lo (182) obtained rankings of 15 vices (182, p. 265) in the order of their seriousness, to compare the moral standards of American and Chinese students. The Ss also ordered 15 ideals (182, p. 265) for personal importance.

Stanley (265) read the descriptions of the Spranger values from the manual of Allport and Vernon's Study of Values. Male college students estimated the relative dominance of their values by ranking the Spranger values on the basis of the information received. The subjective rankings were correlated with the objective scores obtained from the said test.

Symonds (267) was interested in the occurrence of sex differences among adolescents in the perception of problems, typical of that age-group. His Se ranked representative problems.

Hawkes (142) arranged 90 items in triads to form his Making Choices. Children from nine to 13 years of age ranked the items in each triad. The ranked items were, then, scored 3, 2, and 1 in each triad, to measure individual differences in valuation.

Thorndike (273) compounded 75 triads of prominent contributors to nine areas of psychology (273, pp. 788-789), to discover the value patterns of psychologists. Each triad was composed of almost equally distinguished representatives from three different specializations in psychology and allied disciplines. A sample of Fellows of the American Psychological Association ranked the noted contributors in each triad. Three unrotated bipolar factors (273, p. 789) were extracted from the intercorrelated rankings.

Anderson and Dvorak (3) assembled 15 behavior situations together with four solutions (3, pp. 291-292), to discern the moral convictions of chronologically differentiated groups. Each solution subscribed to a different code of conduct (3, p. 286). Students, parents, grandparents, faculty, and social workers ranked the four solutions for each problem.

Wickert (292, 293) defined nine personal goal values (292, p. 263), for

each of which eight statements were written (292, pp. 266-270). The 72 items were distributed into sets of four statements among 18 situations. Male college students ranked the statements in each tetrad. Data were also available for Allport and Vernon's Study of Values, Thurstone's Vocational Interest Schedule, and enrollment in a specific college curriculum. Wickert's scale was used by Smith (256) to characterize pro- and anti-Russian attitudes with particular emphasis on liberty, as a value.

Hawkes and Egbert (143) sought to discover values conducive to social interaction and intercourse with an adaptation of Dymond's scale for empathic ability and Egbert's A Study of Choices, Form VII. In the latter instrument 15 values (143, pp. 471-472) were scored in 30 groups of five statements in each group. The Ss ranked the items in each group according to their significance in contributing to personal happiness.

#### 6. Graphic Rating Scale

Bills, Vance, and McLean (25) used 49 traits (25, p. 259) in their Index of Adjustment and Values. The Ss, first, completed sentences with each trait successively. Afterwards, they rated each completed sentence on 5-point rating scales under the three conditions of: (a) concept of self; (b) acceptance of self; and (c) concept of ideal self. Changes in psychotherapy were thereby estimated.

Harding (133) gleaned 150 statements descriptive of concepts in five philosophical, social psychological, and sociological areas, each area having antithetical categories (133, pp. 57-58). These statements formed his Value-Type Generalizations Test. The Ss expressed the degree of their agreement or disagreement with each statement on 5-point rating scales. Harding (134) also

used broad generalizations instead of specific attitude-objects in the Value Type Problemnaire. The Ss again rated statements according to their alignment with personal philosophical convictions. Its general content did not differ from the earlier scale.

Kerr (162) constructed the General Attitudinal Values Profile, to establish the thesis that liberalism is a multidimensional trait. He distinguished five varieties of liberalism, for each of which varying numbers of statements were written (162, pp. 112-117). Each statement was rated on a 5-point rating scale. He extracted the same three factors (162, p. 120) from the items measuring political liberalism by Thurstone's method of factor analysis and Tryon's method of cluster analysis.

Graham (116, 117) inquired into generalized orientations that influence the valuation of specific objects. The Ss indicated favorableness and unfavorableness along 7-point rating scales toward three series of values: (a) 12 values (116, p. 408); (b) six classes of values (116, pp. 411-412); and (c) 13 values (116, p. 413). He postulated eight logically formulated orientational attitudes (117, pp. 416-419), as being instrumental to the emergence of specific values.

Hartman (138) requested self-ratings on happiness (138, p. 205), as well as ratings on three traits (138, p. 206), on 7-point rating scales. The latter ratings were made by four friends, whom a S recommended. He also collected data on Allport and Vernon's Study of Values, Bernreuter's personality, De Camp's intelligence test, and Watson's public opinion booklet.

Lurie (183) categorized the items in Allport and Vernon's Study of Values into four classes (183, p. 18) and wrote six statements for each

Spranger value in each of the four classes (183, pp. 33-36). The Ss expressed the intensity of their approval and disapproval of the 114 items on 7-point rating scales. He extracted seven oblique factors by means of Thurstone's method of factor analysis: four basic factors pervading the Spranger values and three minor attitudinal ones (183, pp. 30-31).

Van Dusen, Wimberly, and Mosier (281) based their inventory on Lurie's factor analysis of the Spranger values. Borrowing many of Lurie's statements, they arranged 96 items, six for each Spranger value, into 10 groups of varying length (281, p. 54). Male college students scored the items on 7-point rating scales.

Morris (197) with the assistance of Jones (155, 198) advanced a threefold objective in his investigation of values: (a) to develop a value instrument; (b) to discover cultural uniformities and variations in valuation; and (c) to isolate possible biological, psychological, and social determinants of value. The value instrument consisted of brief descriptions of philosophies of life, called 13 Ways to Live (197, pp. 15-18; 198, pp. 524-525). College students from China, India, Japan, Norway, and the United States rated the "Ways" on 7-point rating scales, as to "how they would like to live" (197, p. 6). The ratings of each cultural group of students were analyzed separately by the Method of Successive Intervals. The scaled ratings of subsamples of Chinese, Indian, and American male Ss were factor analyzed separately by Thurstone's centroid method. Five similar orthogonal factors (197, pp. 31-37; 198, pp. 530-532), rotated to simple structure, were extracted from each of the three analyses. Interviews, questionnaires, the rating of paintings, rating the "Ways" in terms of "how they ought to live" and "how they did live," Sheldon's

technique of somatotyping, surveys of philosophical beliefs, and tests, like the AVL, Cattell's 16 Factor Personality Test, and Thurstone's Temperament Schedule furnished additional data on different subsamples of Ss.

Crissman (58) administered 50 situations to college students at two universities, to ascertain changes in moral standards after a lapse of several years. The Ss determined the propriety of the behaviors involved on 10-point rating scales.

Steiner (266) explored the social influence of objectively and subjectively defined class memberships on values. High school juniors and seniors assessed 14 traits (266, p. 329), as being desirable in their friends on 10-point rating scales.

Skaggs (254) proposed to detect sex differences in personal codes of conduct. The morality of 20 human acts (254, p. 3) was judged on 11-point rating scales.

## 7. Sociometric Rating Scale

Sparoff (262) hypothesized that job satisfaction was a function of interpersonal acceptance, or worker popularity, as a value, in an industrial setting. He asked his Ss to name the worker with whom each would like to work with most and with whom each would like to work with least. Kerr's Tear Ballot for Industry, General Opinions, was also used.

## 8. Combinations of Psychometric Techniques

Grace and Grace (114) devised a questionnaire of 20 problems with three possible solutions. They coded each solution for one of three categories of valuation (114, p. 124). Sociometric ratings were also included in their design, to determine whether behavioral and verbal responses would support



one another.

Hartung (141) summarized five cases of civil and criminal violations of regulations of the Office of Price Administration, to establish that community-at-large shared norms can and do conflict with discrete values in social contexts. Samples of the general public and of management of the wholesale meat industry ranked the 10 cases in the order of the gravity of the violation. The Se also approved or disapproved the action described in all the cases on 5-point rating scales.

Pintner and Brunschwig (214) administered a forced choice test of seven pairs of wishes, in each of which one indicated "immediate satisfaction" and the other "delayed satisfaction." Deaf and nondeaf elementary school children checked their preferences. They also pointed out their fears in a listing of 39 fears (214, p. 265).

Catton (48) detailed three methods for the measurement of value to test "the hypothesis that qualitatively unlike values are incommensurable" (48, pp. 49-50). In the first, the priority of four factors (48, p. 50), which were considered to be essential to establishing a "point system" in the military demobilization program at the end of World War II, was determined by pairing the four factors with one another. In the second: (a) the similarity or dissimilarity of five trivial desiderata (48, p. 51), which were paired with one another, were estimated on 5-point rating scales; (b) the preferred item in each pair was indicated; and (c) one of three courses of action (48, p. 51) was chosen, to obtain the preferred item. In the third: (a) six "infinite values" (48, p. 53) were paired with one another; (b) they were ranked; and (c) those values having "infinite worth" were marked.

Glaser and Maller (108) based their Interest-Values Inventory on the factor analyses of Allport and Vernon's Study of Values and Strong's Vocational Interest Blank by Lurie and Thurstone respectively. Items were scored for the Spranger Aesthetic, Economic, Social, and Theoretical values. The Ss: (a) selected one word in each of 10 series of words arranged in tetrads, each tetrad containing a word for each of the four aforesaid values; (b) associated one of four words, which were precoded for each of the designated Spranger values, with a "key" word in 10 series of "key words"; (c) chose one of four solutions, which were styled according to each of the values in question, to 14 problems; (d) provided self-estimates of their character and personality from a list of traits; and (e) responded to a questionnaire concerning their feelings of adequacy and a sense of belonging.

### C. Qualitative Analyses

The qualitative analyses of free responses, or content analyses of the same, in value research methods diametrically opposed the psychometric techniques in which the responses of a S were predetermined. Both Friedman (102) and Rath (224, 225) were generally critical of the psychometric techniques, because such procedures deny to a S an unrestricted verbalization of his values. The qualitative analyses were intended to correct that disadvantage of limiting a S to choices from preselected values. Such procedures supposedly did not interfere with the observation of theoretically innumerable patternings of human values. An examination of the content of spontaneous verbal reports would confirm the existence of such variations in value-systems. Psychometric techniques reputedly compartmentalize values in an artificial manner. They, thereby, disrupt the characteristic patternings

of values, unique to an individual. Qualitative analyses, on the other hand, are assumed to preserve the holism, central to that patterning. They, therefore, enhance the reliability of the identification of values, which the individual espouses for himself.

The following studies, then, exemplify the heterogeneity and versatility that characterize such scientific appraisals of human values. These very features, however, did not lend themselves to a precise formulation of classificatory principles, as those used in the preceding section, like check lists, rankings, and rating scales. One principle, that could be so formulated, would be "the open-end question." Many of the studies to be reported in this division of methods for the empirical description of values could be included under such a class-name. In other instances, only one example of a particular design, like role-playing, was found. To simplify the reporting of studies, which stressed qualitative analyses of free responses, therefore, users of these procedures were listed alphabetically. The comparative fewness of such approaches also prompted this decision.

Bavalas (16) investigated activities at school which would elicit praise or blame (16, p. 373), as well as the source of that praise or blame. Elementary school children in various grades reported behaviors, which they perceived to belong to either of the two categories. Observations of the two kinds of activities and sources were collected on nine occasions.

Blansfield (26) organized discussion groups of top management executives with the aim to improve interpersonal relationships among superiors and subordinates. On the basis of experience in role-playing the groups refined 15 values (26, pp. 252-253), as being essential in the solution of personnel

problems.

Brim and Forer (33) studied socio-economic status, as a factor in the acceptance of life-planning, as a value. High school and college students indicated self-determined objectives and the means for their achievement. Such self-developed programs were interpreted as indices of foresightedness of self-fulfillment.

Farber (87) analyzed the responses of a sample of American and British insurance clerks to the incomplete sentence, "A properly brought up child should be..." (87, p. 243). He reduced the responses to two separate listings of desirable traits (87, pp. 244-245), that reflected cultural values, which were deemed to be important in the socialization of the child.

Friedman (102) instructed adult females to keep a diary for a period of 14 successive days. They recorded daily activities, with emphasis on time devoted to each activity and the amount of money, if any, spent on the same. Such a behavioral account attested to actual values operating in personal choices and decisions concerning alternatives of action.

Grimes (120) endeavored to demonstrate the usefulness of art in ascertaining individual values. One S submitted a drawing to him after a visit to an institution for the blind. The S's values were inferred from that drawing. The inferences were checked by means of interviews with the student and his intimate associates, reports of his teachers, and written assignments during that school term.

Hartman (140) scrutinized the essays of pacifists and nonpacifists in which they defended their respective political philosophies. Thirty-six principles (140, pp. 158-160), classifiable in seven major categories

(140, p. 160), were gleaned from the pacifist papers. Sixty-three convictions (140, pp. 161-162), subsumed by eight major categories (140, p. 163), were abstracted from the nonpacifist papers. A personality composite of a pacifist and a nonpacifist was drafted in terms of six criteria (140, p. 165), to indicate the values professed by the members of each group.

Johns-Heine and Gerth (152) analyzed the content of five popular magazines (152, p. 106), having a national distribution, because they assumed that mass fiction reflected cultural values and social trends. Changes in the characterization of the hero and heroine, settings of action, and themes were noted in each of the five publications, as independent units. Grace (115) presented a similar analysis of crime films for approximately the same period of time. Similarly, Elkin (80) culled values in popular films.

Kuhlen and Johnson (168) attended to the job adjustment and satisfaction of teachers of varying ages, when they posed the query concerning desired activity and status as of 10 years hence. The obtained answers were classified into nine categories (168, p. 1).

Raths (224) inferred personal values from written reports of observations made at social agencies dealing with children. He underscored value words and value phrases in the reports of one S in terms of eight principles (224, pp. 278-280).

Thorndike (271) polled two groups of subjects, mostly college graduates, as to the amount of money, which would motivate them to commit or endure any of 51 acts of discomfort and personal disfiguration, repulsive actions, and violations of taboos (271, pp. 228-229). In another study (272) he surveyed unemployed adults, mostly college graduates, in 1934, as to how

long they would be willing to spend in prison "with no disgrace attached to you" (272, p. 73) in exchange for any of 100 objects (272, pp. 71-73).

White (287, 288) devised a procedure for the "classification and counting of recurrent value-judgments" (287, p. 353). It necessitated the coding of the manifest content of verbal communications of any nature by means of a system of prescribed symbols and vocabulary, to facilitate the maximal objectification of qualitative data. The method was illustrated in the value analysis of:

(a) Richard Wright's autobiography, Black Boy (288); and (b) protocols of projective techniques, like the Thematic Apperception Test (248, pp. 188-199).

Hughes and Thompson (150) adapted White's technique for the scoring of an essay, "Things I would like to change in my way of living" (150, p. 300), in terms of 44 values (150, p. 303), divided into four categories (150, p. 304). The essays were written by northern white and southern Negro adolescents.

#### D. Psychometric Techniques and Qualitative Analyses

In five instances psychometric techniques with controlled responses were combined with qualitative analyses of free responses. The authors of the studies in this class of value research methods were simply arranged alphabetically.

Friedman (102) administered a questionnaire of 13 questions (102, p. 184) to elementary school children, which required of them to rank activities that they would like and not like to do. A check list was formed for each question from the obtained responses to that question. The total content of this list was composed of varying numbers of items in 24 categories (102, pp. 188-192). The free and checked responses were compared for consistency in the verbalization of values.

Precker (220, 221) defined 39 criteria of valuation on the basis of student reports to an open-end question concerning standards of value. To decide similarities to near-authority figures and the choice of peers, the Se: (a) ranked the criteria; (b) sorted them into four categories of importance (221, p. 358); and (c) reranked them within each category. "Near sociometric questions" (220, p. 407) were also asked.

Rothman (233) associated social class membership with the value patterns of adolescents by measuring eight factors (233, pp. 128-129). With the exception of his reference to Warner's Index of Status Characteristics, he did not fully describe his procedures. He commented, however, that:

...an instrument was used to collect data in each area. The instruments used represent a variety of methods and type; they were not intended to be all inclusive in any area, but rather they were used to indicate in each area some of the differences existing between the different social classes and to give some over-all view (233, p. 129).

Wilkening (294) stressed the need to differentiate between generality and specificity in the delineation of values, since such characteristics of values affected decisions relative to the use of appropriate instruments. Six farm-family values were assessed by means of five methods: (a) direct interviewing for desires and their intensity; (b) the preferred use of time and money in 11 hypothetical situations (294, pp. 42-43); (c) the ranking of five family goals; (d) open-end questioning for family goals; and (e) socio-economic inquiries into family habits and routines (294, p. 40). Husbands and wives were examined separately.

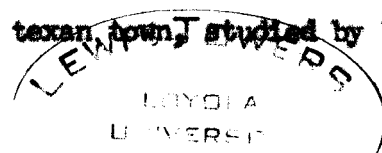
Woodruff (297, 298, 299, 300, 301) revised his initial procurement of rankings (298) of 12 values (297, p. 37; 298, p. 322), when he introduced his Study of Choices. It contained three personal problems (299, p. 46), for each

of which eight solutions were provided. Each solution was precoded for one of the 12 values. The Ss: (a) selected two of the most attractive and two of the least attractive solutions available for each problem; (b) judged all of the solutions by the method of paired comparisons; and (c) commented on the relative adequacy of each solution. By means of this procedure a pattern of values, thus, was revealed, which indicated the S's awareness of his values, as well as such changes as occurred in his consideration of the problem.

#### E. Natural Observation

The third and final major grouping of value research methods was that of natural observation. The investigator forewent the use of instruments of measurement and contented himself with directing attention to norms inferred from either group or individual behavior. Conformity to specifiable standards in behavior betokened an acceptance and an assimilation of particular values.

Natural observation, as a method for the empirical description of values, could be illustrated by changes observed in psychotherapy (13, 107, 19, 151, 219, 301). Such changes were generally interpreted as a restructuring of the value system of the client. Other examples of the use of natural observation, to discover the kinds of values operative in human behavior, were given by: (a) the analysis of the Hopi culture by Lee (174); (b) the integration of the individual into a group through the acquisition of skills and the sharing of vital information with other members of that group, so that the objectives of the said group could be realized more efficiently and quickly, as elaborated by Shepard (246); and (c) the adoption of contrasting solutions for comparable community problems by a Mormon settlement and a texan town, studied by Vogt and O'Dea (283).





In each instance the behavior of the individual testified to the influence of communal goals, ideals, and structure, which had become internalized as the values of that individual. The degree of consistency of behavior with postulated criteria evidenced unmistakable graduated intensities of values.

#### F. Concluding Statement

In his opening address to the Colorado Symposium on Cognition Muenzinger lamented the confusion that enwraps "the identifiability of the referent in psychology....It is in psychology that the identifiability of the referent is a major difficulty, a difficulty that besets the use of common terms" (199, p. 2). His remarks were sufficiently general to include "value" in this overview of psychology.

What is the "referent" of value? Is it: (a) a cultural ideal or a cultural norm of behavior? (b) an ethical index? (c) a communal or personal goal to be achieved? (d) a philosophical or political conviction? or (f) a character of personality trait? These usages of value represent only a few of the many conceptions of value, that were either explicit or implicit in the empirical investigations of values, which had been reported here. Thus, it cannot be assumed that "value" needs no specifiable denotation for effective communication.

How serviceable, then, is "value," not only as a term but also as a concept, for the psychologist in his interpretation of behavior? Has there been an unnecessary and, perhaps, unquestionable frustrating multiplication of concepts of value? Has the psychology of value become purposelessly fragmentary? Have the studies of value just been so many more "sterile

exercises," with which psychology teems, as deplored by Muenzinger (199, p. 3)? Such issues have been created, rather than resolved, in the psychology of value.

The writer had already argued for a distinction between "value" and "valued object." Value for him is intangible and, hence, not directly measurable and observable. It is an abstraction, which becomes knowable and known through "valued objects." Within his frame of reference, then, it would appear as if completed research in the psychology of value has been concentrated upon the specification of valued objects, insofar as a S indicated what he judged to be valuable for himself. By virtue of their number and variety valued objects could never be conveniently collected together in any one place. But, if such objects could be codified in terms of values, as orienting principles, of which they are "manifestive expressions," "value," thereby, would not be confused with the "valuable."

Safeguards, however, would be necessary, lest values be needlessly duplicated. Without them a psychology of value could not be parsimoniously unified. Without them one set of labels is merely substituted for another set.

An empirical determination of "basic values," as already considered by the writer, seems to be a possible solution to the problem of safeguards. If, for example, a Social value could be defined as a basic value, there would be no need for continually adding new Social values to an ever expanding list of such values. Uniformity in the description of a value would result. Ambiguities and obscurities about value would be dispersed. The "identifiability of the referent" of value need no longer be a "major difficulty in psychology" with respect to value.

CHAPTER III  
EXPERIMENTAL DESIGN

A. Subjects

Fifty white male college students were recruited from the Introductory Psychology course at a midwestern university. The age of the Ss ranged from 18 to 25 years with a mean ( $\bar{X}$ ) age of 20.0 years, a median (Mdn) age of 19.4 years, and a standard deviation (s) of 1.73 years. All were born within the continental limits of the United States. The plurality of the Ss, or 90%, were sophomores and the remainder were juniors. Except for three Ss, all were enrolled in the College of Liberal Arts. The listing of the college major and the religious affiliation of the Ss in Tables 1 and 2 respectively completed the description of the sample used in this study.

Table 1  
Categorization of the College Major of the Ss

College Major	<u>f</u>	College Major	<u>f</u>
Art	1	Physical Education	2
Chemistry	4	Pre-dentistry	16
English	2	Pre-law	1
History	6	Pre-medicine	1
Industrial Management	1	Psychology	10
Journalism	1	Sociology	1
Philosophy	3	Zoology	1

Table 2

Categorization of the Religious Affiliation of the Ss

Religious Affiliation	<u>f</u>	Religious Affiliation	<u>f</u>
Armenian Apostolic	1	Lutheran	2
Catholic	43	Protestant	2
Hebrew	1	None	1

## B. Method

The problem of this investigation was: how useful are the Spranger values,<sup>2</sup> as basic values? Are they sufficiently comprehensive in their conceptualization, to qualify as the fundamental values?

To answer this question, three indirect and two direct indices of the Spranger values were obtained under the following conditions: (a) the TAT plates; (b) the identification of valued objects; (c) the value description of the principal character; (d) the experimental form of the AVL; and (e) the booklet form of the AVL (B-AVL). The five tasks were presented to all the Ss in the same sequence. Each unit was administered in a separate session on a different day. The Ss were informed of this provision. No information, however, was given to them concerning the nature of the tasks to be performed at the time of recruitment, lest such foreknowledge adversely affect their

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<sup>2</sup>The Spranger values henceforth were interpreted according to the writer's conception of value.

execution of a task.

# 1. The TAT Plates

a. Rationale. According to the writer values orient action toward the achievement of goals, having personal meaning, because a "generalized good" inheres in them. Even though values cannot be observed, they can be inferred from goal-directed behavior. Such behavior reveals what a S considers to be a "good" for himself.

There are, however, innumerable "goods," which differ in their attractiveness for a S. Their number and their capacity for the arousal of desire imply alternatives of action toward distinctive goals. Which alternatives, however, would be characteristic of a S?

Ideally, direct and systematic observation of a S's behavior in a variety of natural situations could probably resolve the problem. A S's choices of particular alternatives would not be limited to arbitrarily preselected "goods." But, such an approach is also uneconomical.

The aim of such observation, nevertheless--namely, freedom of expression--can be approximated reasonably well with the Thematic Apperception Test (TAT). Since the theory and the salient features of this instrument are readily available elsewhere (17, 145, 149, 202), let it simply be noted here that a TAT plate may be regarded as a facsimile of a life-situation. As such, it is a stimulus, which merely elicits a response. Like any other kind of stimulus, it does not exclusively determine the response. Predispositions native to a S, however, do.

Could it not, then be assumed that: (a) the value system of a S infiltrates into a story to a TAT plate to a greater or lesser degree? and (b) that same system pilots him in the creation of a plot that unifies the elements

of that story? In interacting with the TAT figures on a "fantasy level" would he not invest his "goods" in the story? If he did, it would seem that they would probably resemble those, which he embraces outside the boundaries of the TAT. The story, as an observable response, would reflect a S's choice of a possible mode of behavior perceived to be appropriate to a self-determined end. His individuality would impregnate his interpretation of the situation, depicted in the TAT plate, and his deliberation of the outcome of whatever choice he would make. A series of comparable responses, consequently, could provide meaningful information as to the kinds of values that would be found among his inherent predispositions.

Like in direct observation of behavior, the values passed into the stories could be known only inferentially. Theoretically, therefore, it would appear that a qualitative analysis of the manifest content of the stories could empirically determine the usefulness of the Spranger values, as basic values. If they could be so described, they would be evidenced in the stories. The estimation of such values would not seem to differ radically from the accepted and current practice of scoring similar stories for aggression, anxiety, dependence, dominance, security, submission, and many other kinds of psychological variables (12, 46, 49, 54, 55, 56, 61, 81, 110, 112, 113, 121, 144, 154, 157, 164, 179, 181, 195, 203, 247, 253, 280, 284, 285).

b. Selection. For practical reasons only a limited number of TAT plates was used. Accordingly, the selection of plates could be likened to a problem in sampling, in which the size of sample and its adequacy are distinguishable issues. In this instance, therefore, the plates must not only be sufficient in number but also be suitable for the testing of the hypothesis around which this

study was designed. A quantitative as well as qualitative criterion needed to be specified.

With respect to the number of plates Bellack (17, p. 190) and Holt (149, p. 207) suggested that for practical reasons abbreviated sets of at least 10 plates, adapted to a particular problem, could be profitably used. Dana (60) also cautioned the usage of too few plates.

But, what constitutes a suitability of plates? Bijou and Kenny (23, 161), Gurel (128), and Lebo (173) were concerned with this aspect of a sample of plates. Since plates differ in their efficacy to stimulate a response, they stressed the necessity to attend to the qualitative composition of plates rather than simply to their number in an abbreviated set--the appropriateness of a sample rather than its size. They would protest the indiscriminate selection of plates for such sets.

Logically, suitability would depend upon the objectives to be achieved through the usage of the plates. In this study the specification of suitability, therefore, would be conditioned by the properties of "basic values." By definition, basic values transcend particular details of space and time. A plate, as a stimulus, however, is particularized as to space and time. A response evoked by it is similarly characterized. Thus, whatever values may incline a S to create a story would be independent of the structural details of a plate.

In contrasting the generality of a basic value with the specificity of a TAT plate and the story that it elicits from a S, suitability was thereby indicated. It would be served better by a heterogeneity of stimuli than by a homogeneity. Heterogeneity supplies a rigorous test of the usefulness of a

generality. The greater the number of situations to which a generality applies the more efficient is that generality. The basic values, as generalities, would be common elements in the different stories of a S, which were evoked by correspondingly different situations depicted in the TAT plates. The more varied the situations, in which such common elements could be verified, the more convincing could a set of basic values become. Accordingly, suitable plates should be as diversified, as practical considerations would make it possible. This principle, it may be noted in passing, would be similar to Bandig's (19) recommendation that heterogeneity of stimuli can contribute to the improvement of ratings.

Consequently, if the Spranger values could be construed to be basic values, they should be inferred from goal-directed behavior in a variety of situations. The reliability of such inferences would immeasurably strengthen the proposed designation of the Spranger values.

Thus, 10 plates were selected: 1, 2, 4, 6BM, 7BM, 8BM, 11, 14, 16, and 20. They were labelled as "experimental plates" for the purpose of this study.<sup>3</sup> Plate 16--the blank plate--was included in the series, because, at least theoretically, it could be highly indicative of the dominant values of a S. To familiarize the Ss with the task of creating stories and to resolve such

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<sup>3</sup>According to the rankings of 21 plates obtained by Bijou and Kenry for ambiguity the "experimental plates" would be ordered in increasing ambiguity as follows: 1, 2, 4, 7BM, 8BM, and 11. According to Gurel's obtained ratings of TAT plates for clinical effectiveness along a 5-point rating scale the "experimental plates" varied step-wise from least to most effective as follows: (a) 11; (b) 14; (c) 1, 8BM, 16, and 20; (d) 2 and 7BM; and (e) 4 and 6BM. Of the 10 plates, which Lebo's Ss judged to be disturbing, only three were included among the "experimental plates": 6BM, 8BM, and 20.



difficulties as arose, plate 8GF was used as a "practice plate." Sketches of all plates together with their fundamental stimulus properties were detailed by Bellack (17, pp. 206-213) and by Henry (145, pp. 42-43, 240-266).

c. Administration. Because no significant differences were reported for the group and individual administration of the TAT plates (83, 180), slides of the "experimental plates" and the "practice plate" were prepared for group administration.<sup>4</sup> They were projected for approximately two minutes in a darkened room. They were presented in the order of the TAT plate identification number. The Ss were allowed approximately seven minutes for the writing of the story. Toward the end of approximately five minutes they were reminded to close the story. The stated time limits were pretested with another group of male college students and were found to be ample.

The instructions to the Ss were presented orally. Each S also received a copy for reference. The instructions for plate 16, however, were given only orally. The two sets of instructions were entered in Appendix A.<sup>5</sup>

Without digressing into the relative merits of the individual and group methods of administration of the TAT plates, a comment concerning a loss of spontaneity in expression in the use of the group method was deemed appropriate for inclusion at this time. The essence of the objection seems to be that a S

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<sup>4</sup>The plates were photographed with a Retina II camera, to which a portrait lens was fitted, on Kodak Panatomic-X film at a shutter speed of 1/50 second under artificial lighting conditions provided by two 350-watt bulbs.

<sup>5</sup>All instructions for the various tasks in this study had been assembled in Appendix A.

exercises more censorship, when he is writing a story than when he is orally narrating it. Greater deliberation as to what he intends to communicate is thereby implied.

For purposes of this study such deliberation would be advantageous. It could signify a higher degree of internal consistency in the stories that were written. Variability in reaction would be appreciably reduced. Chance reactions would recede into the background, where they would occupy a place of less significance. Thus, whatever a S would communicate would be more meaningful from his perspective. Whatever he would disclose could be assumed to be more enduring. Such a quality of lastingness would be consistent with the conception of basic values, which had been described as being permanent. If there was a loss of spontaneity, as it is argued, the identification of the Spranger values in the TAT stories of a S would not suffer. To the contrary, it would be facilitated, since the expression of values would be more stable.

If, however, deliberation is understood to mean guardedness, such behavior would also be evident during an individual administration of the TAT plates. Regardless of the mode of administration intra- and interindividual differences would still be apparent. Consequently, the use of the group method of administration of the TAT plates was not considered to be a handicap of such magnitude as could jeopardize the outcome of this investigation.

d. Measurement. Two independent series of rankings<sup>6</sup> by a panel of three

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<sup>6</sup>The judges were immediately informed that two series of rankings would be expected from them. They learned the nature of the second series, however, only after they had fully executed the first series.

male judges<sup>7</sup> were contrived, to quantify the Spranger values in the TAT stories of a S. Ranking methods were used, because it had been postulated that the basic values form an inviolate hierarchical system. The elements in such a system are serially ordered to one another. Ranking procedures would preserve the ordinal relationships among the basic values: the Spranger values would be viewed by the judges in relation to one another rather than as insulated entities without reciprocally affecting one another. In essence, the position of each value was compared to that of every other value, since the relative dominance of all values was being simultaneously estimated along a continuum of relative strength.

In the first series of rankings the judges serially ordered the Spranger values,<sup>8</sup> which could be ascribed to the principal character in a story<sup>9</sup> elicited by an "experimental plate."<sup>10</sup> Only those values were ranked, however,

<sup>7</sup>The judges: (a) were unknown to one another; (b) received the PhD degree in Psychology; (c) had clinical experience in the interpretation of the TAT; and (d) were modestly compensated for their services.

<sup>8</sup>Brief redactions of the Spranger values, adapted from Pigor's translation of Spranger's Types of Men (264), were drafted for the judges. The many subtleties and variations within each value type, recounted by Spranger, were necessarily sacrificed for the sake of conciseness and ease of understanding. These summaries were placed in Appendix D.

<sup>9</sup>To eliminate incommodious and repetitious circumlocutions in expression, reference to the presence or absence of a Spranger value in a TAT story implied that that value was or was not characteristic of the principal character in that story.

<sup>10</sup>The story elicited by plate 8 GF, the "practice plate," was excluded in the two series of rankings.

which were evident to a judge: that is to say, the six Spranger values needed not have been included in a set of rankings for a story, if a judge was unable to infer a particular value from the described behavior of the principal character in that story. This procedure was followed for each story separately. Hence, 10 sets of rankings of "evident" Spranger values were obtained from each judge for a S: one set for each story; or 500 sets of rankings were procured from each judge.

In 500 replications of rankings of the Spranger values systematic biases were inevitable: systematic biases were defined as tendencies of a judge to rank specific values indiscriminately in successive stories. Such biases could be characterized either by an omission of a value or by systematically relegating a value to a particular position in a set of rankings. Whatever their nature would be, they would constitute a source of "error." The effects of such error needed to be left entirely to chance, if valid statistical comparisons of the ranked Spranger values were to be made.

This condition was fulfilled by two independent randomizations:<sup>11</sup> (a) order of Ss for each story; and (b) order of stories elicited by the "experimental plates." Each judge received 10 different randomized sequences of Ss: one for each story. The judges ranked the Spranger values in the stories of all Ss according to the sequence of Ss for a plate.

The succession of plates was also randomized for each judge separately. For example, one judge was given the following randomized sequence of stories

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<sup>11</sup>A Table of Random Numbers was used in all randomizations.

elicited by the aforesaid plates: 20, 8BM, 6BM, 1, 14, 4, 7EM, 16, 11, and 2. Thus, he first ranked the Spranger values in the stories of the randomized 50 ss for plate 20, then for plate 8BM, next for plate 6BM, and for the remaining plates in the randomized order prepared for him. The same procedure was observed by the other judges.

By means of the 30 randomized sequences of ss and stories, therefore, each judge ranked the Spranger values in a different order of 500 stories. The effects of systematic bias, consequently, would not systematically benefit a value. Whatever the effects would have been, they could be regarded as having been randomly distributed in the total number of stories. Of course, independently of the order, the judges' biases still remained.

In the second series of rankings of the Spranger values the base was the complete protocol of 10 stories of a S, as a contextual unit, as opposed to each story being such a unit in the first series. The "principal character" in this instance could be described as a "collective figure," or a composite of the principal characters in the 10 stories.

In the second series the six Spranger values were ranked. No omissions were permitted. The judges, thus, were forced to make the maximal number of discriminations in estimating the relative strength of the said values. In the first series an optimal number of discriminations was allowed to the judges.

A little reflection on the nature of the contextual unit in each series of rankings may help to understand better this difference in the number of executed discriminations. In using the story, as a contextual unit, the judges based their estimates of the Spranger values on small samples of behavior. The information contained in each unit was meagre. In using the protocol of 10

stories, as a contextual unit, such limitations were removed. The greater amount of available information facilitated the estimation of all values rather than only a fraction of them.

Like in the first series of rankings, systematic biases would probably also operate in the ranking of the Spranger values in the 50 protocols of 10 stories. To counteract the effects of such "judgmental error," each judge was given a different randomized sequence of Ss. Consequently, the Spranger values in the protocols were not estimated in the same order of protocols by each judge. As it had been explained above, precautions were necessary, lest a value be systematically favored.

In the two series of rankings, which had been described, the principal character was designated as the focal figure to whom the Spranger values were imputed by the judges. Were it not for two further estimates of the Spranger values, derived from the TAT stories, and the use of the items in the AVL under two separate conditions, attention would not have been so centered upon the principal character. Without a common referent the multiple quantifications of those values could not have been properly intercorrelated. The expediency of experimental design rather than the principles of a clinical art was assigned priority in determining the mode of measurement of the values in question in the TAT stories.

Moreover, in the two series of rankings the judges were instructed to attend only to the manifest content of a TAT story: they were not to become involved in "depth interpretations" or "symbolic analyses." Such approaches implicate problematical "unconscious motivations." This study was not designed to cope with them.

Suggestions, therefore, were compiled, to aid the judges in the discernment of a possible hierarchy of Spranger values. Two criteria were cast: (a) self-directed behavior; and (b) conflict. "Weak" expressions of a value or values occupying the lower positions in a hierarchy were also illustrated. These suggestions and illustrations were collected together in Appendix B. Examples of the ranking of the Spranger values in stories by nonexperimental SS were also prepared for the judges and placed in Appendix C.

It may be noted in passing that the categorical judgments of the panel complied with the principles of content analysis, outlined by Berelson (21) and Cartwright (44). The stories constituted a sample of verbal behavior of a S, which could be analyzed in terms of a set of prescribed units. As such the content analysis of the stories in this study did not differ essentially from other analyses of thematic material as those undertaken by Dana (59), Eron (82, 84), Fleming (98), and Frenkel-Brunswick (101). As Berelson observed, "Communication content is so rich with human experience, and its causes and effects so varied, that no singular system of substantive categories can be devised to describe it" (21, p. 13).

e. Qualified Usage of the TAT Plates. The TAT is traditionally associated with clinical practice. As it had already been hinted, however, the use of an abbreviated TAT in this study was not clinical. The plates were merely considered to be a set of stimuli for the eliciting of an unencumbered expression of the Spranger values. Another series of pictures, comparable to those of the TAT, could have been assembled without modifying the inquiry concerning these values. The extensive usage of the TAT with diverse problems, however, had set a precedent for its inclusion in this study.

Neither was the development of another scoring schema for the analysis of TAT stories, analogous to such as advocated by Arnold (8; 248, pp. 31-39), Bellack (17, pp. 196-205; 248, pp. 47-54), Fine (91), Fry (105), Murray (202), White (248, pp. 188-199), and others edited by Shneidman, Joel, and Little (248), intended by the writer. The design of this study could never have accommodated such a program.

## 2. The Identification of Valued Objects

a. Rationale. The second indirect index of the Spranger values was suggested by the theorized relationship between value and valued object. Valued objects were predicated to be vehicles of values; they embody the "goods," which aid in the differentiation of values from one another. Since a value is an abstraction, it can be cognized, then, by means of an array of valued objects associated with it. Hence, valued objects would be instrumental for an empirical definition of basic values.

As tangible indicators of such values, therefore, valued objects would not be equally preferred by a valuing agent. His degree of preference for a valued object would be conditioned by the position of the basic value in the hierarchy of basic values characteristic of him. It would follow that the objects valued by the principal character in a TAT story would be congruent with the patterning of the Spranger values attributed to him. The higher the position of a Spranger value in the hierarchy of basic values the more preferred would be valued objects encompassed by that value.

A Spranger value, thus, would be evidenced by means of many valued objects, which share in a common property pertinent to that value. That value may be equally dominant in the hierarchical structure of basic values for two



individuals. But, that dominance need not be indicated by a same degree of preference for identical valued objects.

This principle—a multiplicity of valued objects for a value—is basic to a proper understanding of the comparability of objects valued by the principal character in a TAT story and objects valued by a S, as his creator. The objects valued by the one and the other would need not be the same but only similar. The degree of preference for similar objects, however, would probably be the same, since it would be commensurate with the relative dominance of the Spranger values in the value system of each.

This principle would simply be an extension of the assumption that a S invests his value system to a greater or lesser degree in the principal character of a TAT story. This assumption was not meant to imply that the principal character was a mirror-image of a S, who invented him. Such a supposition would have been indefensible. That certain resemblances did exist between the two "principals" would, however, be tenable. In this respect, therefore, similarities in valuation could be a meaningful index of the Spranger values, as basic values.

b. Procedure. A S was orally instructed to identify the objects valued by the principal character in each TAT story,<sup>12</sup> as a separate unit. In so doing, he needed not have been explicitly aware of a Spranger value because of the abstract nature of value. But, since he created the principal character, he would know what that figure would consider to be valuable. By means of such

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<sup>12</sup> The story elicited by the "practice plate" was used merely to orient a S to the task of reporting valued objects.

"free expression" 10 sets of a distinctive and natural recording of valued objects was obtained from a S. In not restricting him to choose from precoded and preselected valued objects the uniqueness of his preferences was respected.

c. Codification. The writer and another judge<sup>13</sup> independently inferred a "central value" and such "peripheral values," as could be scored, from each set of valued objects.<sup>14</sup> The central value was that Spranger value,<sup>15</sup> which would be uppermost in a hierarchy of basic values; and the peripheral values referred to those Spranger values, which would be less dominant in that system: they would be subordinated to the primacy of the central value. These units of content analysis were sufficient, since in most instances only one peripheral value was inferable from the reported valued objects.

Attention was again focused upon the manifest content of the written report of a S. To have penetrated beyond his "words" to possible symbolic interpretations would have constituted nothing more than unverifiable speculations. The data in this phase of the study, as an independent unit, were too meagre to test the adequacy of such inferences.

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<sup>13</sup>This judge was not a member of the panel described in the preceding section. The additional services of that panel were not available for this phase of the study.

<sup>14</sup>Examples of inferences according to this dichotomy were included in Appendix C.

<sup>15</sup>The writer's summaries of the Spranger values were used as guides for the inferences of these values from valued objects.

The sequence of Ss was also randomized separately for the writer and his associate for inferring the central and peripheral values from the 10 sets of valued objects reported by a S. In this manner the effects of possible systematic bias would not adversely affect a Spranger value.

### 3. The Value Description of the Principal Character

a. Rationale. It had been stated that value orients behavior toward the achievement of goals compatible with a value. Consequently, certain behaviors would tend to be associated with a value. These behaviors would have characteristics, which would persist under varying environmental stimulations. Such characteristics or traits, then, provide still another clue for the empirical definition of the basic values.

Traits, as characteristic modes of behavior, accordingly, would also distinguish the Spranger values from one another. A collection of traits could be associated with each of the said values. Just as a value would be predictive of an appropriate behavior, a designated trait conversely would be an index of that value.

Because of this relationship between value and trait the Spranger values and traits indicative of them would need to have a common referent--namely, the principal character in a TAT story for purposes of this study. Since the Spranger values were inferred from his behavior, that behavior could not be without the characteristics upon which such inferences were based. Inasmuch as his behavior reflected a choice of a "good," that behavior would be appropriate for its realization. If differences among "goods" were simply whimsical schematizations, a characterization of behavior in terms of value related traits would be meaningless.

A second consequent of the relationship between value and trait would be that the patterning of traits indicative of the Spranger values would correspond to the relative positions of those values in a hierarchy of basic values. If a trait profile were constructed, the serial order of the Spranger values would be readable from that graph. The more dominant a Spranger value would be in the value structure of a principal character the more pronounced would be correlative traits.

Traits, as indices of the Spranger values, then, would implement the judgments of the Spranger values already discussed above. As in those instances, traits attributed to the principal character would be similar to those which would be typical of a S, as the creator of that figure.

The use of traits in this study, however, would need to be differentiated from the use of traits, as values. The latter designation of traits was used in investigations, which were reported in the preceding chapter (25, 108, 170, 261). Traits, as indices of values or bases for the inferences of values, could be considered as special adaptations of theses propounded by Edwards (76) and Cohen (51).

b. Adjectives. It is conventional to label traits by means of adjectives. Thus, three adjectives, deemed to typify a Spranger value, were coded for each of the Spranger values. The 18 adjectives, furthermore, were randomly distributed into three sets: each set being composed of one adjective for each of the said values. This procedure assumed that the adjectives for each such value were comparable to one another as indices of a specified value. The three sets of coded adjectives were listed in Table 3.

Table 3

Three Sets of Coded Adjectives for the Spranger Values

Value	Set		
	1	2	3
T	objective	analytical	intellectual
E	conventional	commercial	practical
A	creative	artistic	charming
S	altruistic	sympathetic	friendly
P	authoritarian	influential	competitive
R	meditative	ascetical	spiritual

Note.--The symbols in column 1 signified the Theoretical, Economic, Aesthetic, Social, Political, and Religious values respectively in the Spranger schema of values. These symbols have the same meaning wherever they would be found in this study.

c. Quantification. The six adjectives in a set were paired with one another, to obtain comparative judgments of the traits to be discerned in the behavior of the principal character in a TAT story. The number of pairs in each set of adjectives, therefore, was 15. The position of an adjective coded for a Spranger value in each pair was also varied, to control the "space error." The three groupings of paired adjectives, moreover, were randomly

combined. Thus, 45 comparative judgments<sup>16</sup> about the behavior of the principal character in a TAT story were made by a S. In comparing a trait in a set with every other trait in the same set of adjectives the degree of each trait, as being characteristic of the behavior in question, was being ordered along a psychological continuum.

That adjective in each pair of adjectives, which would best describe the behavior of a principal character, was checked by a S. The frequencies, with which the three coded adjectives for a Spranger value were checked, were summated. The serial order of the summated frequencies of the checked adjectives was defined as the "value description of the principal character." Thus, the more dominant was a Spranger value in the hierarchy of basic values, the higher would have been the summated frequencies of checked coded adjectives for that value among the 45 comparative judgments.

d. Subsets. Comparative judgments were obtained about the principal character in only six TAT stories, divided into two subsets of three stories each. In the first subset a S was orally instructed to select any three stories<sup>17</sup> with the principal character of which he could identify himself most

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<sup>16</sup>If the 18 adjectives had been paired with one another, there would have been 153 pairs. This number, however, was considered to be too large to counteract the effects of fatigue and lapses of attention. Moreover, 18 pairs of the 153 pairs would have been made up of adjectives coded for the same Spranger value, like objective-analytical, sympathetic-friendly, and meditative-spiritual. Such pairs would not have contributed to the differential assessments of the Spranger values, as it had been intended.

<sup>17</sup>The story elicited by the "practice plate" could not be included in the selection of stories in the two subsets.

closely; and in the second subset he selected three different stories with the principal character of which he could identify himself least closely, if at all. A S was informed about the nature of the second subset only after he had made the 45 comparative judgments in the first subset of stories.

The same adjectives were used in the two subsets of stories. The sequence of pairs of adjectives, however, was randomized separately for each story. All Ss received the same randomized sequence of pairs of adjectives for a story.

The use of only six TAT stories was not meant to imply that a S would have been unable to make similar judgments for the remaining four stories. But, it was assumed that the degree with which he could identify himself with the principal character of a story would vary. In some instances it would have been easier but in others more difficult. Only one series of 45 comparative judgments, therefore, could have been requested for each subset of stories. It is axiomatic, however, that replicated observations are more meaningful than only one observation. Thus, in obtaining three series of replicated comparative judgments the reliability of the measurement of a Spranger value by means of this procedure would have been somewhat increased.

In using only three stories in each subset a second assumption was made: a region had been reached along the "identifiability continuum" where ease or difficulty of identification with the principal character of a story would be arduous for a S. Decisions to include a fourth and even a fifth story in the first subset would probably have been quite arbitrary on the part of a S. The remaining two stories would automatically be included in the second subset. Thus, it was believed that practical limits had been reached with three stories for a subset.

It was suggested above that in some instances a S would have had difficulty in identifying with the principal character of a TAT story. For this reason comparative judgments for the second subset of stories was introduced into the design of this study. In these instances it was presupposed that the patterning of the Spranger values ascribed to the principal character was less like that of a S, who created him. Such values would occupy the lower positions in a hierarchy of basic values for a S.

Consequently, the ordering of the Spranger values, based on the comparative judgments, in the two subsets of stories would be inversely related to each other. In the first subset of stories, therefore, the more dominant Spranger values would be established, whereas in the second subset of stories the less dominant values would be ascertained. The frequencies with which the adjectives would be checked in the two subsets of stories would differ markedly in each subset. In this manner, the comparative judgments in the two subsets of stories would complement one another, as indices of the Spranger values.

#### b. The Experimental Form of the AVL

a. Rationale. In the preceding sections three indirect indices for the Spranger values were described in detail. To test the validity of the judgments that were made, however, a criterion measure for the said values was needed. Since the AVL had been specifically constructed to measure these values, it was used as a standard with which the indirect measures of the Spranger values could be compared.

Measurement oriented investigators (52, 108, 183, 249, 281; 39, pp. 92-93), however, have been critical of the lack of sensitivity of the fourfold scoring combination of the AVL. Nevertheless, that instrument has not been



dis-throned because of psychometric technicalities for the measurement of the Spranger values.

The AVL in its booklet form restrains a S in expressing his preferences, as responses to the items contained therein. If the procedure for administering the inventory, however, was modified, the severe limiting conditions imposed upon a S would be nullified. Such a modification would need to allow to a S more latitude in expressing his judgments. Under such conditions the AVL could still provide a useful measure of the Spranger values. The experimental form of the AVL, therefore, was prepared in accordance with the stated stipulation of permitting more freedom to a S in his responses.

b. Description. Each of the 30 questions in Part I of the AVL were written as two statements; and each of the 15 questions in Part II as four statements. In this manner the 120 statements retained their intended value specification.

Each statement was typed on a separate card. The sequence of statements was randomized. The rewritten items in the AVL were arranged according to this randomized sequence in Appendix E. The value specification and the location of the item in the AVL from which the statement was derived were also included with the listing of statements in that appendix.

c. Quantification. The randomized<sup>18</sup> statements were sorted by a S into seven ordered intervals, to display his agreement or disagreement with a

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<sup>18</sup> All Ss received the same randomized sequence of statements.

statement.<sup>19</sup> In effect, a seven-step bipolar rating scale was used. The integers 1 through 7 were assigned to the descriptive cues of the intervals.

Practice varies as to the number of intervals used in the construction of a rating scale (125, pp. 289-290). Bendig (18), for example, included seven intervals in the optimal range of intervals, to obtain satisfactory discriminations among rated stimuli. The judgments of a S, therefore, were not considered to be either too crude or too refined.

A distribution of sortings or ratings was not prescribed. To have fixed the proportion of statements to be sorted into each interval would have defeated the purpose of the experimental form of the AVL: to free a S from restraint in expressing his judgments. A S, however, was encouraged to use all the intervals. A greater dispersion among the statements was thereby achieved.

The ratings of the statements<sup>20</sup> were scaled by means of the Method of Successive Intervals (MSI). Several variations of this method have been developed (40, 73, 123, 126, 229; 75, pp. 120-148; 125, pp. 223-244). Rimoldi and Hormaeche's (229) procedure for estimating the modal discriminial process and discriminial dispersion of stimuli was used in this study.

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<sup>19</sup>A description of the cues for the seven intervals can be found in the instructions to a S for this task in Appendix A. These cues were typed on separate cards for a S, to facilitate his sortings of the statements into the intervals, which he intended.

<sup>20</sup>Statements 1 and 7 were deleted in the statistical analysis, because their ideational content did not differentiate the Spranger Theoretical value from the Spranger Religious value.

Rimoldi and Hormaeche made the assumption that stimuli are normally distributed (229, p. 308). Rozeboom and Jones (235), however, have argued that a normal distribution is not intrinsic to MSI. Since a S was not expected to conform to a normal distribution in rating the statements, the use of MSI for the scaling of his judgments was not inappropriate.

#### 5. The Booklet Form of the AVL

The B-AVL was administered for comparative purposes only. It was added to the design of this study merely as a postscript, as it were.

CHAPTER IV  
ANALYSIS OF THE DATA

A. The TAT Plates

1. The TAT Story as a Contextual Unit

a. Primary analysis. In the first series of rankings of the Spranger values three male judges serially ordered those values, which were evident in a TAT story.<sup>1</sup> A separate ranking of those values was obtained for each story from the judges. Such values were designated as "evident values."

Table 4 was especially prepared to illustrate the nature of the obtained rankings of the Spranger values in a TAT story for one S and

Table 4

An Example of the Ranking of the Spranger Values in a TAT Story

Judge	"Evident Value"
A	Political, Economic, and Social
B	Political, Religious, Aesthetic, and Social
C	Political, Theoretical, Economic, Religious, and Social

<sup>1</sup>As it had been explained in footnote 9, reference to the presence or absence of a Spranger value in a TAT story implied that that value could or could not be attributed to the principal character of that story.

thereby contribute to a better understanding of the discussion that follows. This example, which was typical of the 500 obtained rankings, showed that a judge explicitly used only the "top ranks," when he listed only the "evident values" in a story. That is to say, he identified the more dominant values in a hierarchy of basic values. By implication, those values, which were not listed by him or were not evident to him, would be allocated to the lower positions in the same hierarchy, as being less dominant.

On the basis of a judge's listing or not listing a Spranger value, as being evident in a TAT story, a "value estimate" of that value was determined. The "value estimate" constituted a quantitative index of the relative strength of that value. Thus, three "value estimates" of a specified value were had for each story.

The procedure for the determination of the "value estimates" assumed that the six Spranger values were capable of being serially ordered in a TAT story. The integers 1 through 6 would have been assigned to the successive positions of those values in a set of rankings:<sup>2</sup> The magnitude of the numerical rank corresponding to the dominance of such a value in a hierarchy of basic values. The assigned integers, then, would have quantitatively differentiated the said values from one another in terms of relative strength.

But, as it had happened, a judge was not able to discriminate adequately the six Spranger values from one another in a TAT story. Only partial rankings

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<sup>2</sup>For all ranking procedures a rank of 1 was assigned to the lowest object in an array of ranked objects.

were actually obtained from him. Those values, which were excluded from a set of rankings by him, remained undifferentiated from one another.

The partial rankings of the "evident values" represented an ordering of values, which could be considered to be outstanding in a hierarchical structure of basic values. Goals, subtended by them, would have priorities according to the respective positions of those values in that system. Being the foremost values, they would exercise a greater influence in the orienting of behavior. Consequently, a judge would have been able to infer such values from the behavior of the principal character relatively more easily because of their prominence.

If a complete ranking of the Spranger values had been "forced" upon a judge, the "evident values" would have been probably listed as the more dominant values. Higher numerical ranks would have been assigned to them, to indicate that greater significance in the behavior of a valuing agent. The relative position of the more dominant values would not be basically affected, therefore, by either a complete or a partial ranking of the Spranger values. Whereas in a complete ranking the total number of six ranks would have been used, in a partial ranking only the "top ranks" of that number of ranks were actually used. In a partial ranking, furthermore, information was wanting concerning the serial ordering of those values below that "evident value," which was designated by a judge as being the least evident of the "evident values." In Table 4, for example, Judge A had indicated the Political value as being the least evident of the "evident values" and had excluded the Theoretical, Aesthetic, and Religious values from his ordering of the "evident values." For him the last named values were undifferentiated from one another.

As such, a ranking of these values was ambiguous: any one of six possible permutations of rankings of these values could have been used by him, if a "complete ranking" had been "forced" upon him.

Hence, in listing a Spranger value, as being evident in a TAT story, a judge was thereby estimating its relative strength in a hierarchy of basic values. In serially ordering the "evident values" he explicitly indicated their progressively increasing dominance. By assigning the "top ranks" to that ordering the said values were quantitatively differentiated from one another. The numerical rank of an "evident value," thus, was made the "value estimate" of that value in a TAT story. It was in this sense that a "value estimate" of an "evident value" was a quantitative index of the strength of that value in a hierarchy of basic values. As such, the "value estimate" denoted that one value was more or less dominant than the other values: it marked the precedence of one value in relation to the other values. The "value estimates" of the "evident values," given in Table 4, were presented in Table 5, to exemplify the general procedure of reducing a judge's orderings of the Spranger values in a TAT story into measurements, amenable to statistical manipulation.

In not listing a Spranger value, as being evident in a TAT story, a judge, nevertheless, still estimated its strength to be "zero." The "value estimates" of "nonevident values," therefore, were empirically defined as "zero." The "value estimates" of the "nonevident values," which were implied in Table 4, were also included in Table 5.

Table 5

An Example of the "Value Estimates" for the Spranger

Values in a TAT Story

Judge	Value					
	T	E	A	S	P	R
A	0	5	0	6	4	0
B	0	0	5	6	3	4
C	3	4	0	6	2	5

If the number of judges had been larger, the "value estimates" could have been determined by means of scaling procedures, like those described by Guilford (125, pp. 188-194). More refined estimates would thereby have been obtained. But, with only three judges the proportions of the Spranger values, as "evident values" in a story, would have been so unstable, that to have scaled the judgments would have been highly questionable.

In the absence of linear transformations of the numerical ranks to a common interval scale the "value estimate" of a Spranger value, as described above, was used to differentiate the Ss from one another for a story. The Ss were ranked for each value in each TAT story in terms of the "value estimate" for a value. The Ss, for whom a "value estimate" of a value was "zero" received the lowest rank<sup>3</sup> in a set of rankings of Ss; and the Ss, for whom

<sup>3</sup>Objects, tied for a given rank, were assigned the arithmetic mean ( $\bar{X}$ ) of the ranks, which they would have received, if there had been no ties.



a "value estimate" of a value was 6, received the highest rank in the same set of rankings. Since three "value estimates" of a Spranger value were obtained in each story, three sets of rankings of Ss were prepared for each value in each story.

Inasmuch as the listing of "evident values," given in Table 4, was said to be a typical one, it was patent that the judges differed among themselves in the "value estimates" of a Spranger value in a TAT story for a S. Their inferences reflected differences in their sensitivity to a Spranger value in a story. The numerical rankings of the Ss for a specified value in a story on the basis of the "value estimates" for that value also, then, varied among the judges. To determine the extent of that variability, interjudge reliabilities for the rankings of the Ss in each story for each of the Spranger values were, therefore, computed.

The most obvious procedure would have been to "average" correlation coefficients among the three possible pairs of judges as an index of interjudge reliability. Apart from its relationship to Spearman's rank correlation (74, p. 412; 159, p. 411; 160, p. 82), Kendall's coefficient of concordance (W), however, was not only more direct but also more appropriate, since it provides an index of reliability among the judges, as a group. It was this result that was desired: how well did the judges agree among themselves in estimating the relative dominance of a Spranger value in a TAT story on the basis of which the Ss were differentiated from one another.

Without digressing into the merits of nonparametric devices in statistical analysis, which already have received more extensive and reasoned treatments (74, 238, 250, 251), than could be accorded to them here, W, as a nonparametric

index of reliability, specified independent observations of a continuous variable, which have been reduced to an ordinal metric. The design of this part of the study satisfied those conditions of independence, continuity, and an ordinal scale. The three sets of rankings of the  $S_s$  for a Spranger value in each story were based on the inferences of that value by a panel of three judges, who were not in communication with one another. The "value estimate" could be assumed to be continuous, since that "estimate" would represent a point in an interval of indeterminate size. For convenience all points within that interval are labelled by an integer, since the exact location of that point is unknown, as it would be true for any measurement, due to the relative crudeness of a measuring instrument.

As it had been noted above, a matrix of three sets of rankings of  $S_s$  was prepared for each Spranger value in each story, as a separate contextual unit. Sixty measures of interjudge reliabilities, denoted by  $W$ , were computed. Because the magnitude of  $W$  is depressed by tied ranks, corrections were made for such ranks among the  $S_s$  in those computations (74, p. 431; 160, p. 82; 250, p. 234). The correction for continuity, when the number of judges is small (74, p. 409; 159, p. 419), did not affect the obtained  $W$ 's, reported in Table 6.

The significance of  $W$  was tested with Fisher's  $z$  (159, p. 419; 160, p. 84) rather than with Friedman's  $\chi^2$  (74, p. 412; 159, p. 420; 160, p. 84; 250, p. 236), because the number of judges was less than six (104, p. 92). The calculation of the degrees of freedom ( $df$ ) in connection with the use of  $z$  was modified according to Kendall's recommendation (160, p. 86), when the number of tied ranks is considered to be large. The .05 and .01 critical points in the  $z$ -distribution were approximated by means of linear interpolations of

reciprocals (94, p. 232; 95, pp. 50-52). The .001 point was not determined, because it is problematical in testing the significance of  $\underline{W}$  by means of  $\underline{z}$  (159, p. 420). The  $\underline{z}$  associated with the  $\underline{W}$  for a Spranger value in a TAT story was also included in Table 6.

Thus, the degree of interjudge agreement in estimating the relative dominance of a Spranger value in a TAT story, in general, was moderately good. In Table 6 the computed  $\underline{W}$ 's ranged from .294 for the Aesthetic value in the story elicited by plate 6BM to .753 for the Social value in the story elicited by plate 20 with a  $\underline{Mdn} \underline{W}$  of .511. Fifty of the 60  $\underline{W}$ 's, or 83.3%, had the probability ( $p$ ) of occurrence of  $p < .01$ . In these instances hypotheses of "no interjudge agreement for a specific value in a designated story" would be rejected.

b. Secondary Analyses.<sup>4</sup> The results in Table 6 suggested further supplementary analyses, upon which other conclusions could be based concerning the interjudge agreement with regard to estimating the Spranger values in the TAT stories. For example, it was noted in Table 6 that the  $\underline{W}$ 's for a Spranger value were not either consistently high or low in the 10 stories. Thus, the  $\underline{W}$ 's for the Aesthetic value ranged from .294 in the story elicited by plate 6BM to .725 in the story elicited by plate 11; and similarly the  $\underline{W}$ 's for the Social value ranged from .383 in the story elicited by plate 11 to .753 in the story elicited by plate 20.

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<sup>4</sup>Tables pertinent to secondary analyses, wherever they were executed, were assembled in Appendix F.

Table 6

W and z for the "Value Estimates" of the  
Spranger Values in the TAT Stories  
(Decimal point omitted)

Story	Value	W	z	Story	Value	W	z
1	T	423	189*	6BM	T	318	036
	E	454	267*		E	621	592*
	A	333	002		A	294	093
	S	564	476*		S	606	559*
	P	550	446*		P	620	591*
2	R	417	179*		R	469	283*
	T	410	161*	7BM	T	408	161*
	E	529	403*		E	486	318*
	A	487	318*		A	463	271*
	S	601	551*		S	584	515*
	P	538	466*		P	611	572*
4	R	378	095		R	584	517*
	T	333	000	8BM	T	405	154*
	E	507	359*		E	447	238*
	A	336	005		A	338	005
	S	577	500*		S	520	385*
	P	598	543*		P	446	238*
11	R	556	458*		R	515	376*
	T	504	352*	16	T	496	336*
	E	500	347*		E	523	396*
	A	725	830*		A	546	438*
	S	383	104		S	625	601*
	P	426	196*		P	525	394*
14	R	560	466*		R	608	566*
	T	402	146*	20	T	327	014
	E	367	070		E	668	694*
	A	624	598*		A	606	561*
	S	468	283*		S	753	902*
	P	532	405*		P	697	763*
	R	633	619*		R	457	256*

\* $p < .01$ .

Even though such variability in the degree of interjudge agreement for a Spranger value was observed, it seemed as if the W's for the Spranger values in the 10 TAT stories varied systematically. That is to say, the W's for some

Spranger values tended to be consistently better than for other values. Regardless of the numerical magnitude of  $\underline{W}$ , interjudge agreement for some Spranger values would be greater than for others in a TAT story. If the  $\underline{W}$ 's for the Spranger values were ranked according to their numerical magnitude in each story separately, those rankings would be similar in the 10 TAT stories: a given rank would tend to be associated with the  $\underline{W}$  for a particular value in all the stories. The ranks of the  $\underline{W}$ 's for the Spranger values in the TAT stories were given in Table 18.

The TAT stories, therefore, were arranged in 10 rows and the Spranger values in six columns. The  $\underline{W}$ 's for the said values were ranked from 1 to 6 in each row. Since the obtained  $\underline{W}$ 's were based on judgments of the Spranger values, which could not be considered to be independent of one another, the resulting matrix of ranks were analysed by means of Friedman's  $\underline{Xr}^2$  or "Two-Way Analysis of Variance by Ranks for Related Samples" (103, p. 679; 250, p. 186). The obtained  $\underline{Xr}^2 = 11.186$  ( $p < .05$ ,  $df = 5$ ).

Upon inspection of the ranks assigned to the  $\underline{W}$ 's for a Spranger value in the 10 TAT stories in Table 18 it was observed that the higher ranks tended to be associated with the Social, Political, and Religious values more frequently than with the Theoretical, Economic, and Aesthetic values. That is, there was greater interjudge agreement for the first set of named values than the second set. It was, therefore, concluded that the three judges tended to agree better in estimating the Social, Political, and Religious values in a TAT story, as a contextual unit, than the Theoretical, Economic, and Aesthetic values in a TAT story.

This conclusion was supported by a second supplementary analysis. It had

been reported that the Mdn of the 60 W's in Table 6 was .511. When the W's, reported in Table 6, were dichotomized--the division being above and below .511--and the consequent proportions analyzed by means of Cochran's Q Test (250, p. 162), it was found that  $Q = 46.429$  ( $p < .001$ , df = 5).

In using this test, to determine the significance of the differences of proportions in two classes of observations for related samples, the TAT stories were again arranged in 10 rows and the Spranger values in six columns. If the W for a Spranger value in a story was above .511, it was "scored" as "1"; and, if below .511, as "0." This dichotomization of W's was given in Table 19.

According to Table 19 it was clear that: (a) all the W's for the Theoretical value in the 10 TAT stories were below .511; (b) eight W's each for the Social and Political values were above .511; and (c) the differences in the proportions of the W's for the Economic, Aesthetic, and Religious values above .511 were slight. Thus, if the sums of the W's for the Spranger values above .511 were ordered serially from low to high, that ordering--Theoretical, Aesthetic, Economic, Religious, Social, and Political values--corroborated the statement above concerning the degree of interjudge agreement in estimating the Spranger values in a TAT story.

It was possible to demonstrate the same conclusion in still another way: the Mdn of the W's reported in Table 6, for a Spranger value in the 10 TAT stories. For example, the W's for the Theoretical value were as follows: .423, .410, .333, .318, .408, .405, .504, .402, .496, and .327. The Mdn of this series of W's was .406. The Mdn's of the W's for the other five Spranger values were similarly determined. They were: Economic value: .503; Aesthetic value: .475; Social value: .580; Political value: .544; and Religious value:

.535. Interjudge agreement, therefore, was better for the Religious, Political, and Social values in that order than for the Theoretical, Aesthetic, and Economic values.

The results in Table 6 also suggested another problem. It was formulated as: if a second panel of three comparable judges had been organized, how well would it have approximated the obtained estimates of the Spranger values in the TAT stories. The reliability of average ranks ( $r_{XX}$ ), described by Edwards (74, pp. 412-414), was also, then, computed for each Spranger value in each story. These coefficients were listed in Table 20.

Such coefficients indicated, in general, that similar "estimates" of the Spranger values in the TAT stories could be expected from a second panel of judges. They ranged from  $-.203$  for the Aesthetic value in the story elicited by plate 6EM to  $.836$  for the Social value in the story elicited by plate 20 with a Mdn  $r_{XX}$  of  $.622$ . Four of the 60 coefficients, or 6.7%, differed from zero, when  $p < .05$ ; and 44 of the 60 coefficients, or 73.3%, differed from zero, when  $p < .01$ , with 49 df. The  $Xr^2 = 14.352$  ( $p < .02$ , df = 5) and  $Q = 60.731$  ( $p < .001$ , df = 5) substantiated the ordering of Spranger values obtained in a previous analysis:<sup>5</sup> namely, Theoretical, Aesthetic, Economic, Religious, Political, and Social values. The Mdn's of the  $r_{XX}$ 's for each Spranger value separately were as follows: Theoretical value:  $.271$ ; Aesthetic value:  $.448$ ; Economic value:  $.514$ ; Religious value:  $.566$ ; Political value:  $.580$ ; and Social value:  $.639$ .

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<sup>5</sup>The matrices, upon which  $Xr^2$  and  $Q$  were based, were presented in Tables 21 and 22 respectively. Procedures were comparable to those used for W, described above.

The analyses, executed thus far, were concerned with the "value estimates" of the six Spranger values. Emphasis was placed upon quantitative differentiations among the said values.

Attention, however, could also be directed only to the most and least "evident values" in a TAT story, to ascertain the degree of interjudge agreement for such values. Such attention could be described as being qualitative. Only one Spranger value could be indicated as being the most "evident value" in a story; and similarly, only one such value could be identified as being the least "evident value" in that story. Such specifications would constitute categorical judgments.

In Table 4 it was noted that the judges did agree in specifying the Social value, as being the most "evident value," and the Political value, as being the least "evident value" in a TAT story. Such unanimity in agreement, denoted as 3:0, was observed for other Spranger values in the TAT stories, as being the most or least "evident value." In other instances only partial agreements were obtained: that is, only two of the three judges agreed in specifying a Spranger value, as being the most or least "evident value" in a TAT story. Such partial agreements were symbolized by 2:1.

The frequencies, with which 3:0 and 2:1 interjudge agreements had occurred for a Spranger value, as being the most "evident value" in the TAT stories, were summated separately and reported in Table 23. In a similar manner the frequencies of the dichotomized interjudge agreements for a Spranger value, as being the least "evident value" in the TAT stories were summated and also included in Table 23. This procedure of summation was illustrated in Table 24. The frequency of each Spranger value, listed by the three judges



unanimously as well as listed by pairs of judges as the most "evident value" in the stories of the Ss for plate 1, was tabulated in that table. Thus, the sums in the last row in Table 24 corresponded to the entries in the cells, made by the intersection of column 1 and row 1 and by the intersection of column 2 and row 1 in Table 23. The frequencies in Table 23 were similarly determined for the other TAT stories.

The significance of the observed frequencies of the 3:0 and 2:1 agreements for the most and least "evident values" in a TAT story was tested separately with Cartwright's alpha coefficient (45). These coefficients, which were also included in Table 23, were not significant (45, p. 22).<sup>6</sup> From a categorical perspective the judges did not agree in their specification of the most and least "evident values" in the TAT stories.

Nevertheless, there was relatively greater agreement for that Spranger value, indicated as the most "evident value" in the stories of the Ss, elicited by a particular plate, than for the least "evident value." Since a least "evident value" merged into the undifferentiated "nonevident values," greater difficulty would have been experienced by a judge in specifying such a value. Greater sensitivity to that value would be required from him. In this respect the judges differed markedly among themselves.

Even though the interjudge agreements, in general, were favorable, those results were conditioned by whether a judge itemized a Spranger value, as being an "evident value" in a TAT story of a S. In this respect, there were

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<sup>6</sup>Alpha = .97 ( $p < .05$ ).

differences, as it was also apparent in Table 4. These differences in itemization became the focal point for the final secondary analysis in this phase of the study. Like the immediately preceding analysis, it was also concerned with categorical judgments of the Spranger values, as opposed to a definitive quantification of them.

Interest was concentrated on whether a judge was able to identify a Spranger value in a TAT story. The position of such a value in his serial ordering of the "evident values," as being the most evident, intermediately evident, and least evident, was of no consequence in the analysis to be described. Thus, for example, in Table 4 Judge A indicated that: (a) the Political value was least evident; (b) the Economic value was intermediately evident; and (c) the Social value was the most evident in a TAT story. Such qualifications of "evidence" were hereby discarded for purposes of this analysis. The fact that he specified the three values was, however, of primary significance.

The frequency with which a judge had ascribed a Spranger value to the principal character of the Ss' stories, elicited by a TAT plate, was tabulated and reduced to a percentage. Ten percentages were thereby obtained for each Spranger value. These percentages were recorded in Table 25. The percentages for each of the said values were summarized by  $\bar{X}$ 's and Mdn's over the 10 TAT plates in Table 26, to simplify the discussion that followed. Differences in the percentages of identification were also determined for the three possible pairs of judges.

To test the significance of the observed percentage differences for each pair of judges, the percentage of identifications of a Spranger value in the

TAT stories, elicited by a plate, for each member of that pair was converted into an "omega equivalent" (172, p. 265). The algebraic difference between "omega equivalents" was calculated for each pair of judges. The significance of that difference, when  $p < .05$  and  $p < .01$ , was also determined (172, p. 266).<sup>7</sup> The "omega differences" were also included in Table 25. The frequency of significant "omega differences" for the three pairs of judges were summarized in Table 27 for each Spranger value over all stories.

That the judges were not uniformly perceptive to the Spranger values in the TAT stories was incontrovertible. They differed in their inferences of them. Thus, Judge A was more sensitive to the Economic, Social, and Political values than to the Theoretical, Religious, and Aesthetic values; Judge B, on the other hand, was more aware of the Social, Political, and Aesthetic values than the Religious, Theoretical, and Economic values; and Judge C itemized the Social, Economic, and Political values more often than the Aesthetic, Theoretical, and Religious values. The disparity in the ability of the judges to discern a Spranger value in the stories, elicited by a particular plate, also could not be impugned, because only 45 of the 180 "omega differences," or 25.0%, were not significant.

More specifically, Judge C identified more of the said values more frequently in the stories than either Judge A or Judge B. Consequently, 106 of the 135 significant "omega differences," or 78.5%, occurred, when Judge C

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<sup>7</sup>  $\Omega_1 - \Omega_2 = .269$  ( $p < .05$ ); and  
 $\Omega_1 - \Omega_2 = .364$  ( $p < .01$ ).

was paired with either Judge A or Judge B. Conversely, 31 of the 45 nonsignificant "omega differences," or 68.9%, had occurred, when Judge A was paired with Judge B. Thus, Judge A and Judge B differed less from each other in their sensitivity to a Spranger value in the TAT stories, than each from Judge C. This conclusion was verified also by considering the frequency of significant "omega differences," when  $p < .05$ ; 11 of the 17 significant "omega differences," or 64.7% when  $p < .05$ , were obtained, when Judge A was paired with Judge B.

Even though such interjudge differences for the identification of the Spranger values in the TAT stories were found, those identifications were not without interjudge similarities. A brief reference to them was deemed necessary to conclude the discussion of the percentages with which a Spranger value was itemized in the TAT stories.

First, the percentage, with which a Spranger value was identified by a judge in the TAT stories, elicited by a plate, varied from one set of 50 stories to another. The percentages of a Spranger value were not constant in the 10 sets of stories for the 10 TAT plates. That is, these percentages in each set could be serially ordered. In some sets of stories the percentages were higher than in other sets. Moreover, it appeared as if these variations in percentages were comparable among the judges.

To test this hypothesis, therefore, the judges were arranged in three rows and the sets of TAT stories in 10 columns for each Spranger value separately. The percentages of identifications of a Spranger value in each row were ranked from 1 to 10. The ranks assigned to the percentages of identifications of the Social value in the 10 sets of stories for the three judges was exemplified in

Table 28. The matrix of ranks for each Spranger value was analyzed by means of  $\chi^2$  with 9 df. The results of this analysis were recorded in Table 29.

Except for the Aesthetic and Religious values, the judges cognized a Spranger value in the 10 sets of TAT stories in a fairly consistent manner. They itemized a Spranger value relatively more frequently in some sets of stories than in others. Even though Judge A may have identified the Social value in only 22% of the 50 stories, elicited by plate 14, Judge B in 18%, and Judge C in only 44%, these percentages would be fairly comparable, relative to the percentages of their identifications of the same value in the remaining nine sets of stories. The percentages, as absolute numbers, tended to vary systematically among the judges for a Spranger value in a set of stories--more so, however, for the Economic and Social values than for the Theoretical and Political values, as would be indicated by the  $p$ 's for their respective  $\chi^2$ 's.

These results would be consistent with the  $\bar{X}$ 's and Mdn's of percentages of identifications of the Spranger values, reported earlier in Table 26. When the  $\bar{X}$ 's<sup>8</sup> of those percentages were ranked for each judge and the matrix of ranks analyzed by means of  $\chi^2$ ,  $\chi^2 = 9.78$  ( $p > .05$ , df = 5). This matrix of ranks was presented in Table 30. The ranks were most dissimilar for the  $\bar{X}$ 's of percentages of identifications for the Aesthetic value, less so for the Religious value, but fairly similar for the Theoretical, Economic, Social, and Political values.

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<sup>8</sup> A ranking of the Mdn's in the same manner would have duplicated the obtained ranking of the  $\bar{X}$ 's.

The second similarity observed among the percentages of the identifications of the Spranger values in the TAT stories by the judges was explicitly concerned with the percentages of the six Spranger values within a set of 50 stories, elicited by a TAT plate. Upon scrutiny of those percentages it seemed that, if the percentages of the identifications of the six Spranger values within a designated set of stories were serially ordered for each judge, the orderings of those percentages for the three judges would be similar. Even though the judges may have differed absolutely with respect to the percentages of the Spranger values within a set of stories, they, nevertheless, relatively consistently itemized the same Spranger values more frequently than others in that set of stories. It was conjectured that a given rank, assigned to the percentages of identifications of a Spranger value within a set of TAT stories, would not differ markedly among the three judges.

Accordingly, the judges were arranged in three rows and the Spranger values in six columns. The percentages of identifications of the Spranger values in a set of stories, elicited by a TAT plate, were ranked from 1 to 6 in each row. An example of this procedure was given in Table 31. The matrix of ranks was analyzed by means of  $\chi^2$  with 5 df. The  $\chi^2$ 's for the 10 sets of stories were reported in Table 32. The hypothesis was verified for each set of TAT stories. That is to say, prescind from the numerical magnitude of the percentages of identifications of the Spranger values by a judge, the judges were very much alike with respect to the relative percentages with which they inferred the Spranger values from the behavior of the principal character in the TAT stories of the Ss. Systematic variation among the percentages of identifications of the Spranger values within a set of TAT stories, as relative

indices, was undeniable.

In conclusion, interjudge agreements, therefore, not only from a quantitative but also from a qualitative point of view would indicate, in general, that the Spranger values were inferable from the behavior of the principal character in a TAT story. Some values, nevertheless, were more easily inferred than others in a set of stories, elicited by a TAT plate. These summary judgments were warranted by the results of the analyses reported in this section.

## 2. The TAT Protocol as a Contextual Unit

a. Primary Analysis. In the second independent series of rankings of the Spranger values in the TAT stories the judges inferred these values from the protocol of 10 stories, as a contextual unit. A complete ranking of the said values, as opposed to the partial ranking in the first series, was required from a judge. The maximum number of discriminations among these values was made by him in contrast to an optimal number permitted in the first series.

The integers 1 through 6 were assigned to the Spranger values in a judge's serial ordering of those values. These integers were, then, used as the "value estimates" of the Spranger values in the protocol of 10 TAT stories of a S. The Ss were again ranked for each of the said values separately on the basis of the "value estimate" for a value, as given by a judge. Since there were three judges, three sets of rankings of Ss were prepared for each Spranger value.

The degree of interjudge agreement in estimating a Spranger value was also determined by means of W, the significance of which was tested with Fisher's z. The six computations for W and z were corrected for tied ranks. The W and its corresponding z for each Spranger value were reported in Table 7.

Table 7

W and z for the "Value Estimates" of the Spranger  
Values in the Protocols of TAT Stories  
(Decimal point omitted)

Value	<u>W</u>	<u>z</u>	Value	<u>W</u>	<u>z</u>
T	462	268*	S	494	342*
E	515	378*	P	678	719*
A	614	580*	R	562	470*

\* $p < .01$ .

In general, the interjudge agreement for the "value estimates" of the Spranger values in the Ss' protocols of 10 TAT stories were moderately good and statistically acceptable, when  $p < .01$ . The Kdn in this series of obtained W's was .539. It was somewhat higher than that of .511, which was reported for the 60 W's, as indices of the interjudge agreement for the Spranger values in the TAT stories, as independent contextual units.

More specifically, interjudge agreement was better for the Religious, Aesthetic, and Political values than for the Theoretical, Social, and Economic values. In this ordering of the W's for the Spranger values the positions of the Aesthetic and Social values should be especially noted. Interjudge agreement for the estimation of the Aesthetic value was better in the protocol of 10 TAT stories, as a contextual unit, than in the TAT story, as such a unit. But, the reverse condition was true for the Social value: there was greater interjudge agreement for the estimation of the Social value in the TAT story than in the protocol of 10 TAT stories, as contextual units respectively. No such



shifts in interjudge agreement occurred for the Theoretical, Economic, Religious, and Political values. In fact, if the  $W$ 's in Table 7 for only these four values had been serially ordered, that ordering would not have differed from the progression of relative dominance, which had been established for the four named values in the first series of  $W$ 's. Finally, with the exception of the Social value, the interjudge agreements for the estimation of the Spranger values, as indicated by the  $W$ 's in Table 7, exceeded the  $Mdn$ 's<sup>9</sup> of the  $W$ 's for each value in Table 6. It would seem, therefore, that the protocol of 10 TAT stories, as a contextual unit, provided a better basis for the inferences of the Spranger values from the behavior of the principal character than the TAT story, as a contextual unit.

b. Secondary Analyses. The reliability of average ranks ( $r_{XX}$ ) was also computed for the "value estimates" of the Spranger values in the protocols of 10 TAT stories. These coefficients, which were presented in Table 33, were significant from zero, when  $p < .01$ . The  $Mdn$  of these coefficients was .539, as compared to that of .522 reported for the 60  $r_{XX}$ 's in the preceding section. Except for the Social value, the  $r_{XX}$ 's in Table 33 were higher than the  $Mdn$ 's of of the  $r_{XX}$ 's for each value<sup>10</sup> in Table 20. Thus, with the exception of the

<sup>9</sup>Theoretical value: .406; Economic value: .503; Aesthetic value: .475; Social value: .580; Political value: .544; and Religious value: .535.

<sup>10</sup>Theoretical value: .271; Economic value: .514; Aesthetic value: .448; Social value: .639; Political value: .580; and, Religious value: .566.

social value, a second panel of comparable judges would be expected to estimate the Spranger values with a higher degree of consistency in a protocol of 10 TAT stories, as a contextual unit, than in the TAT story, as such a unit.

The second and final secondary analysis in this section was undertaken to determine the extent of interjudge agreement for estimating the weakest and strongest of the Spranger values in a protocol of 10 TAT stories. Since the six Spranger values were ranked in the protocol of each S, the ranks of 1 and 6 were respectively assigned to the values in question. For purposes of this analysis allocating a Spranger value to either the lowest or the highest position in a serial ordering of values constituted a categorical judgment. Thus, this analysis was comparable to that of the most and least "evident values," which had been presented in the preceding section.

If the three judges agreed perfectly in designating a particular Spranger value as occupying either the lowest or highest position in the ranking of the Spranger values, such agreement was coded as 3:0; and if only two of the three judges agreed as to the relative dominance of a Spranger value in the hierarchy of basic values, such agreement was recorded as 2:1. The frequencies of 3:0 and 2:1 agreements were tabulated for the lowest and highest ranked values separately. The alpha coefficient was used to reduce the frequencies of unanimous and partial agreements for each group of specified values separately into an index of reliability in estimating the weakest and the strongest Spranger values in the 50 protocols of 10 TAT stories. The results were given in Table 34.

Neither alpha coefficient was significant, when  $p < .05$ . The three judges, therefore, did not agree among themselves with respect to marking either the

weakest or the strongest value in a hierarchy of basic values in the 50 protocols of 10 TAT stories. These results were like those, which had been reported in Table 23 for the TAT story, as a contextual unit.

A further inspection of Tables 23 and 34, however, disclosed that there was more agreement on the part of the judges in listing a Spranger value, as the weakest value in a serial ordering, in the protocol of 10 TAT stories, as a contextual unit, than in the TAT story, as such a unit. The amount of interjudge agreement for identifying the strongest Spranger value in this analysis was similar to that in the earlier one.

Other analyses, based on the "value estimates" of the Spranger values in either the TAT story or the protocol of 10 TAT stories, as contextual units, were also executed. Since they were generally conducted in connection with another phase of this project, they were included in those sections of this report, in which they would be immediately applicable.

## B. The Identification of Valued Objects

### 1. Primary Analysis

In the second phase of this study the Ss identified those objects, which the principal character of a TAT story valued for himself. The Ss listed such objects for each story, as an independent unit. Thus, 10 sets of objects were obtained from each S. These objects were empirically defined as "valued objects."

As it had been explained in the preceding chapter, the writer and a second

judge<sup>11</sup> inferred a "central" or primary value and "peripheral" or secondary values, if any, from a S's listing of valued objects in a TAT story. Thus, 10 sets of inferences from each judge were available for a S.

To expedite comparative analyses, the central value was coded as "2" and each peripheral value as "1" in a TAT story. The integers 2 and 1, as coded central and peripheral values respectively, were regarded as the "value estimates" of the Spranger values in a story. In this manner the relative dominance of a Spranger value was established in a TAT story in terms of valued objects according to each judge. The coding process was executed for each judge separately, so that two sets of numerical indices of the relative strength of a Spranger value, either as a central or peripheral value, were obtained for each TAT story of a S.

Subsequently, the numerical indices of a Spranger value, as a central value, were summated over the TAT stories of a S according to each judge separately. A similar summation was completed for each Spranger value, as a peripheral value. Finally, the two summations were combined for each Spranger value according to each judge separately. Thus, three summations of "value estimates" for each Spranger value were had for each S. An example of this procedure was given in Table 8.

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<sup>11</sup> This judge was referred to as Judge D and the writer, as Judge E, to distinguish them from the panel of three judges, who ranked the Spranger values in the TAT stories.

Table 8

An Example of the Summations of the "Value Estimates" of the Theoretical Value, as a Central and Peripheral Value, over the TAT Stories for one S

Story	Judge	<u>Relative Dominance</u>		Combined
		Central	Peripheral	
1	D	0	1	
	E	0	1	
2	D	2	0	
	E	2	0	
Sum	D	2	1	3
	E	2	1	3

Note.—The Theoretical value, as a central or peripheral value, was not inferred by either Judge D or Judge E in the TAT stories not listed in this table. The entries would have been zero. To conserve space, the table was abbreviated, as given, without any loss of communicable intelligibility.

In the example, provided by Table 8, Judges D and E agreed in their inferences of a Spranger value, both as a central and a peripheral value, from a S's listing of the valued objects in a TAT story. But, the two judges in question did not always concur in their decisions as to the relative strength of a Spranger value in a TAT story. Differences were observed for each Spranger value, either as a central or a peripheral value. To assess these interjudge differences Wilcoxon's Matched-Pairs Signed-Ranks Test (250, pp. 75-83) was applied to each of the three summations of the "value estimates" of a Spranger value, described above. The results were reported in Table 9. In that table T, n, and z were included, because critical T's have been tabulated, when n ≤ 25

(250, p. 251), but the normal deviate ( $z$ ) is approximated, when  $n > 25$  (250, p. 79). The entries in Table 9 indicated the procedure used.

Table 9

$n$ ,  $T$ , and  $z$  for the Interjudge Differences in the Three Summations of the "Value Estimates" of the Spranger Values Inferred from Valued Objects in the TAT Stories

Value	Degree of Dominance								
	Central			Peripheral			Combined		
	$n$	$T$	$z$	$n$	$T$	$z$	$n$	$T$	$z$
T	15	52.5		22	70.0		27	172.0	-0.41
E	26	116.0	-0.82	39	282.0	-1.51	38	318.5	-0.75
A	19	34.0 <sup>b</sup>		37	88.0	-3.98 <sup>c</sup>	41	53.0	-4.89 <sup>c</sup>
S	24	124.0		33	202.0	-1.40	43	439.0	-0.41
P	28	117.0	-1.96 <sup>a</sup>	37	84.0	-4.04 <sup>c</sup>	41	87.0	-4.45 <sup>c</sup>
R	12	18.0		22	115.5		23	70.0 <sup>a</sup>	

a  $p < .05$ .

b  $p < .02$ .

c  $p < .001$ .

It was clear from Table 9 that Judges D and E differed markedly in their estimates of the relative dominance of the Aesthetic and Political values in the TAT stories, as inferred from the listings of the valued objects by the  $Ss$ . The differences were more marked for these particular values, as peripheral values than as central values.

Even though the differences in the estimates of the relative dominance of the other Spranger values, either as central or peripheral values, on the part of the two judges were not significant, the two judges consistently agreed better in their inferences of a Spranger value, as a central value than as a peripheral value. This result was evidenced by the magnitudes of the  $n$ 's in Table 9. They indicated the number of  $S$ s for whom the summated "value estimates" of a Spranger value varied for the two judges. Thus, it was relatively less difficult to designate a central value, than to specify peripheral values, as inferable from valued objects in the TAT stories.

## 2. Secondary Analyses

To determine the relative differences in the degree of dominance of the Spranger values, as inferred from valued objects,  $\bar{X}$ 's and  $Mdn$ 's of the "value estimates" of the said values, as central and peripheral values independently, were calculated for the two judges separately. The  $\bar{X}$  and  $Mdn$  of the combined "value estimates" were also computed.<sup>12</sup> The results were presented in Table 35.<sup>13</sup>

It was, thus, observed that the Economic, Social, and Political values

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<sup>12</sup>These computations were based upon a distribution of "value estimates" of a Spranger value, summated as a central and peripheral value for each  $S$ . This distribution, therefore, constituted a third arrangement of the "value estimates" of the Spranger values.

<sup>13</sup>It should be noted that the  $\bar{X}$ 's of the "value estimates" of the Spranger values in column 7 were equal to the sum of the  $X$ 's of the "value estimates" of the Spranger values in columns 3 and 5. This result supported Rimoldi's theorem concerning the "affective value of combined stimuli" (228).

were inferred from valued objects by Judges D and E as being relatively more dominant than the Theoretical, Aesthetic, and Religious values. Valued objects were interpreted by the said judges as being more characteristic of the first set of named values generally more frequently than of the second set of designated values.

The results, reported in Table 35, also posed the problem: how did the "value estimates" of the Spranger values according to Judges D and E compare with the "value estimates" of the same values according to Judges A, B, and C? Toward that end the Mdn's<sup>14</sup> of the "value estimates" of the Spranger values in the TAT stories according to Judges A, B, and C separately, given in Table 36, were determined. These measures and the combined Mdn's of the "value estimates" of the Spranger values according to Judges D and E in column 8 of Table 35 were collated as a basis for a matrix of ranks.

The judges--namely, A, B, C, D, and E--were arranged in five rows and the Spranger values in six columns. The Mdn's of the "value estimates" of the Spranger values in each row were ranked from 1 to 6. The  $\chi^2 = 17.54$  ( $p < .01$ ,  $df = 5$ ). Thus, the five judges, as individuals, tended to estimate the relative dominance of the Spranger values in a similar manner. The Economic, Social, and Political values were generally inferred to be more dominant than the Theoretical, Aesthetic, and Religious values. Higher ranks were generally assigned to the Mdn's of the "value estimates" of the first listed values than

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<sup>14</sup>Only the Mdn's of the "value estimates" of the Spranger values in the TAT stories were computed in this instance, because those estimates were basically ordinal units of measurement rather than interval units.



to latter named ones.

### C. The Value Description of the Principal Character

#### 1. Primary Analysis

In this phase of the study three sets of three adjectives, precoded for the Spranger values in each set, were assembled. The adjectives in each set were paired with one another. The Ss checked one adjective in each pair, which would best describe the behavior of the principal character in two series of three TAT stories. The same adjectives were used in both series. In the first series--called Series A--a S selected three stories with the principal character of which he could identify himself most easily; and in the second series--referred to as Series B--a S chose three different stories with the principal character of which he could identify himself only with difficulty, if at all.

The frequency with which the Ss checked an adjective was tabulated in each TAT story. For example, one S checked the adjective, intellectual, in the three stories in Series A with the following frequencies: 4, 4, and 2. Similar tabulations were executed for the remaining 17 adjectives for him and similarly for all Ss.

The frequencies with which an adjective was checked in a series of three TAT stories were, then, summated. In the example, given above, the frequency with which that S checked "intellectual" in the three stories in Series A would be 10. In this manner the total frequency with which an adjective, keyed for a Spranger value, was selected as being descriptive of the principal character in the TAT stories was had for each series of such stories, as independent units.

Because the instructions to the Ss for the selection of TAT stories in Series A contrasted those for the selection of TAT stories in Series B, it was expected that the summated frequency with which an adjective was checked would differ significantly in the two series of TAT stories. To assess this hypothesis, Wilcoxon's Matched-Pairs Signed-Ranks Test was used. In Table 10, n, T, and z were reported for each adjective.

In addition, the total frequencies of the three adjectives for a Spranger value were also summated for the two series of TAT stories separately. In the example, cited above, one S checked the adjective, intellectual, in 10 pairs of adjectives in three TAT stories in Series A. The same S checked the adjectives, objective and analytical, also precoded for the Theoretical value, in 13 and 12 pairs of adjectives respectively in the same TAT stories. The summated frequency of the three adjectives for the Theoretical value in the three TAT stories in Series A, therefore, was 35. Similar summations were executed for the other five sets of adjectives for all Ss.

It was anticipated that the summations of the total frequencies of the three adjectives for a Spranger value would also be dissimilar in the two series of TAT stories. The same statistical test was used, to determine whether these summations would also differ significantly for the two series of stories. In Table 10, n, T, and z for these summations were also given in the row, labelled "Sum" for each Spranger value.

The majority of the Ss did differentially check the adjectives, precoded for the Spranger values, in the two series of TAT stories, as indicated by the n's in Table 10. But, the differential choices were consistently significant only for the set of adjectives for the Religious value. In terms of the

Table 10

n, T, and z for the Differential Choices of Adjectives,  
Precoded for the Spranger Values, between  
Two Series of TAT Stories

Value	Adjective	<u>n</u>	<u>T</u>	<u>z</u>	P
T	intellectual	47	383.5	-1.91	NS
	objective	47	473.0	-0.96	NS
	analytical	41	246.5	-2.38	.02
	Sum	47	437.5	-1.34	NS
E	conventional	46	189.0	-3.84	.001
	practical	45	363.5	-1.74	NS
	commercial	49	168.0	-4.42	.001
	Sum	47	203.5	-3.81	.001
A	creative	45	337.5	-2.03	.05
	artistic	45	503.0	-0.63	NS
	charming	46	201.0	-3.71	.001
	Sum	47	509.5	-0.58	NS
S	friendly	42	444.0	-0.93	NS
	altruistic	47	175.5	-4.11	.001
	sympathetic	44	266.0	-2.67	.01
	Sum	50	291.5	-3.34	.001
P	authoritarian	48	175.5	-4.23	.001
	influential	46	450.0	-0.99	NS
	competitive	48	156.5	-4.42	.001
	Sum	49	206.5	-4.04	.001
R	spiritual	46	178.0	-3.96	.001
	ascetical	48	386.0	-2.07	.05
	meditative	44	297.5	-2.30	.05
	Sum	49	407.0	-2.04	.05

adjectives, keyed for that value, the behavior of the principal character in each of the three TAT stories in Series A was described differently from the behavior of the principal character in each of the three TAT stories in Series B. On the other hand, the adjectives, precoded for the Theoretical value, generally, did not differentiate the behavior of the principal character in each of the three stories in the two series.

In the sets of adjectives, precoded for the Economic, Aesthetic, Social, and Political values, one adjective in each set lacked discriminatory precision. Thus, such adjectives, like practical, artistic, friendly, and influential, were checked by the Se with similar frequencies in the two series of TAT stories. In the sets of adjectives for the four above named values, however, the summated frequencies of the adjectives in the sets for the Economic, Social, and Political values were decidedly different for Series A and Series B, as indicated by the "Sum" for each of those values in Table 10. This result would tend to support the conclusion that behaviors, characteristic of the Economic, Social, and Political values, were relatively more easily perceived as such, than those characteristics of the Theoretical, Aesthetic, and Religious values.

## 2. Secondary Analyses

In tabulating the frequencies with which an adjective, precoded for a Spranger value, was checked by a S in the 45 pairs of adjectives, assembled for a TAT story, it became apparent that the Se were inclined to favor particular adjectives in a set of adjectives for a Spranger value. These preferences were summarized by way of  $\bar{X}$ 's and Mdn's of frequencies of choices of each adjective in the two series of TAT stories separately. These measures were given in

Table 37. In some instances, like the sets of adjectives for the Economic and Aesthetic values in Series A and the sets of adjectives for the Social and Political values in Series B, the  $\bar{X}$ 's and  $Mdn$ 's of the frequencies, with which those adjectives were checked in the respective series, would indicate marked differences in the choices of fitting adjectives by the Ss, to describe the behavior of the principal character in a TAT story.

To test whether such differences in the checking of precoded adjectives, as described above, were real rather than spurious, the frequencies of a precoded adjective were summated over the three TAT stories in Series A and Series B separately. The summated frequencies were subsequently ranked and analyzed by means of  $\chi^2$ . Thus, in the example of the summated frequencies of the three adjectives, denotative of the Theoretical value, given above,<sup>15</sup> intellectual, objective, and analytical, were ranked 1, 3, and 2 respectively.

The Ss were arranged in 50 rows and the adjectives in a set, keyed for a Spranger value, in three columns. The summated frequencies of each adjective in a set were ranked in each row from 1 to 3. Matrices of ranks were constructed for the sets of adjectives in Series A and Series B separately. The  $\chi^2$ 's ( $df = 2$ ) for the sets of adjectives in the two series of TAT stories were reported in Table 38.

According to the results in that table the Ss were prone to check certain adjectives in a set of adjectives, purported to be indicative of a Spranger value, generally more frequently in Series B than in Series A. In Series A

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<sup>15</sup>Intellectual: 10; objective: 13; and analytical: 12.

the adjectives, precoded for the Social and Religious values, however, the ranks, assigned to the summated frequencies of the adjectives in the sets for those values, for all practical purposes, were randomly distributed among the 50 Ss. All Ss were not inclined to check the same adjectives, precoded for the Social and Religious values, generally consistently in the 45 pairs of adjectives.

The Xr<sup>2</sup>'s in Series A, moreover, generally sharply contrasted those in Series B. Whereas the Ss tended to discriminate among the adjectives, precoded for the Economic and Aesthetic values, more markedly in Series A than in Series B, they did so for the adjectives, keyed for the Social, Political, and Religious values, more in Series B than in Series A. That the adjectives were not uniform, as a rule, in their usefulness for the description of the principal character in a TAT story was, thus, substantiated as a tenable hypothesis.

Even though the adjectives were not equally used by the Ss in the aforesaid descriptions, they, nevertheless, did serve as indices of the relative dominance of the Spranger values. The  $\bar{X}$ 's and Mdn's, given in Table 37, supported this contention. The total frequencies with which the three adjectives, indicative of a Spranger value were checked, could, then, be regarded as the "value estimates" of a Spranger value by means of this procedure.

Consequently, the question arose: how did the "value estimates" of the Spranger values, empirically defined in terms of adjectival descriptions, correspond to the "value estimates" of the same values according to the two panels of judges? To answer this question, it was first necessary to reduce

the "value estimates" of the said values according to Judges A, B, and C and Judges D and E into summary expressions, which would be comparable to the "value estimates" in terms of the checked adjectives. Since the latter estimates were based only on three TAT stories in either Series A or Series B, the "summary expression" also, then, needed to be determined in a like manner.

Therefore, the "value estimates" of the Spranger values according to Judges A, B, and C, as a panel, were collated for the three stories in Series A for each S. For example, one S selected the TAT stories, elicited by plates 1, 4, and 6BM for Series A. The "value estimates" of a Spranger value according to Judges A, B, and C in only these stories for this S were tabulated. A second S included the stories, elicited by plates 1, 6BM, and 7BM, in the same series. The "value estimates" of a Spranger value according to Judges A, B, and C in only these stories for the second S were also tabulated. The "value estimates" of a Spranger value according to the said judges were similarly tabulated for the three stories, included in Series A by the remaining 48 Ss. Thus, a distribution of 450 "value estimates" of a Spranger value according to Judges A, B, and C was obtained for the three stories, included in Series A by the 50 Ss. The Mdn of this distribution was, then, calculated as the "summary expression" of the "value estimates" of a Spranger value according to Judges A, B, and C. Such a measure would be comparable to the "value estimates" of the same value, based on checked adjectives.

The same procedure was followed for the determination of the Mdn of the "value estimates" of a Spranger value according to Judges A, B, and C, as a panel, in Series B of three TAT stories for all Ss. Similar distributions for the calculations of the Mdn's of the "value estimates" of the Spranger values

according to Judges D and E, as a panel, in the two series of three TAT stories, as independent units, were also prepared. The Mdn's obtained in this fashion were reported in Tables 39 and 40.

The "value estimates" of the Spranger values in terms of the checked adjectives for all Ss were organized into frequency distributions—one for each value—in Series A and Series B of TAT stories separately. The Mdn of each distribution was also calculated, so that a common measure of central tendency could be used in determining whether the configurations of the "value estimates" were similar in the three sets of observations.<sup>16</sup> These indices were also included in Tables 39 and 40.

To answer the question, posed above, therefore, the three bases of the estimation of the Spranger values were arranged in three rows and the Spranger values in six columns. The Mdn's of the distributions, described above, were ranked in each row from 1 to 6. Separate matrices of ranks were prepared for Series A and Series B.

The  $\chi_r^2 = 8.45$  ( $df = 5$ ) for the serial ordering of the Mdn's of the "value estimates" of the Spranger values in Series A of three TAT stories. It was not significant, when  $p < .05$ . But, the  $\chi_r^2 = 11.36$  ( $p < .05$ ,  $df = 5$ ) for the ranking of the Mdn's of the "value estimates" in Series B of three stories. Thus, the three sets of "value estimates" of the Spranger values tended to vary systematically only in those TAT stories, with the principal character of which

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<sup>16</sup>As it had been noted earlier, the "value estimates" according to Judges A, B, and C were basically ordinal in nature. When measurement is ordinal, the Mdn is appropriate as a measure of central tendency.



the Ss alleged that they could identify themselves with difficulty, if at all.

It was further observed that the serial orderings of the Mdn's of the "value estimates" of the Spranger values were highly similar for the two panels of judges in both series of TAT stories. Judges A, B, and C concurred with Judges D and E in their estimates of the relative dominance of a Spranger value in the selected stories. This result was consistent with the observations, which were reported earlier relative to the degree of dominance of a Spranger value in the 10 TAT stories: the Economic, Social, and Political values were allocated to higher positions in a hierarchy of basic values than the Theoretical, Aesthetic, and Religious values.

But, the orderings of the Mdn's of the "value estimates," based on the checked adjectives, did differ in comparison from those, derived from the inferences of either panel of judges. In both series of TAT stories the rank, assigned to the Mdn of the "value estimates" of the Theoretical value, differed most conspicuously; but least for the ranks, assigned to the Mdn's of the "value estimates" of the Aesthetic and Religious values. The rank, assigned to the Mdn of the "value estimates" of the Social value, however, differed only in Series B, whereas the rank, assigned to the Mdn of the "value estimates" of the Political value, only in Series A. These differences were presented in figures 1 and 2 in Appendix F. In general, the interpretations of the Ss regarding the value-system of a principal character in the selected stories were not aligned with the interpretations of the two panels of judges.

#### D. The Experimental Form of the AVL

##### 1. Primary Analysis

The items in Part I of the booklet form of the AVL (B-AVL) were rewritten

as two statements and those in Part II as four statements. The Ss sorted the statements into seven intervals along a continuum according to the degree with which they agreed or disagreed with each statement. The sortings were analyzed by the Method of Successive Intervals (MSI), as described by Rimoldi and Hormaeche (229).

The sequence of operations was as follows: (a) the tabulation of the frequency with which the Ss distributed a statement to an interval; (b) the reduction of that frequency into a proportion, given in row "A" for a statement in Table 41; (c) the determination of the cumulative proportions of a statement; (d) the transformation of that cumulative proportion into a normal deviate, given in the upper row for a statement in Table 42; (e) the estimation of the normal deviate of those cumulative proportions below .010 and above .990 (229, p. 318), which were entered as parenthetical quantities in Table 42; (f) the initial estimation of the modal discriminial process of the boundary between successive intervals (229, p. 310) and interval sizes, reported in Table 43 without regard for the value designation of a statement; (g) the initial estimation of the modal discriminial process of a statement (229, p. 310), presented in Table 44; (h) the computation of the standard deviation (229, p. 309), and its reciprocal, and the modal discriminial dispersion (229, p. 310) of a statement, reported in Table 45; (i) the improved estimation of the modal discriminial process of the boundary between successive intervals (229, p. 309), also given in Table 43; (j) the improved estimation of the modal discriminial process of a statement (229, p. 309), presented also in Table 44; (k) the determination of the normal deviate from the modal discriminial process and modal dispersion, the results of which were reported in the lower row for

a statement in Table 42; (1) the determination of the cumulative proportion corresponding to the derived normal deviate for a statement in an interval; (n) the reduction of the cumulative proportion into a theoretical proportion of a statement in an interval, given in row "T" for a statement in Table 41; and (n) the calculation of the absolute discrepancies between the actual and theoretical proportions of a statement in an interval, presented in Table 46. Tables 41 to 46 were included in Appendix F, because the computational results represented intermediary stages in arriving at "value estimates" of the Spranger values according to the Ss.

It should be noted that the results of the analysis by the MSI were internally consistent. This consistency was evidenced not only by the  $\bar{X}$ 's of the observed discrepancies between the actual and theoretical proportions in Table 46 but also by the modal discriminial process of the boundary between successive intervals in Table 43, the summations of the initial and improved estimates of the modal discriminial processes of the statements in Table 44,<sup>17</sup> and the summation of the modal dispersions of the statements in Table 45.<sup>18</sup>

The modal discriminial process of the boundary between successive intervals was used to determine the "value estimate" of a Spranger value for a S in this part of the study. In Table 43 it was noted that the modal discriminial process

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<sup>17</sup>Theoretically, the summation equals zero.

<sup>18</sup>Theoretically, the summation equals the number of statements. In this instance, that number was 118.

of the boundary between successive intervals was negative in sign for intervals 1, 2, 3, and 4. These intervals were operationally defined as very strong, strong, mild disagreement, and neutral respectively. Statements, sorted into these intervals, therefore, deviated negatively from that point along the "agreement-disagreement" continuum, below which 50% of the Ss placed the statement. If a statement, thus, was sorted into any one of these intervals, it was "scored" as a negative unit in the estimation of the relative dominance of a Spranger value for a S: it was "scored" as -1.

The modal discriminial process of the boundary between successive intervals was positive in sign for intervals 5, 6, and, by extension, interval 7. The top of interval 7 is "plus infinity." These intervals were operationally defined as mild, strong, and very strong agreement respectively. Statements, cast into these intervals, were, therefore, "scored" as positive units in the estimation of the relative dominance of a Spranger value for a S: it was scored as +1.

The algebraic sum of the positively and negatively "scored" statements, keyed for a Spranger value, was operationally defined as the "value estimate" of that value for a S. That is, the positively and negatively "scored" units were pooled into a single measure. An example of this procedure in the determination of the "value estimate" of the Economic value for one S was provided in Table 11.

Table 11

An Example of the "Scoring" of Statements for the Economic Value in the Method of Successive Intervals of one S

Interval	Statement	Deviation	Sum
7	52 and 56	+	2
6	90, 94, and 98	+	3
5	3, 65, 66, 72, 91, and 99	+	6
4	60 and 62	-	-2
3	34, 37, 48, and 77	-	-4
2	85 and 105	-	-2
1	41	-	-1
			—
			2

## 2. Secondary Analyses

To ascertain whether the "value estimates" of the Spranger values, based on the MSI, conformed to the inferences of these values by the two panels of judges and to the patterning, established by the checked adjectives, the I's and Mdn's of the above defined "value estimates" of the Spranger values according to the MSI were computed. These measures were reported in Table 47.

Differences among the relative magnitudes of the Mdn's of the "value estimates" of the Spranger values in Tables 35, 36, 39, 40, and 47, were immediately apparent. To quantify the extent of these differences in Tables 35, 36, and 47, two matrices of ranks were constructed.

In the first matrix Judges A, B, and C and the MSI were arranged in four rows and the Spranger values in six columns. The Mdn's of the "value estimates" of the Spranger values in Tables 36 and 47 were ranked in each row from 1 to 6. The  $\chi_r^2 = 21.83$  ( $p < .001$ ,  $df = 5$ ).

In the second matrix Judges D and E and the MSI were arranged in three rows and the Spranger values in six columns. The Mdn's of the "value estimates" of the Spranger values in Tables 35,<sup>19</sup> and 47 were ranked in each row from 1 to 6. The  $\chi_r^2 = 7.73$  ( $df = 5$ ). It was not significant, when  $p < .05$ .

In general, the serial orderings of the Mdn's of the "value estimates" of the Spranger values in the TAT stories, as independent contextual units, according to Judges A, B, and C, as individuals, corresponded more closely to the Mdn's of the Ss' estimates of the same values than did those according to Judges D and E, as individuals. In both instances, however, the relative magnitude of the Mdn of the "value estimates" of the Religious value in Table 47 differed markedly from the Mdn's of the estimates of the same values in Tables 35 and 36. That the Ss and the two panels of judges did not concur in estimating the relative dominance of the Economic value was also evident from the ranks, assigned to the Mdn's of the "value estimates" of that value in the two matrices.

In Tables 35, 36, and 47, however, the relative magnitudes of the Mdn's of the "value estimates" of the Social and Political values were similar. Both

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<sup>19</sup>The "combined" Mdn's in column 8 were used.

the two panels of judges and the Ss, moreover, estimated the Theoretical and Aesthetic values, as being among the less dominant of the Spranger values in a hierarchy of basic values.

Upon inspection of the relative magnitudes of the Mdn's of the "value estimates" of the Spranger values, based on the checked adjectives in Series A and Series B of three TAT stories in Tables 39 and 40, it was noted that the serial orderings of those Mdn's diverged from a serial ordering of the Mdn's of the "value estimates" of the said values in the MSI in Table 47. As it would be expected because of the differences in instructions for the checking of the adjectives in Series A and Series B of stories, the divergence was greater between Series B and the MSI than between Series A and the MSI.

To test whether the observed differences in the estimation of the relative dominance of the Spranger values by means of the two procedures were due to random fluctuations, the Binomial Test was used (250, pp. 36-42, 66-67). The small number of observations (the Mdn's of the "value estimates" of the Spranger values in Series A of three TAT stories and the MSI and, similarly, those in Series B and the MSI), being six in each group, necessitated the application of this method of analysis.

Accordingly, the Mdn of the Mdn's of the "value estimates" of the Spranger values in the MSI in Table 47 was calculated to be 4.7. The Mdn's of the "value estimates" of the Spranger values in the MSI were dichotomized by that point. Thus, the Mdn's of the said estimates of the Theoretical, Economic, and Aesthetic values were "scored" as "negative deviations," and those of the Social, Political, and Religious values, as "positive deviations."

In a similar manner the Mdn of the Mdn's of the "value estimates" of the

Spranger values in Series A of three TAT stories in Table 39 was calculated to be 23.8. The Mdn's of the said estimates were also dichotomized and "scored" as "positive" and "negative deviations," as above.

Theoretically, it could be postulated that the "signed deviations" for the Mdn's of the "value estimates" of the Spranger values would not differ in the two sets of observations. But, the "signed deviations" for the said Mdn's for the Theoretical and Aesthetic values did differ: the Mdn's of the "value estimates" of these values were above 23.8 in Series A of three TAT stories but below 4.7 in the MSI. In estimating the probability of the occurrence of two differences from a hypothesized "zero occurrence of differences" in terms of the Binomial Test (250, p. 37), it was found that  $p = .495$ . This result would indicate that the operation of chance factors produced the observed discrepancy between the observed and expected occurrences of differences. Basically, then, the Mdn's of the "value estimates" of the Spranger values, as indices of the relative dominance of those values in the two series of observations satisfactorily paralleled each other.

Finally, the Mdn of the Mdn's of the "value estimates" of the Spranger values in Series B of three TAT stories was determined to be 22.3. The Mdn's of the said estimates were also dichotomized and "scored" as "positive" and "negative deviations."

In this instance because of the nature of the instructions to the Ss for the selection of the TAT stories to be included in Series B, theoretically, the "signed deviations" for the Mdn's of the "value estimates" of the Spranger values would be expected to differ in the two sets of observations. The "signed deviations" for the said Mdn's of the "value estimates" of the



Aesthetic and Political values did not differ: the Mdn of the "value estimates" of the Aesthetic value was below 22.3 and 4.7 and that of the Political value above 22.3 and 4.7. In terms of the Binomial Test the  $p = .459$ . In general, then, the frequency with which the Ss checked adjectives, as indices of the relative strength of the Spranger values, did not agree with their sortings of statements, keyed for the same values. The hypothesis of differences in the two sets of observations was considered to be tenable.

### E. The Booklet Form of the AVL

#### 1. Primary Analysis

The B-AVL was administered and scored in accordance with the published instructions for this instrument, to compare the "value estimates" of the Spranger values obtained in this manner with those in the MSI. The X's and Mdn's of the said estimates in the B-AVL were reported in Table 12.

With the exception of the Social value, the relative magnitudes of the X's and Mdn's of the "value estimates" of the Spranger values in the B-AVL did not differ from those obtained in the MSI. The ranking of X's and Mdn's of the "value estimates" of the Aesthetic, Economic, Theoretical, Political, and Religious values in this order corresponded to that obtained in the MSI. But, the Social value was estimated to be considerably less dominant in the B-AVL than in the MSI.

#### 2. Secondary Analyses

The Mdn's of the "value estimates" of the Spranger values in the B-AVL were also compared with those according to Judges A, B, and C, as individuals, and Judges D and E, as individuals. Matrices of ranks were constructed, as in the analyses which were executed in connection with the MSI, described in a

preceding section. The  $\chi^2 = 20.71$  ( $p < .001$ ,  $df = 5$ ) for Judges A, B, and C and the B-AVL. The  $\chi^2 = 5.83$  ( $df = 5$ ) for Judges D and E and the B-AVL. It was not significant, when  $p < .05$ . The Mdn's of the "value estimates" in the TAT stories again were superior to those which were based on inferences from valued objects.

Comparative analyses between the "value estimates" of the Spranger values in the B-AVL and in Series A and Series B of three TAT stories were also completed. The Mdn of the Mdn's of the "value estimates" of the Spranger values in Tables 12, 39, and 40 were determined in each set of observations: 40.8 in the B-AVL, 23.8 in Series A, and 22.3 in Series B.

Table 12

X's and Mdn's of the "Value Estimates" of the Spranger  
Values in the Booklet Form of the AVL

Value	<u>X</u>	<u>Mdn</u>	Value	<u>X</u>	<u>Mdn</u>
T	42.9	42.6	S	36.3	36.2
E	38.2	39.0	P	43.0	43.0
A	34.6	32.0	R	45.0	46.2

The Mdn's of the said estimates were dichotomized around that point in their respective sets and "scored" as "positive" and "negative deviations." The Binomial Test was used to test the significance of discrepancies in the direction of the deviations.

In Series A of three TAT stories the Aesthetic and Social values were estimated to be more relatively dominant than they were in the B-AVL. The  $p = .495$ . Thus, the observed discrepancies in "signed deviations" of these values

could be attributed to random fluctuations.

In Series B of three TAT stories the "signed deviations" for the Mdn's of the "value estimates" of the Theoretical, Aesthetic, Social, and Political values did not differ from those in the B-AVL. Theoretically, the frequency of such differences, however, should have exceeded the frequency of "no differences." This result was not consistent with that reported for the MSI under the same conditions. In effect, the B-AVL yielded "valued estimates" of the Spranger values, which were similar with those in Series A or Series B of three TAT stories. Even though the Economic and Religious values were estimated to be more dominant and less dominant respectively in Series B than in the B-AVL, the  $p = .495$ . No significance, therefore, was attached to the discrepancies in "signed deviations" of these values. For all practical purposes, the relative dominance of the Spranger values in Series B was not unlike that in the B-AVL.

Finally the  $\bar{X}$ 's of the "value estimates" of the Spranger values in the B-AVL were compared with the  $\bar{X}$ 's, which were published for 851 males (2, p. 9). Those measures were as follows: Theoretical value: 43.3; Economic value: 42.1; Aesthetic value: 37.2; Social value: 37.7; Political value: 42.7; and Religious value: 37.0.

The Se in this study endorsed items, keyed for the Religious, Political, and Theoretical values, with a higher degree of preference than those items, keyed for the Economic, Social, and Aesthetic values. The Theoretical, Political, and Economic values, however, were more dominant in the patterning of the Spranger values for the 851 male Se than the Religious, Aesthetic, and Social values.

The Religious value differentiated the two groups of Ss most markedly. This value was the most dominant value of the Spranger values for the Ss in this study. In sharp contrast, it was the least dominant value in the standardization group. In the latter sample of Ss the Theoretical value was the most dominant value of the Spranger values. The difference in  $\bar{X}$ 's, however, for the two groups of Ss was appreciably greater for the Religious value than for the Theoretical value.

The relative dominance of the Economic, Aesthetic, Social, and Political values in the two groups of Ss remained essentially unchanged. When the  $\bar{X}$ 's of only these four values were serially ordered, the ranks assigned to them were identical. That is, the Aesthetic value in both instances was less dominant than the Social value; the latter less so than the Economic value; and it less dominant than the Political value. In terms of differences between  $\bar{X}$ 's for the two groups of Ss, however, the differences were greater for the Economic and Aesthetic values than for the Social and Political values.

#### F. Intercorrelations

In the preceding sections of this report analyses of multiple measurements of the Spranger values were detailed: three measurements were derived from TAT stories and two measurements were based upon the AVL. The former were designated as indirect and the latter as direct measurements of the said values. Earlier it was hypothesized not only that the indirect measurements would be correlated among themselves but also that they would be correlated with the direct measurements. Toward those ends, therefore, Spearman rank

correlations ( $r_s$ ) were computed.<sup>20</sup> These coefficients were corrected for tied ranks (250, p. 207).

The obtained correlations were reported in Tables 13, 14, 15, and 16. The frequencies with which correlations were significant from zero (250, p. 212)<sup>21</sup> were summarized in Table 17 for each Spranger value as well as the frequency of the occurrence of negative correlations among the indirect and direct measurements of the Spranger values.

In Tables 13, 14, and 15 the various measurements were coded to facilitate an efficient organization of the specified tables. Thus, the "value estimates" of the Spranger values in the TAT story, as a contextual unit, according to Judges A, B, and C were coded as "variable 1"; the "value estimates" of the Spranger values in the TAT protocol, as a contextual unit, according to Judges A, B, and C as "variable 2"; the "value estimates" of the Spranger values according to Judges D and E as "variable 3"; and the "value estimates" of the Spranger values in Series A and Series B of three TAT stories as "variables 4 and 5" respectively. In Table 13 the "value estimates" of the Spranger values, based on the B-AVL, were designated as "variable 6."

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<sup>20</sup>Spearman's rank correlation was used, because the estimation of a Spranger value was not always expressed in interval units of measurement. At least, such a unit is required for Pearson's product-moment correlation. In all instances the "value estimates" of a Spranger value, nevertheless, could be ranked. Conditions stipulated for the computation of  $r$ , thereby, were not violated. In this manner there would be little, if any, doubt as to the precise meaning of the correlation.

<sup>21</sup>To be significant from zero  $r_s = .273$  ( $p < .05$ ,  $df = 48$ ); and  $r_s = .349$  ( $p < .01$ ,  $df = 48$ ).

A "value estimate" of a Spranger value was calculated for each S in each set of measurements of the Spranger values. In those instances, in which Judges A, B, and C and Judges D and E inferred the relative dominance of a Spranger value, Mdn's of the "estimates" were used as the "value estimate" of that value for a S. Thus, in the 10 TAT stories, as contextual units, (variable 1) Judges A, B, and C contributed 10 "estimates" apiece to a pool of 30 "estimates" of a Spranger value. The Mdn of the 30 "estimates" in the TAT story, as a contextual unit, was empirically denoted as the "value estimate" of that value for a S in this set of measurements. The Ss were, thereby, differentiated from one another according to the Mdn credited to them, as an index of the relative dominance of a Spranger value in the TAT story, as a contextual unit. In the TAT protocol, as a contextual unit, (variable 2) the "value estimate" of a Spranger value for a S was the Mdn of three "estimates" of that value—one "estimate" from Judges A, B, and C each. Similarly, the "value estimate" of a Spranger value for a S according to Judges D and E (variable 3) was the Mdn of 20 "estimates" of that value—one "estimate" from each of the two judges in each of the 10 TAT stories.

The "value estimate" of a Spranger value, as indicated by the checked adjectives in Series A and Series B of three TAT stories, (variables 4 and 5 respectively) consisted of the summations of all checked adjectives, precoded for that value, in the three stories of each series separately. The "value estimate" of a Spranger value for a S in the B-AVL (variable 6) was determined in accordance with published instructions. The "value estimate" of a Spranger value, furnished by the MSI, for a S was the algebraic sum of "positive" and "negative deviations," as already described in a preceding section.

In Table 13, therefore, all possible  $r_S$ 's between the "value estimates" of the Spranger values from the MSI and the "value estimates" from all other sources were presented. The  $r_S$ 's between the "value estimates" of the Spranger values from the B-AVL and the indirect measurements of the said values were included in Table 14. All possible  $r_S$ 's between the "value estimates" of the Spranger values according to the two panels of judges were given in Table 15.

It was immediately evident from Tables 13 and 14 that the indirect measurements of the Spranger values did not methodically covary with the direct measurements of the same values. The inferences of Judges A, B, and C and Judges D and E concerning the relative strength of the Spranger values and similarly the summations of the checked adjectives in Series A of three TAT stories were incongruent with the indices, purported to be corroborative of those values. The prediction of the relative dominance of the Spranger values from the behavior of the principal character in stories, elicited by selected TAT plates, did not correspond to a S's decisions concerning the appropriateness of the statements in the AVL, as being descriptive of his value-system.

The  $r_S$ 's between the "value estimates" of the Spranger values from the MSI and those from variables 1 through 5 in Table 13 ranged from  $-.261$  between the MSI and Judges D and E for the Aesthetic value to  $.320$  between the MSI and Series A of three TAT stories for the Political value with a Min  $r_S$  of  $.060$ . The  $r_S$ 's, however, between the "value estimates" of the Spranger values from the B-AVL and those from variables 1 through 5 in Table 14 ranged from  $-.325$  between the B-AVL and Series B of three TAT stories for the Social value to  $.357$  between the B-AVL and Judges D and E for the Religious value with a Min  $r_S$  of  $.082$ .

Table 13

r<sub>s</sub>'s between the Method of Successive Intervals  
and the Indirect Measurements of the  
Spranger Values and the B-AVL

(Decimal point omitted)

Variable	Value					
	T	E	A	S	P	R
1	077	105	100	172	-205	005
2	002	202	072	195	-066	252
3	133	-080	-261	-043	059	278*
4	025	250	114	060	320*	038
5	109	-129	059	-178	-008	-127
6	537**	532**	564**	1144	370**	506**

\* $p < .05$ ,  $df = 48$ .

\*\* $p < .01$ ,  $df = 48$ .



Table 14

$r_S$ 's between the B-AVL and the Indirect  
Measurements of the Spranger Values

(Decimal point omitted)

Variable	Value					
	T	K	A	S	P	R
1	186	086	-018	279	-084	113
2	194	098	035	174	-099	178
3	134	012	-048	107	183	357**
4	-168	412**	097	353**	261	222
5	044	-205	084	-325*	-022	-270

\* $p < .05$ ,  $df = 48$

\*\* $p < .01$ ,  $df = 48$ .

Even though the  $r_S$ 's, reported in Tables 13 and 14, would argue, in general, for little or no relationship between the "value estimates" of the Spranger values from either the MSI or the B-AVL and those from variables 1 through 5, the direction of the relationships tended to be consistent. Thus, nine negative  $r_S$ 's were indicated in Tables 13 and 14. Of this number seven, or 77.7%, negative  $r_S$ 's were observed for the same variables in the two tables. In this respect, also, the  $r_S$ 's between the indirect and direct measurements of the Spranger values resembled one another.

It appeared, however, that the  $r_S$ 's in Table 14 were numerically somewhat

higher than those in Table 13, even though interpretatively they would be of comparable significance. This observation was tenuously verified for the  $r_S$ 's in the said tables for the Theoretical, Social, and Religious values by determining the Mdn's of the  $r_S$ 's for each value.<sup>22</sup> In Table 13 the Mdn's were as follows: Theoretical value: .077; Economic value: .105; Aesthetic value: .072; Social value: .060; Political value: -.008; and Religious value: .038. In Table 14 the Mdn's were: Theoretical value: .134; Economic value: .086; Aesthetic value: .035; Social value: .174; Political value: -.022; and Religious value: .178.

The Mdn  $r_S$  was also determined, moreover, for the rows common to Tables 13 and 14. These results also supported the observation that the  $r_S$ 's in Table 14 were numerically somewhat higher than those in Table 13. The Mdn's in Table 13 were as follows: variable 1: .088; variable 2: .133; variable 3: -.161; variable 4: .087; and variable 5: -.067. In Table 14 the Mdn's were as follows: variable 1: .099; variable 2: .138; variable 3: .120; variable 4: .241; and variable 5: -.113.

Furthermore, in Table 13 only two  $r_S$ 's were significant from zero ( $p < .05$ ,  $df = 48$ ); whereas in Table 14 three  $r_S$ 's were significant from zero ( $p < .01$ ,  $df = 48$ ) and one  $r_S$  was significant from zero ( $p < .05$ ,  $df = 48$ ). But, a frequency of  $r_S$ 's in Table 13, which were higher than those in Table 14, showed that 15 of the 30 pertinent  $r_S$ 's in Table 13 were numerically higher than those in Table 14.

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<sup>22</sup>The  $r_S$ 's between the "value estimates" of the Spranger values from the MSI and the B-AVL in Table 13 were not included in the reckoning of these measures. The reason was that only  $r_S$ 's between direct and indirect measurements of the Spranger values were being compared.

In view of the magnitudes of the  $r_S$ 's, reported in Table 13, one critical comment seemed to have been in order. The magnitudes of the said  $r_S$ 's were, in part, a function of the method of "scoring" the statements in the MSI. That is, by pooling the "positively" and "negatively" scored statements into a single measure variability among the  $S_s$  was reduced. This shrinkage, in turn, undoubtedly affected the magnitudes of the  $r_S$ 's in Table 13. If another method of "scoring" the statements in the MSI had been adopted, the  $r_S$ 's in Table 13 probably would have been numerically higher.

It was further observed that there was no systematic tendency for the  $r_S$ 's between the "value estimates" of the Spranger values from the indirect and direct measurements of the said values in Tables 13 and 14 to be consistently numerically higher for certain Spranger values than for others. To test this observation, matrices of ranks of the relevant  $r_S$ 's in Tables 13 and 14 were constructed separately. The  $r_S$ 's in each "variable" row were ranked from 1 to 6. The  $\chi_r^2 = .35$  ( $df = 5$ ) in Table 13 and the  $\chi_r^2 = 2.63$  ( $df = 5$ ) in Table 14. Neither  $\chi_r^2$  was significant, when  $p < .05$ .

The negative  $r_S$ 's between the "value estimates" of the Economic, Social, Political, and Religious values from Series B of three TAT stories and the MSI and B-AVL merited a brief comment at this time. These measures were in the hypothesized direction, even though numerically and interpretatively they would be, in general, of little, if no, predictive significance. The value-system of the principal character in these TAT stories should have been opposed to the value-system of the  $S_s$ , as indicated by their judgments of the relevance of the statements in the AVL, as being delineative of their own personal predispositions.

Finally, with the exception of the Social value, the  $r_S$ 's between the "value estimates" of the Spranger values from the MSI and those from the B-AVL in Table 13 were significant from zero ( $p < .01$ ,  $df = 48$ ). Nevertheless, the degree of the relationship between these measurements, at best, was only moderately substantial.

The  $r_S$ 's, given in Table 15, were somewhat distinctive from those, heretofore, discussed. They were generally numerically higher than those in Tables 13 and 14. They ranged from .077 to .621 for the "value estimates" of

Table 15

$r_S$ 's between the "Value Estimates" of the Spranger Values according to Judges A, B, and C and Judges D and E

(Decimal point omitted)

Judge	Variable	Value					
		T	E	A	S	P	R
A-B-C	2	077	621**	590**	496**	597**	423**
	3	283*	132	203	297*	341*	303*
D-E	3	253	133	198	261	129	293*

\* $p$  .05,  $df = 48$ .

\*\* $p$  .01,  $df = 48$ .

the Theoretical and Economic values respectively between the TAT story and the TAT protocol, as independent contextual units, according to Judges A, B, and C with a Mean  $r_S$  of .288. More meaningful, however, was the fact that a proportionately higher number of  $r_S$ 's was significant from zero than found in

Tables 13 and 14--five  $r_S$ 's were significant from zero ( $p < .01$ ,  $df = 48$ ) and five more were significant from zero ( $p < .05$ ,  $df = 48$ ).

The relatively best agreements were obtained for the "value estimates" of the Spranger values in the TAT story, as a contextual unit, and the TAT protocol, as a contextual unit, according to Judges A, B, and C. With the exception of the Theoretical value, all  $r_S$ 's for the other Spranger values between these variables were significant from zero ( $p < .01$ ,  $df = 48$ ). The Mdn of this series of  $r_S$ 's was determined to be .543.

Agreements were relatively less for the "value estimates" of the Spranger values according to Judges A, B, and C and Judges D and E. This condition was more conspicuous, however, in the instance of the TAT protocol, as a contextual unit. The Mdn  $r_S$  was only .225 in the series of  $r_S$ 's between the "value estimates" of the Spranger values according to Judges D and E and those from the TAT protocol, as a contextual unit, according to Judges A, B, and C. But, the Mdn  $r_S$  was .290 in the series of  $r_S$ 's between the "value estimates" of the Spranger values according to Judges D and E and those from the TAT story, as a contextual unit, according to Judges A, B, and C. In the latter series of  $r_S$ 's for the Theoretical, Social, Political, and Religious values the  $r_S$ 's were significant from zero ( $p < .05$ ,  $df = 48$ ). In the other series of  $r_S$ 's between the "value estimates" of the Spranger values according to Judges A, B, and C and Judges D and E only the  $r_S$  for the Religious value was significant from zero ( $p < .05$ ,  $df = 48$ ). In this respect, only the  $r_S$  for the Religious value was consistently significant from zero in the three series of  $r_S$ 's, reported in Table 15.

No systematic tendency was noted among the  $r_S$ 's in Table 15 to be superior

for certain Spranger values than others. To test this observation, the  $r_s$ 's in each row in Table 15 were ranked from 1 to 6. The  $\chi^2 = 2.40$  ( $df = 5$ ), which was not significant for  $p < .05$ . Nevertheless, the  $r_s$ 's for the Social, Political, and Religious values tended to be generally higher than those for the Theoretical, Economic, and Aesthetic values.

Like in Table 15, the  $r_s$ 's in Table 16 were generally numerically higher than the  $r_s$ 's, given in Tables 13 and 14. They ranged from  $-.494$  to  $.449$  for

Table 16

$r_s$ 's between Series A and B of TAT Stories and the "Value Estimates" of the Spranger Values according to Judges A, B, and C and Judges D and E

(Decimal point omitted)

Series	Judge	Value					
		T	E	A	S	P	R
A	A-B-C	-032	101	224	072	261	275*
	D-E	355**	246	213	040	431**	314*
B	A-B-C	125	064	-224	188	120	-058
	D-E	093	226	-494**	449**	406**	-170

\* $p < .05$ ,  $df = 48$ .

\*\* $p < .01$ ,  $df = 48$ .

the "value estimates"<sup>23</sup> of the Aesthetic and Social values respectively between Series B of three TAT stories and the "estimates" of the said values according to Judges D and E. Five of the  $r_s$ 's in Table 16 were significant from zero ( $p < .01$ ,  $df = 48$ ) and two were significant from zero ( $p < .05$ ,  $df = 48$ ). Of the seven  $r_s$ 's, significant from zero, six were obtained between the "value estimates" of the Spranger values according to Judges D and E and the checked adjectives in either Series A or Series B of three TAT stories; and only one  $r_s$  was significant between the "value estimates" of the Religious value according to Judges A, B, and C and the checked adjectives in Series A of three TAT stories.

The degree of agreement was generally better between the checked adjectives in Series A of three TAT stories and the "value estimates" of the Spranger values according to Judges A, B, and C and Judges D and E than between the checked adjectives in Series B of three TAT stories and the "estimates" of the Spranger values according to either of the two panels of judges. But, the agreements between the checked adjectives and the "value estimates" of the Spranger values according to Judges D and E were generally greater than those between the checked adjectives and the "value estimates" of

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<sup>23</sup>The "value estimate" of a Spranger value for a S according to Judges A, B, and C in either Series A or Series B of three TAT stories was empirically defined as the Mdn of the nine "value estimates" of the three judges collectively in the relevant stories, which a S included in either Series A or Series B. Similarly, the "value estimate" of a Spranger value for a S according to Judges D and E was the Mdn of the six "value estimates" of the two judges, as a panel, in either of the two series of stories.

the Spranger values according to Judges A, B, and C in either Series A or Series B of three TAT stories. Such differences in the relative quantity of agreement could be indicated by the Mdn of the  $r_S$ 's in each of the four rows in Table 16. These Mdn  $r_S$ 's successively by row were as follows: .162, .280, .092, and .160.

With the exception of the  $r_S$  between the checked adjectives in Series A of three TAT stories and the "value estimates" of the Theoretical value according to Judges A, B, and C, the  $r_S$ 's in Table 16 were uniformly in the same direction between the checked adjectives and the "value estimates" of the Spranger values according to either Judges A, B, and C or Judges D and E. In this regard negative  $r_S$ 's were consistently observed between the checked adjectives in Series B of three TAT stories and the "value estimates" of the Aesthetic and Religious values according to Judges A, B, and C and Judges D and E.

As it was noted earlier, the frequency of  $r_S$ 's, significant from zero, as well as the frequency of negative  $r_S$ 's in Tables 13, 14, 15, and 16, were summarized in Table 17. It was evident, therefrom, that  $r_S$ 's, significant from

Table 17

Frequency of  $r_S$ 's, Significant from Zero,  
and Negative  $r_S$ 's

Index	Value						Sum
	<u>-</u>	<u>E</u>	<u>A</u>	<u>S</u>	<u>P</u>	<u>R</u>	
$p < .05$	1	0	0	2	2	4	9
$p < .01$	2	3	3	3	4	4	16
Neg. $r_S$	2	3	5	3	6	4	23



zero, were obtained more frequently between the measurements of relative strength of the Social, Political, and Religious values than the Theoretical, Economic, and Aesthetic values. Nevertheless, the total incidence of such  $r_s$ 's was only 25 out of 103, or 24.4%.

Negative  $r_s$ 's were obtained more frequently between the measurements of the relative strength of the Religious, Aesthetic, and Political values than of the Theoretical, Economic, and Social values. Except for the hypothesized negative  $r_s$ 's between variable 5 and the MSI and the B-AVL in Tables 13 and 14, the incidence of negative  $r_s$ 's would indicate a tendency for divergence in the measurements of the relative strength of a Spranger value. This tendency, nevertheless, was not sufficiently critical among the computed  $r_s$ 's. Only one negative  $r_s$  was significant from zero ( $p < .05$ ,  $df = 48$ ) in Table 14 between the checked adjectives of the Social value in Series B of three TAT stories (variable 5) and the B-AVL.

## CHAPTER V

### A GENERAL INTERPRETATION

The query posed in this investigation was stated as: how useful are the Spranger values in the determination of basic values? To answer the question, estimates of the said values from the behavior of the principal character in stories, elicited by 10 selected TAT plates, were obtained and subsequently compared with the measurements of those values by means of the AVL.

Underlying this problem, however, was the writer's distinction between value and valued object. This distinction, then, together with the statement of the problem generated several hypotheses, which were tested in the course of this study. These hypotheses were classifiable into two broad categories: (a) how effectively would the Spranger values be indirectly estimated in the TAT stories? and (b) how closely would the indirect estimates of the Spranger values correspond to one another?

The first category of hypotheses included relationships between each of the indirect measurements of the relative dominance of the Spranger values and the direct measurements of the same values. The latter evidently, could be construed as criterion-measurements within the context of this study. Consequently, the hypotheses in the first category were concerned with predictions of the relative dominance of a Spranger value for a S from units of information in a TAT story.

According to Tables 13 and 14, it was incontrovertible that the  $r_s$ 's

between the various indirect measurements of the relative strength of the Spranger values and either the MSI or the B-AVL were generally feeble. Judgments, however, relative to the adequacy of the  $r_g$ 's between the indirect and direct measurements would need to be conditioned by: (a) the criterion used; (b) the type of indirect measurement; and (c) a specification of a particular Spranger value. It was apparent from Tables 13 and 14 that: (a) the  $r_g$ 's in Table 14, in which the B-AVL was the criterion-variable, were somewhat numerically higher than those in Table 13, in which the MSI was the criterion-variable; and (b) the magnitudes of the  $r_g$ 's varied among the Spranger values according to the mode of the indirect measurement of their relative strength. Thus, the efficacy of the predictions could not be wholly divorced from methodological differences in either the direct or indirect measurements of the relative dominance of the Spranger values in a hierarchy of basic values.

Inasmuch as the  $r_g$ 's in Tables 13 and 14 could be described as "validity coefficients," they could be, in general, characterized as being "typical" for personality measurements. Such coefficients would generally be low, even though predictability would not, thereby, be enhanced. Nevertheless, the three qualifications--criterion used, kind of indirect measurement, and specification of a Spranger value--could not be ignored in so designating them.

More ominous with respect to these  $r_g$ 's, however, was the fact of the

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<sup>1</sup>As it was explained in the preceding chapter, the magnitudes of the  $r_g$ 's in Table 13 were probably reduced because of the method used in the determination of the "value estimates" of the Spranger values in the MSI.

paucity of  $r_S$ 's, significant from zero. Only two of a possible 30  $r_S$ 's, when the MSI was used as a criterion, were significant from zero, and only four, when the B-AVL was so used, were significantly different from zero. Moreover, only the  $r_S$  between the "value estimates" of the Religious value according to Judges D and E and the MSI coincided with the  $r_S$  between the same indirect measurement and the B-AVL, as being significant from zero but not with the same degree of probability. Were these "significant  $r_S$ 's," then, real or were they inflated by errors of measurement? This question is not without import.

In general, the hypotheses, therefore, in the first category were not verified. The indirect and direct measurements of the relative dominance of the Spranger values did not resemble one another sufficiently, to address the Spranger values, as basic values, at least in the frame of reference of the specific design of this study.

But, was the issue, thereby, satisfactorily resolved? Were there perhaps such factors operating as would have contributed to the observed attenuation? The reported  $r_S$ 's among the designated measurements did vary among the Spranger values: they as a group were low, but not equally low.

It was theorized that the statements in the AVL represented valued objects. The degree with which a S agreed or disagreed with a statement, therefore, marked his graduated acceptance or rejection of that object, as having a personal meaning for him. Such an interpretation provoked such inquiries as:

- (a) Were the objects displayed in a TAT story, from which Judges A, B, and C inferred the relative dominance of a Spranger value, sufficiently comparable to the collection of objects for that value, which had been assembled in the AVL?
- (b) Were the valued objects in the AVL and the objects, which a S identified in

a TAT story and on the basis of which Judges D and E delineated the relative dominance of a Spranger value, as being a "central" or "peripheral" value in that story, homogeneous? and (c) Would the objects in the AVL stimulate behavioral tendencies reflected by the adjectives, which were precoded for a Spranger value? To summarize: Were the writer's interpretations of the Spranger values, which guided Judges A, B, and C and Judges D and E in their estimations of the relative dominance of the Spranger values and which served as points of reference in the selection of adjectives to be checked by a S, the same as those of Allport, Vernon, and Lindzey?

In Part II of the B-AVL, for example, the stem of item #8 together with alternative "c" reads as follows: If you had sufficient leisure and money, would you prefer to aim at a senatorship, or a seat in the Cabinet? Striving toward prestige or recognition for achievement is implicit to this statement. Such an inclination is scorable as being characteristic of the Political value in the Spranger system.

The seeking of distinction or status in human relationships or in social communities, however, allows for unlimited modes of expression. The content of those modes need not be duplicated in variegated media of communication. Thus, valued objects, subsumed by the Political value in a story to a TAT plate, as a stimulus, would not necessarily be mirrored images of valued objects, which were deemed to be appropriate for that value and assembled in another place.

But, if a common element could be abstracted from valued objects, deposited in different places, like the AVL and a TAT story, a basis could be established for cataloguing them as members of a unitary category of objects. The centralizing principles for such classifications would be specific values.

It was in this sense, then, that valued objects in a story, elicited by a TAT plate, were construed to be affiliated with valued objects in the AVL.

Such a consolidation of valued objects, however, may be the crux of the observed discordance among the  $r_s$ 's between the indirect and direct measurements of the relative dominance of the Spranger values. In the process of abstraction individuating characteristics are necessarily sacrificed. In the context of this study values, by definition, were abstractions in contrast to valued objects, as concrete entities.

Was the concreteness of the AVL statements, therefore, effectively and sufficiently transcended by a S in his response to them? To what extent, if any, did the literary content of an item in the AVL affect a S's decision regarding his agreement or preference for that item? In his response was a S sensitive to the connotations of that item?

Was 8c, for example, rated or ranked low in the MSI and B-AVL respectively by a S, because he did not aspire to a senatorship or a seat in the Cabinet? Was he aware that such a goal constituted only a possible means of achieving distinction and, therefore, that his rating or ranking of this item became a measure of his wanting distinction and not necessarily of a senatorship or a seat in the Cabinet?

Even though a S was less restricted in the MSI than in the B-AVL, he was extended a much greater range of freedom by the stimulus properties of the TAT plate. Having been limited in his choices by the MSI or B-AVL, did he, then, execute decisions, which conformed to the dictates of the setting rather than to characteristically personalized promptings? Did the dual presentation of the items in the AVL fully exhaust his preferences or maximize opportunities

for self-revelment?

In the light of such reflections the affinity of valued objects, as found in a TAT story, to those in the AVL would tend to be diminished, but not necessarily to a point of abrogation. The valued objects in the different contexts of a TAT story and the AVL seemed to have been sufficiently lacking in isometric properties, so that the magnitudes of the  $r_s$ 's between the indirect and direct measurements of the relative dominance of the Spranger values did not fulfill expectations.

It would appear, then, as if the samples of valued objects from each source were drawn from different universes of valued objects, subsumed by a Spranger value--two universes, however, which overlapped to a small degree for each such value, as indicated by the reported low  $r_s$ 's. Such an interpretation, however, would be indefensible in the frame of reference of the relationship of value to valued object, as advanced earlier by this writer. It would mean that a Spranger value could be defined in more than one way. One set of valued objects would be appropriate for one definition and another set for a second definition. But, if a definition refers to the nature or the essence of a thing, can a thing logically have more than one definition? To explore further the implications of such a proposition at this time, however, would only sidetrack the discussion from the low observed  $r_s$ 's to a treatise in logic. Suffice it to say, that multiple definitions of a thing would reduce communication about and intelligible comprehension of that thing to chaos.

Thus, if valued objects are assumed to be tangible signs of a value, they would share in a set of common properties befitting that value. Such common properties, however, were not substantially evidenced in the direct and indirect

measurements.

In view of the disparity between the two kinds of measurements could it be said that the valued objects for a Spranger value in a TAT story and those in the AVL for the same value represented different aspects of the same universe of valued objects for that value? If they did, could that universe be properly described as being internally consistent? If a universe of valued objects were named after a corresponding Spranger value, could a Spranger value be internally inconsistent, as would the magnitudes of the obtained  $r_s$ 's strongly suggest? If so, what meaning would that value have in discourse concerning it?

This writer, therefore, would argue that not only can there be but one universe of valued objects, which could be associated with a Spranger value but also that that universe be unitary or internally consistent. If these conditions must be satisfied, therefore, which collection of valued objects--those in a TAT story or those in the AVL--truly constitutes a universe to which the label of a Spranger value could be attached?

This question presupposes answers to other questions. One such question would be: does the AVL measure the relative dominance of the Spranger values? Even though the AVL, as a psychometric instrument, has generated opposition toward its scoring procedures, whether it actually measures the relative dominance of the Spranger values has not been the subject of a public debate, as far as this writer knows. This study was not intended to be an arena, where this issue could be resolved.

If it were assumed that the AVL, in fact, does measure the relative dominance of the Spranger values, what meaning can be given to the agreements,



for example, among Judges A, B, and C in the rankings of the Spranger values in a TAT story, which were reported in Tables 6 and 7? May it not also be assumed that in those instances, where  $\underline{W}$  was significant, the three judges were sensitive to common elements? They obviously were not uniformly sensitive to those elements because of the observed discrepancies between the actual degree of interjudge agreement and perfect interjudge agreement ( $\underline{W} = 1.00$ ). Their discriminations of the  $\underline{S}$ s with respect to the relative dominance of the Spranger values, nevertheless, were similar.

In the absence of external criteria, other than the AVL, the exact nature of those elements, to which the three judges were sensitive, however, cannot be satisfactorily identified. To label them, as "values," and more specifically as Spranger values, would not transform them from hypothetical suppositions to actual certainties. The elements could simply be called  $V_1, V_2, V_3, V_4, V_5$ , and  $V_6$ . Even though such an approach would be realistic, it also postpones the solution of the problem--what meaning is to be ascribed to the elements to which the three judges were sensitive?

The inferences of Judges D and E presents a similar difficulty. Like Judges A, B, and C, they also perceived the relative dominance of the Spranger values with a fair degree of consistency (Table 9). In the main, however, the inferences of Judges D and E did not compare with the measurements of the relative dominance of the Spranger values from the MSI and the B-AVL. They too would indicate manifestations of "something" without specifying what that "something" is.

Such results--namely, the interjudge agreements--cannot be wholly repudiated in determining whether the Spranger values may be addressed as basic

values. To do so would be to discredit the inferences. Such action would seem to border dangerously close upon challenging the usefulness of a projective instrument for the discovery of behavioral bases.

An impasse, thus, is reached. But, can it be circumvented by a further analysis of the samples of the valued objects, supposedly contained in a TAT story and in the AVL?

As it had been repeatedly stated, the decisions of the judges can be described only as being inferential. The bases of the inferences were units of behavior, which a S chose to include in a particular context. The behaviors, as such, are neither wrong nor correct. But, inferences as to the meaning of a behavior, as inferred from a behavior, can be just as wrong as they can be correct.

The items in the AVL, basically, also are inferences about behavior. As soon as an item in the AVL is designated as being an index of a Spranger value, that item ceases to be a mere description of a unit of behavior. The items in the AVL, then, too become a collection of inferences about behavior and, thereby, are subject to being either correct or wrong. Like the decisions of the judges, they only represent samples of interpretations of behavior according to Allport, Vernon, and Lindzey.

In this sense, then, the interpretations of the judges did not correspond to those of the authors of the Study of Values. The units of information in a TAT story did not resemble the units of information relative to the Spranger values in the AVL. In this respect each set of units of information or behaviors, indicative of the Spranger values, would not be without severe limitations for the translation of the behavioral indicators in a TAT story

into behavioral indicators in the AVL for a description of the relative dominance of the Spranger values.

Within this frame of reference, therefore, the hypotheses relative to the measurements of the relative dominance of the Spranger values from the AVL and a TAT story were, in general, not confirmed. This conclusion, nevertheless, would be conditioned by the qualifications made above. That is to say, the interpretation of the relative dominance of a Spranger value in a TAT story may not have agreed with that of the AVL, as a criterion-variable. This failure, however, should not imply that the interpretations, therefore, were erroneous in an absolute sense. A greater correspondence may have been obtained, if another criterion-variable were substituted for that of the AVL. The meaning of the inferences of the judges, at best, were indeterminate within the context of this study.

Similar reservations would be appropriate for the second category of hypotheses concerned with the  $r_S$ 's among the indirect measurements of the relative dominance of the Spranger values. In general, the  $r_S$ 's were numerically higher than those between the inferences according to either of the two panels of judges and either the MSI or the B-AVL (Table 15). Thus, the inferences of Judges D and E tended to agree better with the inferences of Judges A, B, and C—but, only in the instance of the TAT story, as a contextual unit—than with the criterion-variable. The inferences of Judges D and E, moreover, tended to be better associated with the checked adjectives, precoded for the Spranger values, in either Series A or Series B of three TAT stories, than did the inferences of Judges A, B, and C (Table 16).

Nevertheless, the incidence of  $r_S$ 's, significant from zero, was more spasmodic than regular. Some improvement in predictive efficiency could be noted, but not to an appreciable degree.

The general character of the  $r_S$ 's between two indirect measurements of the relative dominance of the Spranger values, therefore, would indicate that the discriminations of the  $S$ s in terms of these measurements fluctuated more markedly than was expected. These  $r_S$ 's did not complement one another to the degree that was anticipated. Little empirical communality was exhibited to support securely the theorized relationships among values, valued objects, and behavioral traits.

Global affirmations were, thereby, curtailed. That is to say, a description of the relative dominance of the Spranger values for a  $S$  in terms of values (the inferences of Judges A, B, and C) was independent of, rather than correlative with, a description in terms of valued objects (inferences of Judges D and E) and behavioral traits (checked adjectives).

In this connection the observed variability in the magnitudes of the  $r_S$ 's between two indirect measurements of the relative dominance of a Spranger value presented a second problem in interpretation. The  $r_S$ 's between such measurements were not consistently low for one Spranger value and uniformly high for another. That is, if the  $r_S$ 's among all indirect measurements of the relative dominance of the Spranger values were serially ordered, a rank of 1, for example, would not always be assigned to the  $r_S$  between two indirect measurements of the relative dominance of the Theoretical value and a rank of 6 to the comparable  $r_S$ 's for the Social value.

Would not such results, hence, argue against a general impeachment of the

Spranger values, as a system? No one method of indirect measurement was efficient in estimating the relative dominance of all the Spranger values, when that method was compared with others. The relative success of two methods varied with a Spranger value. The psychological meaningfulness of the resemblances between the calibrations therefrom, however, would necessarily remain indeterminate in view of the negligible  $r_s$ 's between the indirect measurements of the relative dominance of the Spranger values and the AVL, as a criterion, as it was noted above.

It would seem, therefore, that each Spranger value would need to be examined as a separate unit in a hierarchy of basic values. Its inclusion therein would need to be qualified by the appropriateness of the methods used for its measurement: to be contingent upon the conditions under which it was observed.

Such methodological differences should not be construed, however, to be unique to the  $r_s$ 's among the indirect measurements of the relative dominance of the Spranger values. Even though the  $r_s$ 's between the MSI and the B-AVL (Table 13) were among the relatively better  $r_s$ 's, obtained in this study, they too were not as substantial, as it would have been predicted.

Are the Spranger values, then, useful in the determination of basic values? As it became increasingly evident in the foregoing discussion, the degree of variation among the multiple measurements of the relative dominance of the Spranger values exacts an alertness to either a panegyric or a pejorative judgment. If attention is restricted to the  $r_s$ 's between the indirect measurements of the relative dominance of the Spranger values and either the MSI or the B-AVL, the answer is clearly negative. If attention, however, is

directed to the agreements among Judges A, B, and C, as independent of those between Judges D and E, for example, without inflating their import, an indiscriminate and total repudiation of the Spranger values, as basic values, would definitely be enjoined. In this respect, some support would be had for a revision of the question to: can a Spranger value be addressed as a basic value in a hierarchy of basic values? Each Spranger value could, then, be examined in turn to determine if it so qualifies. It would seem, therefore, that because of methodological differences the Spranger values could not be eliminated from further consideration with impunity.

## CHAPTER VI

### SUMMARY

The problem formulated for this investigation was: how useful are the Spranger values in the determination of basic values?

Because axiologists differ among themselves as to the meaning of value, the writer distinguished value from valued object. Value was defined as "an orienting principle according to which action is organized toward the realization of a generalized good"; and valued object as "a tangible or directly observable event capable of functioning as a means through which value becomes manifest." These definitions were annotated and differentiated from other interpretations of value. It was further proposed that a distinction between "value" and "valued object" would facilitate the discovery of basic values, which would form a hierarchical system.

The many definitions of value, however, did not discourage diversified empirical investigations of the role of value in human behavior. These investigations, moreover, were not limited to simply a usage of Allport, Vernon, and Lindzey's Study of Values (AVL), varied as that usage may have been. Thus, methods, which had been used in the measurement of value, were classified according to three principles: (a) psychometric techniques, like check lists, forced choices, forced distributions, paired comparisons, ranking, and graphic and sociometric rating scales; (b) qualitative analyses of free responses, like group discussions, diaries, essays, incomplete sentences, and role playing; and

(c) natural observation. Number and kinds of values emerging from research with the use of these methods were summarily cited. It was suggested, nevertheless, that these investigations were concerned more with a description of "valued objects" than with "values." The need to determine empirically "basic values" still exists. The empirical definition of such values would contribute substantially to systematizing the "psychology of value."

This study, therefore, was undertaken to initiate a search for "basic values." Accordingly, five experimental tasks were administered in the same sequence on five different days to 50 white male Ss, who were recruited from the Introductory Psychology course at a midwestern university.

Three of the tasks were designed to obtain projective responses from the Ss. Estimates of the relative dominance of the Spranger values, as basic values, were derived from those responses. These estimates were designated as indirect measurements of the position of the said values in a hierarchy of basic values. The use of 10 TAT plates--namely, 1, 2, 4, 6BM, 7EM, 8EM, 11, 14, 16, and 20--was fundamental to these tasks.

The writing of the stories, stimulated by the selected TAT plates, thus, constituted the first task. A panel of three male judges (Judges A, B, and C) was assembled to estimate the relative dominance of the Spranger values in the stories under two conditions: (a) in the TAT story, as a contextual unit; and (b) in the protocol of 10 TAT stories, as a contextual unit.

In the former a judge serially ordered only those Spranger values, which were evident from the behavior of the principal character in a TAT story. Appropriate numerical ranks were assigned to the Spranger values, which were so listed. These ranks were, then, interpreted as "value estimates" of the



Spranger values in that story. The Ss were discriminated from one another in terms of those "value estimates" for each Spranger value separately in each story. Sixty sets of discriminations were thereby obtained from each judge.

When the TAT protocol of 10 TAT stories was used as a contextual unit, a judge estimated the relative dominance of the Spranger values only once by serially ordering the Spranger values in all stories simultaneously rather than successively in each TAT story, as noted above. A serial ordering of the said values was converted into numerical ranks, which were interpreted as "value estimates" of those values, as above.

Kendall's coefficient of concordance (W) was used to assess interjudge agreements with respect to the discriminations of the Ss in terms of the "value estimates" for each Spranger value under the two stated conditions. The significance of W was tested with Fisher's g.

When a TAT story was used as a contextual unit, 50 of the 60 W's were significant ( $p < .01$ ). When the protocol of 10 TAT stories was used as a contextual unit, the six W's were unanimously significant ( $p < .01$ ). In general, therefore, the judges were successful in discriminating the Ss with respect to the relative dominance of a Spranger value. The W-analyses, as well as their bases, were called "primary analyses" in the body of the report of this study.

In addition to the primary analyses, secondary analyses of observations were also executed. Secondary analyses were explorations of implications that were discernable in the primary analyses. As such, they were regarded as implementations of the results reported in connection with the primary analyses. Two secondary analyses were common to the usage of the TAT story, as a contextual unit, and the protocol of 10 TAT stories, as a contextual unit.

The first of such analyses was concerned with ascertaining to what degree would the "value estimates" of the Spranger values in the two contextual units according to a second panel of comparable judges would resemble the "value estimates" of the said values according to Judges A, B, and C. The reliability of average ranks ( $\frac{r_{xx}}{xx}$ ) was computed for each Spranger value in the two contextual units. The proportions of  $\frac{r_{xx}}{xx}$ 's, significant from zero ( $p < .05$ ,  $p < .01$ ,  $df = 49$ ) were similar to the proportions of the significant  $W$ 's. Thus, the "value estimates" of the Spranger values according to a second panel of judges would not be expected to differ markedly from those already obtained.

The other of the secondary analyses, common to the two contextual units, was executed to examine whether Judges A, B, and C listed the same Spranger values, as being either the strongest or the weakest value in either kind of contextual unit. The alpha coefficients, which were computed in this respect, however, were never significant, when  $p < .05$ . The three judges, thus, disagreed among themselves as to those values, which could be regarded as occupying either the uppermost or the lowermost position in a hierarchy of basic values in the two contextual units.

Other secondary analyses were undertaken, moreover, only when a TAT story was used as a contextual unit. Thus, it was established that the  $W$ 's were consistently better for the Social, Political, and Religious values than for the Theoretical, Economic, and Aesthetic values. This result was obtained with Friedman's  $\chi^2$  and substantiated by Cochran's Q-Test and by calculating the Mdn of the  $W$ 's of a Spranger value in the TAT stories, as independent contextual units.

Moreover, it was noted that the three judges differed among themselves in

listing a Spranger value, as being "evident" in a TAT story by a S. The number of Ss, therefore, who were credited with a Spranger value in a TAT story by a judge, was reduced to a percentage. Such percentages were computed for the six Spranger values in the 10 TAT stories separately for each judge. Each of the 180 percentages was, then, transformed into an omega equivalent. Whether any two judges differed significantly from each other in listing a Spranger value, as being "evident" in a TAT story, was determined by the algebraic difference between their "omega equivalents." Thus, it was found that 106 of the 135 algebraic differences were significant ( $p .05$ ,  $p .01$ ), when Judge C was paired with either Judge A or Judge B. Judges A and B were more alike in identifying a Spranger value in a TAT story than either was to Judge C.

Even though the numerical magnitudes of the percentages of identifications of a Spranger value in a TAT story may have varied among the three judges, the numerical magnitudes of those percentages, nevertheless, were not totally lacking in similar features. Thus, the percentages of the three judges with which a Spranger value was identified in a TAT story varied systematically in the 10 TAT stories. That is, when the percentages of the three judges for a Spranger value were serially ordered in the 10 TAT stories, the ranks assigned to the percentages of each judge for that value in each TAT story were similar. Also, when the percentages of the three judges for the six Spranger values were serially ordered in each TAT story, the ranks assigned to the percentages of the three judges for the Spranger values in a TAT story were similar. These resemblances were established with  $\chi^2$ .

For their second task the Ss listed the "valued objects" of the principal character in a TAT story. A second panel of two judges (Judges D and E) was

organized, to infer the relative dominance of the Spranger values from the listed valued objects, as being indicative of the said values. The inferences conveyed whether a Spranger value was a "central" or a "peripheral" value in a TAT story. The "central" value in a TAT story was coded as "2" and a "peripheral" value as "1." These numerical indices were also interpreted as "value estimates" of the Spranger values in a TAT story, as a contextual unit.

The coded inferences of a Spranger value, as a "central" value were summated over the 10 TAT stories for the two judges separately. Similar summations were completed for the coded inferences of a Spranger value, as a "peripheral" value, and of a Spranger value, combined as a "central" and a "peripheral" value.

The degree to which the two judges agreed in their "value estimates" of a Spranger value was tested with Wilcoxon's Matched-Pairs Signed-Ranks Test. In general, they were more consistent in their inferences of a Spranger value, as a "central" value than as a "peripheral" value. This procedure constituted the primary analysis of the observations obtained in this phase of the study.

It was further determined from the Mdn's of the "value estimates" of the Spranger values that Judges D and E inferred the Economic, Social, and Political values to be relatively more dominant than the Theoretical, Aesthetic, and Religious values. This ordering of Mdn's was found by means of  $\chi^2$  to be comparable to the ordering of the Mdn's of the "value estimates" of the Spranger values according to Judges A, B, and C. The Economic, Social, and Political values, thus, were the Spranger values, which were most in evidence in a TAT story according to the two panels of judges. This analysis was the secondary analysis in the second phase of this study.

For their third task the Ss described the behavior of the principal character in two series of TAT stories in terms of 18 adjectives, which were precoded for the Spranger values. For the first series (Series A) a S selected three stories with the principal character of each of which he could easily identify himself. In the second series (Series B) a S included three different stories with the principal character of each of which he could identify himself only with difficulty, if at all.

The adjectives, which were used in the description of the principal character of a story, were arranged in pairs. A S checked that adjective in each pair, which would best fit the principal character. All pairs of adjectives were identical for the six stories, which were selected for either Series A or Series B of three TAT stories.

The frequency with which a precoded adjective was checked, as being descriptive of the behavior of the principal character, was summated in each series of three TAT stories separately. It was supposed that the summated frequency with which an adjective was checked by a S would differ in the two series of three TAT stories. The observed differences for the summated frequencies with which an adjective was checked in the two series was assessed with Wilcoxon's Matched-Pairs Signed-Ranks Test. It was thereby observed that 12 of the 18 adjectives, precoded for the Spranger values, were significantly differentially checked in the two series of three TAT stories. In terms of the adjectives used, the behavior of the principal character in a TAT story in Series A was generally different from the behavior of the principal character in a TAT story in Series B. This analysis was designated as a primary analysis.

The first secondary analysis was concerned with the comparability of the three adjectives, precoded for a Spranger value. It was observed that the three adjectives, so precoded, were not checked with similar frequencies in the two series of three TAT stories. This observation was confirmed with the  $\underline{X_r}^2$ 's, which were computed for each set of three adjectives, precoded for a Spranger value, in the two series of three TAT stories separately.

Other secondary analyses in this phase of the investigation directed attention to comparisons between the adjectival descriptions of the behavior of the principal character in a story, included in either Series A or Series B of three TAT stories, and the inferences of the Spranger values in the same stories according to the two panels of judges. The  $\underline{Mdn}$ 's of the "value estimates" of the Spranger values for each condition of measurement were calculated. The obtained  $\underline{X_r}^2$ 's would suggest that the serial ordering of the  $\underline{Mdn}$ 's of the "value estimates" according to the two panels of judges was more similar to the serial ordering of the  $\underline{Mdn}$ 's of the "value estimates" derived from Series B than that derived from Series A of three stories. The panels of judges estimated the relative dominance of the Spranger values in those stories in which alleged identifications with the principal character on the part of a S would be difficult.

The remaining two tasks were administered to the Ss, to obtain direct measurements of the relative dominance of the Spranger values. These measurements were qualified as being "direct" because of the use of the AVL—an instrument, which purports to measure the said values. These measurements, thus, were construed to be "criterion-measurements" with which the "indirect" measurements could be compared.

To allow greater latitude to the Ss in the expression of personal preferences, the items in Part I of the AVL were rewritten as two statements and those in Part II as four statements. The Ss sorted the rewritten statements into seven intervals according to the degree with which they agreed or disagreed with each statement. A distribution of sortings was not forced upon the Ss. The sorting of the rewritten statements was presented as the fourth experimental task to the Ss.

The sortings of the statements into seven intervals were scaled by the Method of Successive Intervals (MSI), as described by Rimoldi and Hornaeche. By means of this quantification the "value estimates" of the Spranger values were empirically defined as one kind of "criterion-measurement." This procedure was considered to be the primary analysis in this phase of the investigation.

Secondary analyses emphasized similarities and differences in the serial orderings of the Mdn's of the "value estimates" of the Spranger values in the various contexts of measurement. Thus, the relative dominance of the Spranger values, as denoted by the Mdn's of the "value estimates" of the said values according to Judges A, B, and C corresponded more closely to the serial ordering of the Mdn's of the "value estimates" of the Spranger values, based on the MSI, than the Mdn's of the inferences of Judges D and E. These observations were supported by Xr<sup>2</sup>.

The Binomial Test was used for similar comparisons of the Mdn's of the "value estimates" of the Spranger values from the MSI with those obtained from Series A and Series B of three TAT stories. In both instances hypotheses were verified concerning the similarities and differences of the relative magnitudes of the Mdn's in the three sets of measurements. That is, the relative

magnitudes of the Mdn's of the "value estimates" of the Spranger values from the MSI were similar to those from Series A of three TAT stories but dissimilar to those from Series B of three TAT stories.

As the fifth experimental task, the booklet edition of the AVL (B-AVL) was administered to the Ss, to compare the results of its scoring procedure with that of the MSI. A notable difference between the two modes of administration and scoring was discerned only for the relative dominance of the Social value in the serial orderings of the  $\bar{X}$ 's and Mdn's of the Spranger values.

Secondary analyses were like those, which were executed in connection with the MSI. With the exception of the comparison between the Mdn's of the "value estimates" of the Spranger values from the B-AVL and those from Series B of three TAT stories, the results were similar to those obtained with the MSI.

A comparison was also made between the  $\bar{X}$ 's of the Spranger values for the Ss, used in this study and the  $\bar{X}$ 's of the said values for the standardization group. The most marked difference between the two groups was observed for the Religious value. If the  $\bar{X}$ 's of the Spranger values were serially ordered in the two groups, a rank of 6 would be assigned to the  $\bar{X}$  of the Religious value for the Ss in this study and a rank of 1 to the  $\bar{X}$  of the Religious value for the standardization group.

To determine the correspondence between the indirect and direct measurements of the relative dominance of the Spranger values, Spearman rank-correlations ( $r_s$ ) were computed. The  $r_s$ 's were, generally, negligible. It was noted, however, that the  $r_s$ 's between the B-AVL and the indirect measurements were, generally, numerically higher than those between the MSI and the same measurements. The interpretative significance of those  $r_s$ 's, nevertheless, was not



improved.

Indirect measurements of the relative dominance of the Spranger values were also intercorrelated. In this series of  $r_S$ 's the proportion of  $r_S$ 's, significant from zero, ( $p < .05$ ,  $p < .01$ ,  $df = 49$ ), was greater than between the direct and indirect measurements. In general, nevertheless, the  $r_S$ 's were low and thereby of little predictive import. It was further noted that the numerical magnitudes of the  $r_S$ 's did not vary systematically with a particular Spranger value. Consequently, it could not be affirmed that the  $r_S$ 's between two indirect measurements of the relative dominance of the Social value were consistently better than those for the Aesthetic value.

Therefore, how useful are the Spranger values in the determination of basic values? If the AVL is used as the criterion, the answer would clearly be a negative one. It was argued, however, that such a categorical answer could not be given to the question. Methodological differences, intrinsic to the kinds of measurements made, could not be wholly ignored. It was proposed that the units of information, upon which the indirect and direct measurements of the relative dominance of the Spranger values were based, were sufficiently different, so that the units of information in a TAT story could not be translated into units of information in the AVL. Thus, the meaning of the inferences of the judges, for example, must remain indeterminate.

Moreover, the character of the  $r_S$ 's among the indirect and direct measurements would suggest a revision of the question to: how useful is a Spranger value, as a basic value? It would appear as if that usefulness would be contingent upon the circumstances under which it was observed.

## APPENDIX A

### INSTRUCTIONS

#### 1. The TAT Plates

##### a. Subjects--General

You will be shown a series of pictures one at a time. For each picture write a short story. You are free to write any kind of story which you believe to fit the picture. There are no correct or wrong stories.

In your story include:

What has happened in the past which leads up to what is happening in the picture now?

What is happening in the picture now?

What will happen?

Also include, at least, what the principal character of your story is thinking and feeling.

The first picture will be a practice picture, in order that you may ask questions afterward. No questions will be permitted after the second picture has been presented.

You will have approximately seven minutes in which to write the story. Remember to include the points listed above in its development. At the end of approximately five minutes, you will be reminded to begin writing an ending to the story.

Each picture will be presented for approximately two minutes. Study the picture carefully.

There are no correct or wrong stories for any of the pictures. Each story is your own creation.

##### b. Subjects--Plate 16

Imagine a picture on the screen. Write a story around that picture. Your story should contain the elements outlined on the instruction sheet given to you.

c. Judges A, B, and C--Ranking of the Spranger Values in the TAT Story, as a Contextual Unit

Rank the values of the principal character, which are evident in the TAT story, from 1 to R in terms of the Spranger system.

A rank of 1 is operationally defined as the weakest value evident in the story; and R, as the strongest value in the story. (Note: R cannot be greater than 6).

Should there be no evidence for a Spranger value in a story, do not include that value in the series of your ranked judgments for that story.

Should there be only one value evident in the story, indicate whether it is strong or weak.

Follow the randomized sequence of stories and subjects for each story, which were given to you.

You are free to refer to the protocol of stories for a subject to assess the values in a story for that subject.

Record your judgments on the data sheets that have been prepared. Submit rankings for a story immediately upon completion.

d. Judges A, B, and C--Ranking of the Spranger Values in the Protocol of 10 TAT Stories, as a Contextual Unit.

Using the ten stories of a subject as a base, rank the Spranger values in the total protocol in their increasing significance for the subject. Use a rank of 1 for the weakest value and 6 for the strongest value.

First identify the weakest and strongest values, in order to establish the extremes. Secondly, identify the second weakest and strongest values. Thirdly, rank the remaining two values.

Follow the random sequence of subjects given to you.

ALL VALUES MUST BE RANKED.

Record your rankings on the prepared data sheets.

## 2. The Identification of Valued Objects

### a. Subjects

Read each story one at a time.

Itemize what you believe the principal character in each story would consider as important or worthwhile for himself. Upon what things would he place a high value or premium, or prize highly for himself.

Since you had written the story, only you can judge what would be important to him.

There are correct or wrong answers.

There are no time limits.

b. Judge D

This material consists of objects which are valued by the principal character in stories written to 10 TAT plates. It was prepared by the subjects.

For each story of all subjects identify the "central" or primary Spranger value and the "peripheral" or secondary values, which are inferable from the descriptions of the objects.

Follow the sequence of subjects given to you.

### 3. The Value Description of the Principal Character

a. Series A

Select any three stories in which the interests of the principal character most closely approximate your own, or with whose thinking and feeling you could agree very easily.

For the principal character in a story check that adjective in each pair of adjectives which would best describe his behavior.

Do not skip any pairs of adjectives.

There are no time limits.

b. Series B

Select any three stories in which the interests of the principal character least closely approximate your own, or with whose thinking and feeling you could disagree very easily.

For the principal character in a story check that adjective in each pair of adjectives which would best describe his behavior.

Do not skip any pairs of adjectives.

There are not time limits.

#### 4. The Experimental Form of the AVL

Sort the following statements into seven categories which will express different amounts of your agreement or disagreement with them.

Category 1: Very strong disagreement

Category 2: Strong disagreement

Category 3: Mild disagreement

Category 4: Neutral; you neither agree nor disagree

Category 5: Mild agreement

Category 6: Strong agreement

Category 7: Very strong agreement

Reserve the end categories for your strongest agreements and disagreements.

You are free to change statements from one category to another.

ALL STATEMENTS MUST BE SORTED.

There are no right or wrong answers.

There are no time limits.

#### 5. The Booklet Form of the AVL

The instructions on the front page of the booklet of the test items were read by the subjects.

## APPENDIX B

### SUPPLEMENTARY INSTRUCTIONS FOR JUDGES A, B, AND C

#### 1. Primary Criteria

Note that a Spranger analysis is a configurational or pattern analysis, in which the various elements distinctive to a value are subordinated to one another. For, according to Spranger a hierarchy exists among values, because a hierarchy of goals commensurate with the values coexists with them.

Two primary criteria may be described, to establish a hierarchy of Spranger values:

- a. Self-directed behavior;
- b. Conflict.

These criteria will be developed in terms of the relative strength of a value. By relative strength of a value is to be understood the relative intensity of the expression of a value manifested in overt behavior. Gradations from weak or a low degree of intensity to strong or a high degree of intensity are admitted. The stronger the expression of a value the higher in the hierarchy of values is the position of a value.

With respect to the first criterion listed above self-directed behavior would be correlated with a higher degree of relative intensity. The stronger the expression of a value in the motivational structure of a person the more will the behavior characteristic of that value be self-determined. The goal to which behavior is directed is selected by that person. Such self-determination, however, should initiate appropriate behavior that leads to an actual realization of the goal, or a fulfillment of an inner prompting in a concrete achievement. It is what the person wants, because he wills it.

In the pursuit of a self-selected goal, however, a course of action may be modified through the intervention of an external influence. As long as the original goal remains primary, or unchanged, the expression of the value associated with that goal remains dominant and unchanged in its relative intensity. The expression has merely been "detoured" along another channel.

The primacy of an original goal implies the possibility of a coexistence of secondary goals--each such goal being correlated with its own value. Such secondary values may also be expressed in the behavior designed for the achievement of the primary goal--but to a lesser degree. Since a course of action, as

a means to the primary goal, is modifiable without a loss of the achievement of that goal, such secondary values, therefore, must necessarily be less intense in the structure of the behavior. The degree of such lesser intensity must be determined by the nature of the intervening influence, and its relation to the primary goal toward which the initiated behavior was directed.

A hierarchy is, thus, established between the primary or strongest value and the secondary or less intense values.

Another hierarchy can be established among the secondary values: those which provide for self-directed behavior and those which initiate a behavior, which is directed by others or conditioned by a specific external influence. The latter may be addressed as non-self-directed. A value giving rise to non-self-directed behavior is necessarily less intense than the secondary values accountable for self-directed behavior.

In non-self-directed behavior, the person acts not because he wills it, but because it has been ordained that he act in such a manner. He is the passive recipient of a value rather than the active selector of a value.

The second criterion of conflict listed above makes use of the concepts already heretofore developed. Non-self-directed behavior is a crucial issue here.

The conflict, that exists, is between self-directed and non-self-directed behavior toward goals specific to the quality of the two behaviors. As such there will be a struggle for supremacy.

Should the conflict be resolved in favor of the self-directed behavior, there is no problem. The hierarchy already unfolded above will apply also here. In such an instance successful resistance has been displayed toward the opposition of the expression of a particular value. The person will continue toward the goal, which he has selected for himself.

Should the conflict be resolved in favor of the non-self-directed behavior, there is a submission to the will of another. In such an instance one primary goal is substituted for another. The displaced self-directed goal and its corresponding value is necessarily relegated to a lower position in the hierarchy. The degree of the ease with which the submission has been effected will decide the relative position of the value in the hierarchy. As a consequence, the entire course of action of the person has been changed. There is no detour. A whole new program of activity must be prepared.

It can be legitimately assumed that whatever the nature of the self-directed behavior may have been, it was not sufficiently significant for the person so as to repel the intervention with an effective and successful counter-action. Behavior distinctive to the surrendered value is not executed. Its goal may not be altogether forsaken. But, it can occupy only a lesser place in the motivational structure of the person.

## 2. Weak Expression of a Value

In addition to the above criteria for the ranking of a Spranger value several criteria can be described for weak expressions of a value, or values low in a hierarchy of values. Such instances would include the following cases:

a. In general, values expressed in fantasy only are very weak expressions of a value. After a manner of speaking, they are self-initiating, but without any concrete fulfillment, as revealed in the story. They are not potent in the adjustment processes of the person. Inasmuch as many fantasies are concerned with status and prestige, like being a virtuoso musician or a successful and respected surgeon, they would be indicative of a weak expression of the Political value.

b. Indirect evidence of a value can be had by contrast. Examples are had in varying degrees of opposition of the Social value to the Political and Theoretical values; of the Theoretical to the Economic and Aesthetic values. Expression to be relatively strong in the one will be balanced by proportionately weaker expressions in the others. A high measure of humanitarian behavior (Social value) would not be associated with an equally high measure of dominance or controlling behavior (political value); and similarly personal warmth in human relationships (Social value) is not consistent with the impersonal impartiality and objectivity in behavior characteristic of the Theoretical value. Traits which are very evident provide some indication of traits which would be less evident and, thereby, point to a possible ordering of values. Such values, as are knowable only indirectly, are necessarily lower in the hierarchy than those which are knowable directly.

Other examples of contrast, as indirect evidence, are provided by such behaviors, like the following:

a. Impulsivity, insofar as it is wasteful of energy, or participation in activities which would endanger one's welfare, or jeopardize the status of physical well-being, are indicative of weak expressions of the Economic value.

b. Anti-social behavior, although indicative of a strong expression of the Political value because of its manipulatory aspects, is not only weak in the expression of the Social value, because it ignores the rights of others; but also weak in the expression of the Aesthetic value, because it lacks elegance and disrupts the beauty of a harmonious order. On the other hand, repentance for such behavior re-establishes the Social value, and to some extent the Religious value, but diminishes the potency of the Political value.

c. Behaviors, which can be judged to be immoral by the standards of a given society, are indicative of weak expressions of the Religious value in the hierarchical structure.

d. Permanent blocking or interruptions of self-assertive behavior--strivings for independence, inclusive--point to a weakness in the expression of the Political value.



e. Rudeness, or lack of courtesy in one's relations with others, is indicative of a weakness in the expression of the Aesthetic value.

The above samples are not fully developed for reasons of simplicity. Expressions of other values are deductible in some instances. Such examples merely suggest the possibility of deriving a hierarchical structure of a person's values from a segment of his behavior.

The principles of self-directed and non-self-directed behavior would be applicable in such indirect indicators. Reactions of the person to the values of others, as expressed in their behavior, also point to indirect evidence of the relative strength of the expression of a value.

Regardless of the nature of the indirect evidence weakness is always to be understood as low positions in the hierarchical scale. The order to be established will be a function of the context in which it appears.

## APPENDIX C

### EXAMPLES OF RANKED VALUES

#### 1. Judges A, B, and C

Values are ranked according to the relative dominance of the Spranger values in a TAT story. The number, preceding the value, indicates the position of a value in a hierarchy of values from weak to strong.

##### Example 1

Molotov turned away from the security council's large table and leaned over to his young assistant, Schonov. "You see," he said, "that is the way we will crack them. We appease them one minute, attack them the next and then soft again. They never know what to think and someday, maybe after even you are dead, we will rise up and conquer them for good. That is how we worked in Potsdam, Berlin, China, Hungary, Poland, and now Egypt. They are so jittery, they are afraid to make a move. We hold the trump card; we stand only to lose a few worthless farmers. They will lose their whole way of life. Sooner or later we will play that trump card. Just wait."

1: Social; 2: Political.

##### Example 2

"Don't try to stop me," cried Jack. "I'm going in there and kill him. He's beaten you and the child for the last time. I don't care if he is your husband or if they do send me to the chair. It just tears me apart at night lying there and thinking that he's hurting you and Nancy. Before you told me about the beating I thought I could break away, but now I find I love you too much and can't let anyone hurt you."

"But, Jack," she said, "he'll only be here two more days and he'll be shipping out again and then it will be wonderful, like it was before, just you, me, and Nancy."

"Okay, darling, I guess I can wait that long but if I hear any more screams tonight, I'm telling you, I won't be responsible."

1: Economic; 2: Political; 3: Social.

## Example 3

Henry crawled the last few feet of the tunnel and scrambled to his feet in amazement, as he found himself in a large room. He realized he was staring at the lost city of Krachatown, the remnants of a highly cultured civilization over 20 million years old. It had taken him over two years to find the central cavern, after searching the maze of tunnels in the mountain. But now he was here. He stared in astonishment at perfectly preserved human skeletons over 50 feet long, while huge 10 foot bats beat at the roof of the cavern. What should he do? This discovery, if told, would upset all of man's religious beliefs and destroy all faith in God as man knew Him on earth.

1: Theoretical; 2: Social; 3: Religious; 4: Political.

## Example 4

Young Billy had wanted to be a doctor ever since he could remember. He was also an avid reader of books, and was particularly fond of stories about doctors. As we see Billy in the picture he has just finished reading a book about army surgeons helping wounded soldiers. He is doing a little day dreaming of what it must have been like. He has a feeling of admiration for the doctors and wants to be just like the army surgeons. The sense of adventure is very appealing to him along with the idea of healing people. But as Billy grew up, his ideas of being a doctor faded away as he became more interested in making a good substantial living. He eventually took over his father's dry goods business and was very successful.

1: Social; 2: Economic.

## Example 5

Kinder looked wildly up at the onrushing avalanche. Millions of tons of snow were hurling down on him. He had absolutely no chance to escape and only perhaps 30 seconds to live. If only he hadn't fired that last shot. He already had downed one fine specimen; and if he had not been so greedy, he might have saved....he was engulfed.

1: Economic; 2: Political.

## Example 6

During World War II many churches were bombed by American planes in their attacks on the Germans.

In a small village in this European country stood such a church with only parts of the walls remaining and one archway giving a small clue that it was a place of worship. Parts of the stained glass were found beneath this, which made this thinking even stronger.

After the war many of these places were to be rebuilt. The main job was to clear the ruins. The church stood previously amongst the pines of the city. Now the fathers of the town wanted to rebuild at a different location.

After many meetings this was done and the new church was built in a new housing area. The people here are well satisfied. The old ruins were cleaned away and someone from the city had bought it to build a new home.

1: Aesthetic; 2: Economic; 3: Religious; 4: Social.

#### Example 7

Here is a peaceful wooded scene that portrays, first the placid beauty of nature, but also "the survival of the fittest" theme that must necessarily be a part of nature also. The small animal has been sunning himself on the rock, enjoying and becoming a part of the peaceful scene, when he suddenly discovers a snake attempting to reach him by hanging from a nearby branch. There is no inherent evil in the attempt of the snake to destroy the weaker animal's life, but a legitimate attempt at his own survival. As the small animal lives on the water of the forest, he is not forced to do violence for his existence, while the snake sometimes is. And so we regard the snake as evil, and the smaller animal as good--we often fail to see the balance of nature as a whole.

1: Aesthetic; 2: Political; 3: Economic; 4: Theoretical.

#### Example 8

Stradivarias had to practice not one hour a day but many. He came from a long line of musicians and they set their standards high.

In the picture, as a young boy, he is meditating on the question: Where does the tone come from? Why is it so difficult to get a sweet note from this instrument? He wonders whether or not it may be possible to make a violin, which would surpass all others in quality, tone, style.

The years have passed. Stradivarias is not the renowned figure his parents would have liked. He does not have one violin but many--in fact, he makes them. But his violins are different. They have a tone superior to others.

Stradivarias never made a great deal of money but he made violins. He was never famous while he was alive, but death brought nameness to his work and immortality to his violin.

1: Economic; 2: Political; 3: Theoretical.

#### Example 9

This boy looking at the violin wishes that he could play it. He has heard someone dear to him play it and he enjoys listening to them play it. From the

picture one gets the idea that he wishes someday he, too, may play the violin.

1: Political: 2: Aesthetic.

#### Example 10

This may well have been taken from a setting on the Ayshire coast of Scotland, the home of Scotland's national poet, Robert Burns.

Burns was a farmer, a ploughman. He wrote poetry primarily on pastoral things but later developed a philosophy which is characterized in his later works.

The young lady in the picture is holding a book of verse. She has read Burns and appreciates his work. Perhaps she is wondering just why a ploughman with little schooling could write such lovely poetry. But in life if one opens one's eyes to nature, there is a beauty which can be felt rather than learned.

1: Theoretical; 2: Aesthetic.

#### 2. Judge D

The designation of a Spranger value, as a "central" or "peripheral" value, which was inferred from the valued objects, precedes the named value.

#### Example 1

The main character in this story would place a high value on patriotism. His goals would be a family and respected community position.

Peripheral: Political; Central: Social.

#### Example 2

The main character in this story would place value on having many close friends. He would not be very religious. He would consider any nonmaterial values as worthless.

Peripheral: Economic; Central: Social.

#### Example 3

The cook would be interested in his work. His ideal would be doing his best at his work. He would be very content with a small, regular salary. He would be very honest and religious. He would have a hobby.

Peripheral: Religious; Central: Economic.

## Example 4

The main desire or quality within Mary was that of having a definite desire to better her position in society by acquiring a good education, which she eventually did.

Peripheral: Theoretical; Central: Political.

## Example 5

The most predominant quality within Robert was his sense of justice, that it should be done, and his sense of pity or mercy to the underdog.

Central: Social.

## Example 6

Atlantis--lay in a beautiful green valley, surrounded by magnificent streams and waterfalls. Beyond the hills lay the miles of white beaches and the deep blue surf.

Central: Aesthetic.

## Example 7

This character wants action and excitement. He's a thrill-seeker and constantly needs something different to appease his desires--a different girl, a different bar, etc. He thinks that material things are the true values in life. He wants attention drawn to himself so that he can "show off" his physical prowess and his "guts." He is highly emotional and needs something to abate these emotions.

Peripheral: Economic; Central: Political.

## Example 8

Marian wanted riches and to be associated with faraway places and things that she had read about. She had a fear of ending up as a poor farmer like her parents.

Peripheral: Political, Aesthetic; Central: Economic.

## Example 9

Molotov wants great power. He wants to succeed in the steps of great communist leaders before him and hopes by following their methods to assume their positions.

Central: Political.

**Example 10**

Henry wanted fame but he was thoughtful enough to know that in attaining fame he might destroy a lot of other peoples' values and lives.

Peripheral: Political; Central: Social.

## APPENDIX D

### DESCRIPTION OF THE SPRANGER VALUES

#### 1. General Note

In Types of Men (264) Spranger describes six sets of attributes which distinguish basic motivational systems in human behavior. Each such set is called a value.

The six values are continuously distributed in human behavior. A patterning among them, therefore, results according to degrees of relative dominance, or a rank order from most to least of each value is reflected in behavior.

A Spranger analysis, consequently, is a configurational analysis.

Contingent upon the patterning, it becomes possible to designate one person as a Theoretical Type, a second, as an Economic Type, and a third, as an Aesthetic Type, because in each respectively that particular value is most dominant. That value is relatively most emphasized, as a rule, in interpreting experience than the other five values. It should not be construed that such designations exemplify pure types.

Each value, moreover, is oriented to the achievement of a distinct goal. Associated with its objective, therefore, personality qualities or traits can be assigned as being distinctive for each value. The description of each value on the following pages will incorporate these aspects--goal and traits, as a basic format.

#### 2. The Spranger Values

##### a. The Theoretical Value (264, pp. 43-46, 72-75, 95-97, 109-129)

The primary goal of life in the person with this value is the discovery of truth, or objective knowledge by means of which the nature of reality can be revealed.

He would tend to be objective, logical, analytical, impersonal, abstractive, intellectual, systematic, investigative, and scholarly.

He would be exemplified by the thinker or theorist.



He does not know how to use his knowledge for the solution of day-by-day problems, because he is not interested in concrete events, as such.

He does not seek out public recognition for his achievement.

He avoids close personal relationships, even with his family, because personal feelings and emotions would interfere with objective judgment and reasoning.

b. The Economic Value (264, pp. 49-51, 65-68, 91-92, 130-146)

The primary goal of life in the person with this value is accumulation of worldly goods, because they ensure a physical security, and his self-preservation through the satisfaction of bodily needs.

He would tend to be conservative, worldly, reliable, practical, efficient, industrious, thrifty, conscientious, safety-conscious, profit-minded, and possessive.

He would be exemplified by the practical man of action, as typified by the American business man.

He is not concerned with general principles, unless they have immediate application for the solution of a concrete problem.

He is not prone to take unnecessary risks, which would not add to his physical well-being.

He resists decorative trimmings, which do not serve some useful function.

c. The Aesthetic Value (264, pp. 46-49, 68-72, 92-95, 147-171)

The primary goal of life in the person with this value is free expression of himself, to translate experience into beauty and harmony, as he conceives them.

He would tend to be creative, poetical, ceremonious, intuitive, subjective, self-confident, individualistic, nonconforming, hedonistic, emotional, charming, graceful, elegant, and self-sufficient.

He would be exemplified by the artist.

He resists examinations of his beliefs in terms of logical analysis.

He is opposed to planning a project, since it interferes with his need to live and enjoy each moment for itself.

He would not tend to be riotous or impulsive, since his ideals of beauty would, then, be shattered.

d. The Social Value (264, pp. 55-63, 76-77, 172-187)

The primary goal of a person with this value is humanitarianism, or a deep concern for human welfare, be it a member of the family, or that of people in general: to live for others rather than himself.

He would tend to be self-sacrificing, forgiving, cooperative, friendly, helpful, sympathetic, sociable, altruistic, loving, kind, and compassionate.

He would be exemplified by the teacher and the "loving mother."

He is not involved with the accumulation of goods and property for his own use.

He is not impressed with the "coldness" of the scientific attitude, since it yields merely intellectual understanding without contributing to solidifying human relations, in that the human person is not seen as a person in his own right.

He could not tolerate being ignored by others, since it would mean that he is unloved by them.

e. The Political Value (264, pp. 55-63, 76, 188-209)

The primary goal in the person with this value is to have status, power, and recognition because of his superiority over others.

He would tend to be ambitious, dominant, aggressive, competitive, authoritarian, autocratic, famous, managerial, manipulative, legalistic, controlling, persevering, and initiating.

He would be exemplified by the achiever or the striver, who lives only for success.

He cannot serve others, since in so doing he surrenders his own freedom.

He could not survive in an atmosphere of anonymity or obscurity.

He cannot recognize equality, but only differences in the social order with himself, "calling the signals."

f. The Religious Value (264, pp. 51-54, 78-83, 97-103, 210-246)

The primary goal of the person with this value is to strive toward happiness, which means a pattern of life in accordance with ultimate destiny, as set down by God.

He would tend to be contemplative, ascetical, mystical, pious, submissive, moral, believing, meditative, dogmatic, and hopeful.

He would be exemplified by the saint.

He is not of this world, even though he lives in it.

He does not evaluate objects, as ends in themselves, but as means to realize the purpose of his life.

He minimizes knowledge founded on logical reasoning, since it detracts from his faith.

## APPENDIX E

### STATEMENTS USED IN THE METHOD OF SUCCESSIVE INTERVALS

B-AVL	Key	Statement
I, 28a	T	1. Impartially accumulated evidence shows that the universe has evolved to its present state in accordance with natural principles, so that there is no necessity to assume a first cause, cosmic purpose, or God behind it. <sup>1</sup>
II, 3b	S	2. The educational policies of the public schools in the city should be influenced to stimulate the study of social problems.
II, 8d	E	3. Sufficient amounts being available, leisure and money should be used for establishing one's own business or financial enterprise.
II, 11c	S	4. The great exploits and adventures of discovery such as Columbus', Magellan's, Byrd's, and Amundsen's are seemingly significant, because they weld human interest and international feelings throughout the world.
II, 6c	S	5. Of all theatrical productions, plays that have a theme of human suffering and human love are truly entertaining.
I, 20b	S	6. <u>The</u> important function of education is to prepare the student for participation in community activities and aid less fortunate persons.
I, 28b	R	7. Impartially accumulated evidence does not show that the universe has evolved to its present state in accordance with natural principles, so that there is no necessity to assume a first cause, a cosmic purpose, or God behind it. <sup>2</sup>

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<sup>1</sup>Deleted.

<sup>2</sup>Deleted.

- |         |   |     |   |
|---------|---|-----|---|
| II, 4c  | P | 8.  | A friend should possess qualities of leadership and organizing ability.   |
| II, 7a  | T | 9.  | The work schedule of a mathematician arouses and sustains interest.   |
| I, 2b   | R | 10. | The Bible, as a whole, should be regarded primarily from the point of view of spiritual revelation.   |
| I, 12b  | T | 11. | Other headlines being of equal size in the morning paper, a news item headlines by "New Scientific Discovery Announced" should be read attentively.   |
| II, 15c | T | 12. | Leonardo da Vinci's picture, "The Last Supper," indicates his versatility and his place in history.   |
| II, 13d | T | 13. | Galileo would have been an interesting person to know personally.   |
| I, 19b  | R | 14. | A series of lectures on the comparative development of the great religious faiths would be very appealing in an adult education program.  |
| II, 11b | T | 15. | The great exploits and adventures of discovery such as Columbus', Magellan's, Byrd's, and Amundsen's are seemingly significant, because they add to a knowledge of geography, meteorology, oceanography, etc. |
| II, 8a  | A | 16. | Sufficient amounts being available, leisure and money should be used for collecting fine sculptures and art.  |
| II, 6a  | P | 17. | Of all theatrical productions, plays that treat the lives of great men truly are entertaining.  |
| II, 3a  | A | 18. | The educational policies of the public schools in the city should be influenced to promote the study and participation in music and fine arts.  |
| II, 3c  | T | 19. | The educational policies of the public schools in the city should be influenced to provide additional laboratory facilities.  |
| II, 8c  | P | 20. | Sufficient amounts being available, leisure and money should be used for aiming at a senatorship, or a seat in the Cabinet.   |
| II, 15a | R | 21. | Leonardo da Vinci's picture, "The Last Supper," expresses the highest spiritual aspirations and emotions.   |

- I, 9b S 22. Unselfishness and sympathy are highly desirable character traits.
- I, 30b P 23. Training in athletics should receive a very high priority in the education of a child.
- I, 13b A 24. The architectural features and stained glass of a cathedral would be impressive to a visitor.
- I, 8b P 25. The influence and strength of the group represented in an ecclesiastical, academic, or civil ceremony is impressive to an observer.
- I, 19a P 26. A series of lectures on the comparative merits of the forms of government in Britain and in the United States would be very appealing in an adult education program.
- I, 12a P 27. Other headlines being of equal size in the morning paper, a news item headlined by "Supreme Court Renders Decision" should be read attentively.
- II, 1c R 28. A good government should aim chiefly at introducing highest ethical principles into its policies and diplomacy.
- I, 5b S 29. It is not justifiable for great artists, such as Beethoven, Wagner, and Byron to be selfish and negligent of the feelings of others.
- II, 12a R 30. Conduct should primarily be guided according to, and chief loyalties should be developed toward, one's religious faith.
- II, 13b P 31. Napoleon would have been an interesting person to know personally.
- II, 6d T 32. Of all theatrical productions, plays that argue consistently for some point of view truly are entertaining.
- II, 1a S 33. A good government should aim chiefly at more aid for the poor, sick, and old.
- II, 12c E 34. Conduct should primarily be guided according to, and chief loyalties should be developed toward, one's occupational organization and associates.
- I, 5a A 35. It is justifiable for great artists, such as Beethoven, Wagner, and Byron to be selfish and negligent of the feelings of others.

- I, 25b T 36. Modern society would benefit from a greater knowledge of the fundamental laws of human behavior.
- I, 4a E 37. Assuming sufficient ability, the work of a banker would be personally satisfying.
- II, 4b R 38. A friend should be seriously interested in thinking out his attitude toward life as a whole.
- I, 23a S 39. In an industrial organization an employee-counsellor position is a rewarding one.
- I, 17b R 40. The principal aim of the churches at the present time should be to encourage worship and a sense of communion with the highest.
- I, 22a E 41. Our modern industrial and scientific developments are signs of a greater degree of civilization than those attained by any previous society, the Greeks, for example.
- II, 11d R 42. The great exploits and adventures of discovery such as Columbus', Magellan's, Byrd's, and Amundsen's are seemingly significant, because they contribute each in a small way to an ultimate understanding of the universe.
- I, 17a S 43. The principal aim of the churches at the present time should be to bring out altruistic and charitable tendencies.
- II, 6b A 44. Of all theatrical productions, ballet or similar imaginative performances truly are entertaining.
- II, 2a T 45. A man who works in business all week can best spend Sunday in trying to educate himself by reading serious books.
- II, 10c P 46. Given the necessary conditions, a part of the summer vacation should be devoted to entering a local tennis or other athletic tournament.
- I, 14b S 47. Available leisure time can best be used for doing volunteer social or public service work.
- II, 7b E 48. The work schedule of a sales manager arouses and sustains interest.
- I, 18a T 49. Time in a waiting room could not be more profitably spent than by reading the magazine, Scientific Age.

- II. 5b R 50. Surplus capital should help to advance the activities of local religious groups.
- I. 15b T 51. At an exposition, buildings which feature scientific apparatus are among the more interesting exhibits.
- I. 7a E 52. The accomplishment of practical goals should be the prime function of modern leaders.
- I. 22b A 53. Our modern industrial and scientific developments are not signs of a greater degree of civilization than those attained by any previous society, the Greeks, for example.
- II, 7c R 54. The work schedule of a clergyman arouses and sustains interest.
- II, 15d A 55. Leonardo da Vinci's picture, "The Last Supper," is the essence of harmony and design.
- I, 1b E 56. The main object of scientific research should be the practical applications of truth.
- I, 16a P 57. The opportunity being presented for its establishment, a debating society or forum should be founded in a community, where none exists.
- II, 2c A 58. A man who works in business all week can best spend Sunday by going to an orchestral concert.
- I, 27a A 59. A series of popular lectures on contemporary painters should be offered in this part of the country.
- I, 24b E 60. The Story of Industry in America should be an absorbing book.
- II, 9c A 61. An evening discussion about literature with intimate friends would be stimulating.
- II, 10d E 62. Given the necessary conditions, a part of the summer vacation should be given to getting experience in some new line of business.
- II, 13a S 63. Florence Nightingale would have been an interesting person to know personally.
- I, 23b P 64. In an industrial organization an administrative position on the level of management is a rewarding one.
- I, 15a E 65. At an exposition, buildings which feature new manufactured products are among the more interesting exhibits.



- II, 3d E 66. The educational policies of the public schools in the city should be influenced to increase the practical value of courses.
- II, 11c R 67. One's husband or wife should be fundamentally spiritual in his or her attitudes toward life.
- II, 2b P 68. A man who works in business all week can best spend Sunday in trying to win at golf, racing, or some other sport.
- I, 27a S 69. A series of popular lectures on the progress of social service should be offered in this part of the country.
- I, 30a R 70. Training in religion should receive a very high priority in the education of a child.
- I, 2a A 71. The Bible, as a whole, should be regarded primarily from the point of view of the beauty of its literary style.
- II, 4a E 72. A friend should be efficient, industrious, and of a practical turn of mind.
- I, 6b R 73. It will be ultimately proven that theology is the important science of mankind.
- II, 5d S 74. Surplus capital should be given to the Family Welfare Society.
- I, 21a P 75. Accounts of the lives and works of such men as Alexander, Julius Caesar, and Charlemagne provide interesting reading.
- II, 11d A 76. One's husband or wife should be gifted along artistic lines.
- I, 29a E 77. Invaluable information is to be found in the real estate and stock market sections of a Sunday newspaper.
- II, 2d R 78. A man who works in business all week can best spend Sunday by hearing a good sermon.
- II, 12b A 79. Conduct should primarily be guided according to, and chief loyalties should be developed toward ideals of beauty.
- I, 18b A 80. Time in a waiting room could not be more profitably spent than by reading the magazine, Arts and Decorations.

- I, 10b T 81. The necessary ability being understood, the teaching of chemistry and/or physics at a university would be gratifying.
- I, 9a R 82. High ideals and reverence are highly desirable character traits.
- I, 3a T 83. Aristotle should be judged as having contributed significantly to the progress of mankind.
- II, 11b S 84. One's husband or wife should like to help people.
- I, 20a E 85. The important function of education is to prepare the student for practical achievement and financial reward.
- II, 12d S 86. Conduct should primarily be guided according to, and chief loyalties should be developed toward, ideals of charity.
- II, 9a R 87. An evening discussion about the meaning of life with intimate friends would be stimulating.
- I, 1a T 88. The main object of scientific research should be the discovery of truth.
- II, 7d P 89. The work schedule of a politician arouses and sustains interest.
- I, 26a E 90. To help raise the standards of living should be a primary concern of every citizen.
- II, 5a E 91. Surplus capital should be productively applied to assist commercial and industrial development.
- I, 7b S 92. The encouragement of their followers to take a greater interest in the rights of others should be the prime function of modern leaders.
- I, 8a A 93. The color and pageantry of an ecclesiastical, academic, or civil ceremony is impressive to the observer.
- II, 15b E 94. Leonardo da Vinci's picture, "The Last Supper," is one of the most priceless and irreplaceable pictures ever painted.
- II, 9d S 95. An evening discussion about socialism and social improvements with intimate friends would be stimulating.

- I, 11a R 96. Other headlines being of equal size in the morning paper, a news item headlined by "Protestant Leaders to Consult on Reconciliation" should be read attentively.
- II, 1d P 97. A good government should aim chiefly at establishing a position of prestige and respect among nations.
- I, 11b E 98. Other headlines being of equal size in the morning paper, a news item headlined by "Great Improvements in Market Conditions" should be read attentively.
- II, 13c E 99. Henry Ford would have been an interesting person to know personally.
- I, 6a T 100. It will be ultimately proven that mathematics is the important science for mankind.
- II, 8b S 101. Sufficient amounts being available, leisure and money should be used for establishing a center for the care and training of the feeble-minded.
- I, 24a R 102. The Story of Religion in America should be an absorbing book.
- II, 11a P 103. The great exploits and adventures of discovery such as Columbus', Magellan's, Byrd's, and Amundsen's are seemingly significant, because they represent conquests by man over the difficult forces of nature.
- I, 16b A 104. The opportunity being presented for its establishment, a classical orchestra should be founded in a community where none exists.
- II, 1b E 105. A good government should aim chiefly at the development of manufacturing and trade.
- I, 29b A 106. Invaluable information is to be found in the section of picture galleries and exhibitions of a Sunday newspaper.
- I, 11a P 107. Available leisure time can best be used for developing a mastery of a favorite skill.
- II, 10a T 108. Given the necessary conditions, a part of the summer vacation should be devoted to writing and publishing an original scientific essay or article.
- II, 5c T 109. Surplus capital should be given for the development of scientific research in the region.

- I, 26b P 110. To mold public opinion should be a primary concern of every citizen.
- I, 10a A 111. The necessary ability being understood, the teaching of poetry at a university would be gratifying.
- I, 25a S 112. Modern society would benefit from more concern for the rights and welfare of others.
- II, 11a P 113. One's husband or wife should command admiration from others.
- I, 3b S 114. Abraham Lincoln should be judged as having contributed significantly to the progress of mankind.
- II, 10b A 115. Given the necessary conditions, a part of the summer vacation should be devoted to staying in some secluded part of the country in order to appreciate the fine scenery.
- I, 4b P 116. Assuming sufficient ability, the work of a politician would be personally gratifying.
- I, 13a R 117. The pervading sense of reverence and worship in a cathedral would be impressive to a visitor.
- II, 4d A 118. A friend should show artistic and emotional sensitivity.
- I, 21b T 119. Accounts of the lives and works of such men as Aristotle, Socrates, and Kant provide interesting reading.
- II, 9b T 120. An evening discussion about the developments of science with intimate friends would be stimulating.

# APPENDIX F

## ADDITIONAL TABLES

Table 18

Ranks of the W's for the Spranger Values in the TAT Stories

Story	Value					
	T	E	A	S	P	R
1	3.0	4.0	1.0	6.0	5.0	2.0
2	2.0	4.0	3.0	6.0	5.0	1.0
4	1.0	3.0	2.0	5.0	6.0	4.0
6BM	2.0	6.0	1.0	4.0	5.0	3.0
7BM	1.0	3.0	2.0	4.5	6.0	4.5
8BM	2.0	4.0	1.0	6.0	3.0	5.0
11	4.0	3.0	6.0	1.0	2.0	5.0
14	2.0	1.0	5.0	3.0	4.0	6.0
16	1.0	2.0	4.0	6.0	3.0	5.0
20	1.0	4.0	3.0	6.0	5.0	2.0

Table 19

Dichotomization of the W's for the Spranger Values in the  
TAT Stories into Above and Below the Mdn

Story	Value							L <sup>2</sup>
	T	E	A	S	P	R	L	
1	0	0	0	1	1	0	2	4
2	0	1	0	1	1	0	3	9
4	0	1	0	1	1	1	4	16
6EM	0	1	0	1	1	0	3	9
7EM	0	0	0	1	1	1	3	9
8EM	0	0	0	1	0	1	2	4
11	0	0	1	0	0	1	2	4
14	0	0	1	0	1	1	3	9
16	0	1	1	1	1	1	5	25
20	0	1	1	1	1	0	4	16

Table 20

$r_{xx}$ 's of the "Value Estimates" for the  
Spranger Values in the TAT Stories

(Decimal point omitted)

Story	Value					
	T	E	A	S	P	R
1	318*	399**	-003	611**	591**	302*
2	280*	555**	173**	668**	571**	179
4	000	511**	012	631**	611**	601**
6EM	-071	695**	-203	671**	691**	133**
7EM	276*	171**	120**	611**	682**	615**
8EM	267	381**	032	538**	379**	530**
11	508**	501**	813**	191	326*	607**
11	257	166	699**	132**	561**	710**
16	192**	519**	585**	700**	517**	678**
20	-027	751**	657**	836**	783**	105**

\* $p < .05$ .

\*\* $p < .01$ .

Table 21

Ranks of the  $r_{\text{TH}}$ 's for the Spranger

Values in the TAT Stories

Story	Value					
	T	E	A	S	P	R
1	3	4	1	6	5	2
2	2	4	3	6	5	1
4	1	3	2	5	6	4
6EM	2	6	1	4	5	3
7EM	1	3	2	4	6	5
8EM	2	4	1	6	3	5
11	4	3	6	1	2	5
14	2	1	5	3	4	6
16	1	3	4	6	2	5
20	1	4	3	6	5	2



Table 22

Dichotomization of the  $r_{xx}$ 's for the Spranger Values in the  
TAT Stories into Above and Below the Mdn

Story	Value							$L^2$
	T	E	A	S	P	R	L	
1	0	0	0	1	1	0	2	4
2	0	1	0	1	1	0	3	9
4	0	0	0	1	1	1	3	9
6EM	0	1	0	1	1	0	3	9
7EM	0	0	0	1	1	1	3	9
8EM	0	0	0	1	0	1	2	4
11	0	0	1	0	0	1	2	4
14	0	0	1	0	1	1	3	9
16	0	1	1	1	1	1	5	25
20	0	1	1	1	1	0	4	16

Table 23

Frequencies of 3:0 and 2:1 Agreements in the Specification  
of the Most and Least "Evident Values" in the TAT  
Stories and Corresponding Alpha Coefficients

Story	Relative "Evidence" of Value					
	Most			Least		
	<u>Agreement</u>			<u>Agreement</u>		
	3:0	2:1	Alpha	3:0	2:1	Alpha
1	11	38	593	0	7	093
2	11	11	510	1	20	286
4	15	25	633	0	22	293
6EM	12	31	600	0	11	186
7EM	10	28	573	2	11	226
8EM	11	22	513	2	10	173
11	8	19	413	0	5	066
11	6	31	533	0	11	116
16	11	28	593	0	11	116
20	11	27	610	1	10	153

Note.--Decimal point omitted for alpha coefficients.

Table 2h

An Example of Listing 3:0 and 2:1 Agreements  
of the Spranger Values as the Most  
"Evident Value" in a TAT Story

Value	Agreement			
	3:0	2:1		
		A & C	B & C	A & B
T	1	0	0	0
E	4	1	2	1
A	0	1	1	2
S	0	0	2	4
P	6	3	2	8
R	0	0	1	0
	<hr/>	<hr/>	<hr/>	<hr/>
Sum	11	5	8	15

Table 25

Percentages of Identifications of the Spranger Values in the TAT Stories  
and Corresponding "Omega" Differences among Pairs of Judges

Story	Value	Percentage			"Omega" Difference		
		A	B	C	C - A	C - B	B - A
1	T	2	4	48	0.881**	0.797**	0.084
	E	24	24	80	0.841**	0.941**	0.000
	A	24	52	54	0.443**	0.028	0.415**
	S	26	30	54	0.410**	0.347**	0.063
	P	56	50	98	0.824**	0.909**	-0.085
	R	0	6	24	0.723**	0.373**	0.350*
2	T	10	16	46	0.599**	0.472**	0.127
	E	10	76	78	1.076**	0.033	1.043**
	A	10	42	16	0.027	-0.415**	0.542**
	S	50	54	94	0.760**	0.703**	0.056
	P	34	42	88	0.840**	0.724**	0.112
	R	0	10	34	0.880**	0.426**	0.454**
4	T	0	0	30	0.819**	0.819**	0.000
	E	52	30	82	0.462**	0.782**	-0.319*
	A	12	34	44	0.525**	0.145	0.380**
	S	80	54	88	0.150	0.553**	-0.511**
	P	58	52	98	0.796	0.881**	-0.085
	R	4	8	32	0.564**	0.444**	0.120
6BM	T	0	8	62	1.282**	0.876**	0.405**
	E	38	26	86	0.741**	0.525**	-0.182
	A	0	28	24	0.723**	-0.064	0.788**
	S	88	66	90	0.046	0.426**	-0.380**
	P	68	26	70	0.029	0.645**	-0.615**
	R	18	6	78	0.911**	1.180**	-0.299*
7BM	T	6	16	34	0.529**	0.298*	0.231*
	E	62	52	88	0.439**	0.582**	-0.143
	A	2	36	6	0.149	0.559**	0.709**
	S	78	52	88	0.190	0.582**	-0.391**
	P	64	60	98	0.703**	0.767**	0.058
	R	8	6	68	0.966**	1.021**	-0.055

Table 25 (Continued)

Percentages of Identifications of the Spranger Values in the TAT Stories and Corresponding "Omega" Differences among Pairs of Judges

Story	Value	Percentage			"Omega" Difference		
		A	B	C	C - A	C - B	B - A
8EM	T	4	14	68	1.087**	0.830**	0.256*
	E	26	20	82	0.845**	0.946**	-0.100
	A	8	18	52	0.733**	0.517**	0.214
	S	68	58	100	0.849**	0.996**	0.147
	P	90	40	88	-0.046	0.752**	-0.794**
	R	4	4	64	1.026**	1.026**	0.000
11	T	4	12	58	0.939**	0.724**	0.211
	E	30	14	86	0.860**	1.139**	0.278*
	A	22	40	22	0.000	-0.277*	0.277*
	S	18	4	60	0.633**	0.968**	-0.334*
	P	58	28	88	0.486**	0.932**	-0.435**
	R	4	12	30	0.534**	0.319*	0.215
14	T	4	8	52	0.854**	0.733**	0.120
	E	58	22	78	0.391**	0.840**	-0.448**
	A	52	72	50	-0.028	-0.322*	0.293*
	S	22	18	44	0.335*	0.406**	0.070
	P	28	28	72	0.644**	0.644**	0.000
	R	10	28	58	0.770**	0.435**	0.334*
16	T	10	26	64	0.857**	0.554**	0.302*
	E	36	26	72	0.522**	0.676**	0.153
	A	18	62	28	0.169	-0.493**	0.662**
	S	34	20	58	0.344*	0.568**	0.224
	P	32	36	72	0.583**	0.522**	0.060
	R	12	12	50	0.610**	0.610**	0.000
20	T	8	8	52	0.733**	0.733**	0.000
	E	56	32	94	0.675**	1.021**	-0.346**
	A	14	36	64	0.770**	0.410**	0.369**
	S	28	32	84	0.850**	0.789**	0.060
	P	48	46	90	0.684**	0.713**	-0.028
	R	4	12	84	1.354**	1.139**	0.215

Table 26

$\bar{X}$ 's and Mdn's of the Percentages of the Identifications  
of the Spranger Values in the TAT Stories

Value	Judge					
	A		B		C	
	$\bar{X}$	<u>Mdn</u>	$\bar{X}$	<u>Mdn</u>	$\bar{X}$	<u>Mdn</u>
T	4.8	4.3	11.2	10.0	51.4	51.8
E	39.2	37.0	32.2	26.2	82.6	81.8
A	18.0	13.0	42.0	38.0	37.8	36.0
S	49.2	42.0	38.8	42.0	81.6	88.3
P	53.6	57.0	40.8	41.0	86.2	88.3
R	6.4	4.4	10.4	9.0	52.2	54.0

Note.—% signs omitted in the table.

Table 27

Frequency of Significant "Omega" Differences  
for the Three Pairs of Judges

Value	p	C - A	C - B	B - A
T	.05	0.0	1.0	3.0
	.01	10.0	9.0	1.0
E	.05	0.0	0.0	3.0
	.01	10.0	9.0	2.0
A	.05	0.0	2.0	2.0
	.01	5.0	5.0	7.0
S	.05	2.0	0.0	1.0
	.01	5.0	10.0	3.0
P	.05	0.0	0.0	0.0
	.01	8.0	10.0	3.0
R	.05	0.0	9.0	0.0
	.01	10.0	1.0	4.0
Sum		50.0	56.0	29.0
$\bar{X}$		8.3	9.3	4.8
<u>Mdn</u>		9.0	9.9	4.3

Table 28

Ranks Assigned to the Percentages of Identifications of the Social Value in 10 Sets of TAT Stories for the Three Judges

Judge	Story									
	1	2	4	6BM	7BM	8BM	11	14	16	20
A	3.0	6.0	9.0	10.0	8.0	7.0	1.0	2.0	5.0	4.0
B	4.0	7.5	7.5	10.0	6.0	9.0	1.0	2.0	3.0	5.0
C	2.0	9.0	6.5	8.0	6.5	10.0	4.0	1.0	3.0	5.0

Table 29

$\chi^2$ 's for the Percentages of Identifications of the  $\chi^2$  Spranger Values in 10 Sets of TAT Stories

Value	<u><math>\chi^2</math></u>	P	Value	<u><math>\chi^2</math></u>	P
T	16.996	.05	S	43.822	.01
E	20.889	.01	P	17.831	.05
A	12.640	NS	R	12.059	NS



Table 30

Ranks Assigned to the  $\bar{X}$ 's of the Percentages of the  
Spranger Values in all TAT Stories  
for the Three Judges

Judge	Value					
	T	E	A	S	P	R
A	1.0	4.0	3.0	5.0	6.0	2.0
B	2.0	3.0	6.0	4.0	5.0	1.0
C	2.0	4.0	1.0	5.5	5.5	3.0

Table 31

Ranks Assigned to the Percentages of Identifications  
of the Spranger Values in the Stories  
for TAT Plate 4

Judge	Value					
	T	E	A	S	P	R
A	1	4	3	6	5	2
B	1	3	4	6	5	2
C	1	4	3	5	6	2

Table 32

$\chi^2$ 's for the Percentages of the Identifications of the  
 $\chi^2$  Spranger Values in the TAT Stories

Story	$\chi^2$	P	Story	$\chi^2$	P
1	32.970	.001	8EM	34.207	.001
2	31.932	.001	11	24.495	.001
4	35.207	.001	14	29.162	.001
6EM	33.493	.001	16	27.734	.001
7EM	33.350	.001	20	31.827	.001

Table 33

$\frac{F}{\chi^2}$ 's of the "Value Estimates" for the Spranger  
 Values in the Protocols of  
 10 TAT Stories  
 (Decimal point omitted)

Value	$\frac{F}{\chi^2}$	P	Value	$\frac{F}{\chi^2}$	P
T	418	.01	S	489	.01
E	530	.01	P	763	.01
A	686	.01	R	610	.01

Table 34

Agreements and Alpha Coefficients for  
the Extreme Spranger Values in the  
Protocols of 10 TAT Stories

Quality	<u>Agreement</u>		Alpha
	3:0	2:1	
Weakest	6	32	.546
Strongest	15	22	.593

Table 35

X's and Mdn's of the "Value Estimates" of the Spranger Values,  
as "Central" and "Peripheral" Values, and Combined  
as "Central" and "Peripheral" Values

Value	Judge	Degree of Dominance					
		Central		Peripheral		Combined	
		<u>X</u>	<u>Mdn</u>	<u>X</u>	<u>Mdn</u>	<u>X</u>	<u>Mdn</u>
T	D	0.8	0.2	1.2	1.0	2.0	1.5
	E	0.8	0.2	0.9	0.6	1.7	1.5
E	D	3.8	3.8	2.1	1.9	5.9	5.8
	E	3.6	3.6	2.5	2.6	6.0	5.6
A	D	1.6	0.6	1.9	1.7	3.4	3.1
	E	1.0	0.3	1.0	0.9	2.0	1.8
S	D	6.0	5.6	2.3	2.3	8.3	8.1
	E	5.8	6.0	2.5	2.4	8.4	8.4
P	D	6.2	6.0	1.5	1.6	7.7	7.9
	E	6.9	7.7	2.8	2.6	9.7	10.1
R	D	0.8	0.2	0.6	0.4	1.4	0.8
	E	1.1	0.3	0.7	0.5	1.9	1.4

Table 36

Mdn's of the "Value Estimates" of the Spranger Values  
in the TAT Stories according to  
Judges A, B, and C

Judge	Value					
	T	E	A	S	P	R
A	0.0	0.4	0.1	0.5	4.3	0.0
B	0.1	0.2	0.4	0.3	0.3	0.0
C	1.7	4.4	0.3	4.1	4.2	2.6

Table 37

X's and Mdn's of the Frequencies of Choices of the Adjectives, Precoded for the Spranger Values, in the Two Series of TAT Stories

Value	Adjective	<u>Series A</u>		<u>Series B</u>	
		<u>X</u>	<u>Mdn</u>	<u>X</u>	<u>Mdn</u>
T	intellectual	8.2	7.8	6.7	7.0
	objective	8.2	7.8	8.7	8.9
	analytical	9.6	10.0	8.0	8.5
E	conventional	6.0	5.5	8.7	8.7
	practical	11.2	10.0	8.8	8.7
	commercial	4.5	4.7	9.9	10.2
A	creative	8.0	7.9	6.6	6.4
	artistic	7.0	6.7	6.7	7.0
	charming	4.1	3.5	7.0	6.5
S	friendly	8.1	8.1	8.1	7.4
	altruistic	8.7	9.1	4.8	3.5
	sympathetic	9.6	9.8	7.0	7.0
P	authoritarian	5.2	5.0	8.9	8.8
	influential	6.7	6.5	7.2	8.6
	competitive	6.5	6.9	11.8	10.7
R	spiritual	8.2	7.8	4.6	3.9
	ascetical	7.6	7.5	5.9	6.2
	meditative	9.1	9.3	7.5	7.4

Table 38

Xr<sup>2</sup>'s for the Frequency Differences in the  
Selection of Adjectives in the  
Two Series of TAT Stories

Value	<u>Series A</u>		<u>Series B</u>	
	<u>Xr</u> <sup>2</sup>	P	<u>Xr</u> <sup>2</sup>	P
T	6.33	.05	12.73	.01
E	45.03	.001	7.11	.05
A	43.03	.001	6.18	.05
S	3.30	NS	24.48	.001
P	6.51	.05	26.59	.001
R	1.61	NS	14.43	.001

Table 39

Mdn's of the "Value Estimates" of the Spranger Values in Series A  
of TAT Stories according to Two Panels of  
Judges and Checked Adjectives

Basis	Value					
	T	E	A	S	P	R
A-B-C	0.2	2.7	0.2	4.4	3.8	0.2
D-E	0.1	0.4	0.1	0.9	0.9	0.1
Adjectives	26.4	20.2	24.0	27.6	24.0	24.0

Table 40

Mdn's of the "Value Estimates" of the Spranger Values in Series B  
of TAT Stories according to Two Panels of  
Judges and Checked Adjectives

Basis	Value					
	T	E	A	S	P	R
A-B-C	0.1	3.3	0.2	3.5	4.5	0.2
D-E	0.1	0.4	0.1	0.6	1.0	0.0
Adjectives	23.8	27.0	20.8	20.0	26.8	16.8



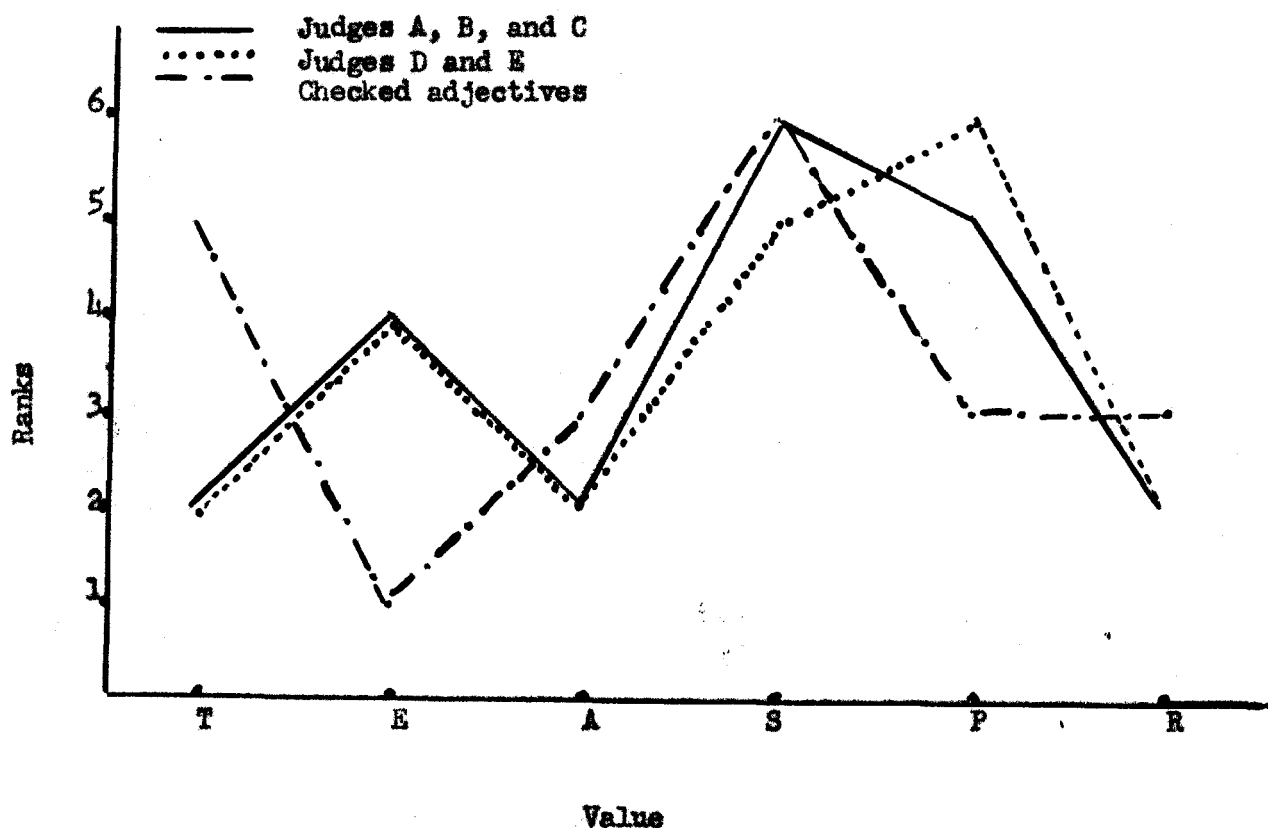


Fig. 1. Ranks assigned to the Mdn's of the "value estimates" of the Spranger values in the three TAT stories, included in Series A, according to Judges A, B, and C, Judges D and E, and the checked adjectives.

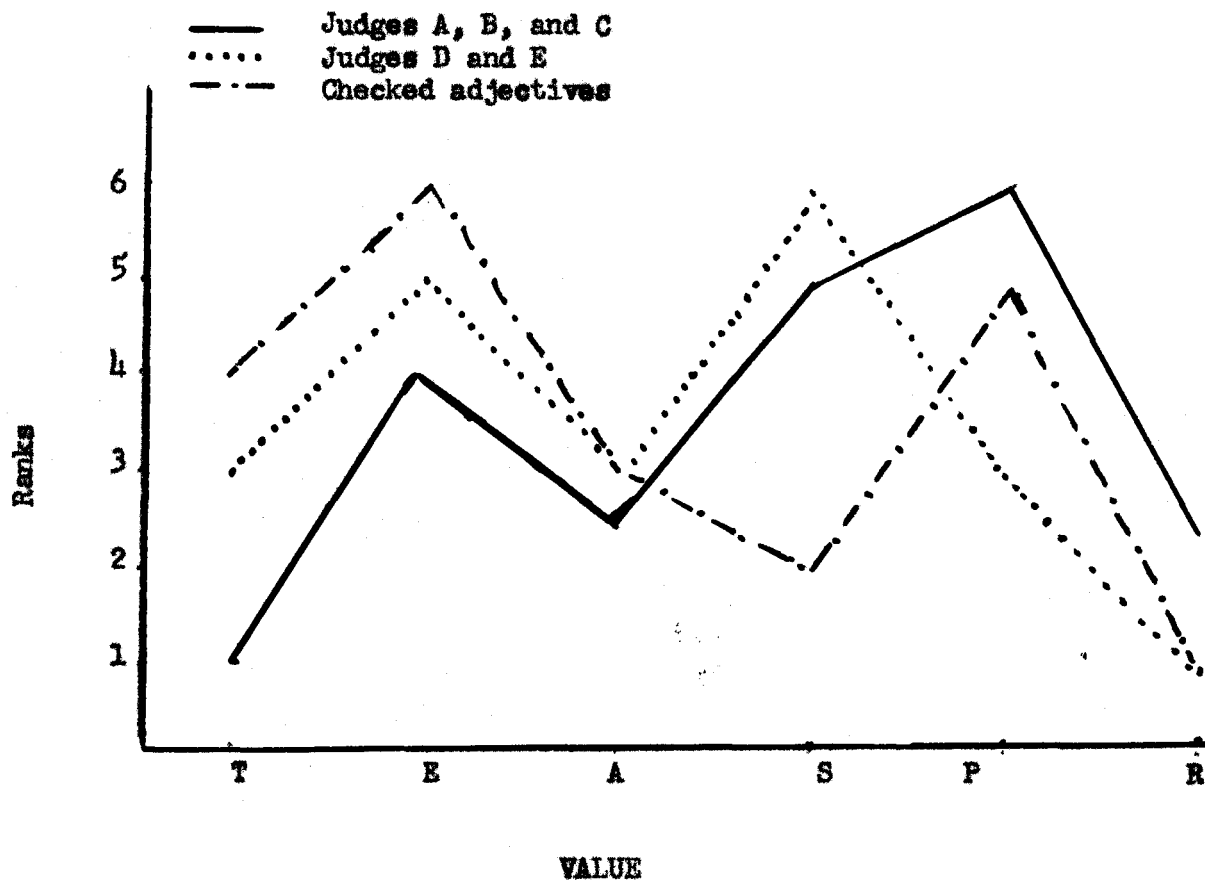


Fig. 2. Ranks assigned to the Mdn's of the "value estimates" of the Spranger values in the three TAT stories, included in Series B, according to Judges A, B, and C, Judges D and E, and the checked adjectives.

Table 41

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
2	A	000	000	040	060	740	160	000
	T	001	006	063	135	501	266	028
3	A	000	060	260	300	320	060	000
	T	028	055	239	231	364	079	004
4	A	000	080	280	240	280	120	000
	T	045	060	220	198	349	114	014
5	A	000	060	200	260	360	120	000
	T	028	046	198	200	383	131	014
6	A	000	120	260	120	300	180	020
	T	063	065	208	177	327	134	026
8	A	060	120	140	280	280	120	000
	T	072	075	228	185	312	111	017
9	A	000	080	220	460	140	080	020
	T	045	064	233	205	343	100	010
10	A	020	100	140	040	320	280	100
	T	036	038	038	224	326	233	105
11	A	000	020	080	220	440	220	040
	T	006	016	114	170	462	207	025
12	A	000	000	200	140	500	120	040
	T	025	037	160	172	386	171	049
13	A	000	000	080	160	280	440	040
	T	005	012	082	127	502	205	067
14	A	000	040	140	080	400	280	060
	T	019	025	071	171	361	259	094

Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
15	A	000	040	120	020	400	420	000
	T	017	022	116	111	329	282	145
16	A	020	080	400	180	300	020	000
	T	033	072	306	257	298	034	000
17	A	020	020	220	160	400	180	000
	T	021	035	163	179	400	175	027
18	A	000	040	140	180	540	100	000
	T	013	031	169	205	430	140	012
19	A	000	040	040	180	360	340	040
	T	010	021	107	142	401	255	064
20	A	020	180	340	320	100	040	000
	T	045	080	306	242	288	038	001
21	A	000	060	260	300	220	160	000
	T	035	051	199	191	368	137	019
22	A	000	000	040	020	300	480	160
	T	002	004	034	063	302	379	016
23	A	020	100	280	180	300	120	000
	T	041	060	220	202	353	112	012
24	A	000	000	000	180	560	260	000
	T	005	012	086	133	430	276	058
25	A	000	000	100	200	520	180	000
	T	009	021	124	167	437	211	031
26	A	000	040	140	160	520	140	000
	T	014	030	156	186	424	162	028

Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
27	A	000	020	080	160	340	360	040
	T	006	015	093	171	390	267	058
28	A	000	000	000	000	260	540	200
	T	000	002	016	039	261	417	265
29	A	000	080	180	220	240	260	020
	T	035	048	181	177	366	163	030
30	A	020	040	060	040	180	420	240
	T	022	020	072	076	240	269	301
31	A	000	000	040	100	260	520	080
	T	001	006	044	085	378	363	123
32	A	000	160	300	200	280	040	020
	T	098	091	251	184	279	086	011
33	A	000	040	100	040	540	220	060
	T	013	022	112	139	392	253	069
34	A	040	160	440	060	280	020	000
	T	073	104	330	226	238	029	000
35	A	060	360	260	160	120	040	000
	T	156	131	305	180	194	032	002
36	A	000	040	000	080	360	480	040
	T	006	014	081	118	391	298	092
37	A	020	100	260	340	180	100	000
	T	043	064	240	215	340	091	007

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	P	Successive Interval						
		1	2	3	4	5	6	7
38	A	000	000	040	100	340	400	120
	T	002	005	045	083	363	364	138
39	A	000	020	120	220	380	220	040
	T	008	019	115	159	437	225	037
40	A	020	080	200	160	360	160	020
	T	031	047	190	189	377	146	020
41	A	040	140	240	100	240	200	040
	T	072	066	194	163	315	151	039
42	A	000	080	180	080	440	200	020
	T	031	045	176	178	374	166	030
43	A	020	020	060	060	240	440	160
	T	015	019	075	090	286	294	221
44	A	020	160	240	220	220	120	020
	T	053	067	228	196	334	109	013
45	A	000	180	460	140	180	040	000
	T	120	117	302	193	225	040	003
46	A	000	020	060	260	400	260	000
	T	007	016	101	144	429	253	050
47	A	020	000	180	240	440	120	000
	T	023	042	185	196	396	142	016
48	A	000	040	380	240	280	060	000
	T	023	050	240	220	392	072	003
49	A	020	040	340	160	380	060	000
	T	026	052	238	232	369	079	004

Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
50	A	020	120	100	260	460	040	000
	T	026	053	247	240	362	067	005
51	A	000	040	120	040	360	420	020
	T	010	022	116	153	416	235	048
52	A	000	060	220	100	300	240	080
	T	034	039	141	143	346	220	077
53	A	040	180	280	080	280	140	000
	T	083	078	229	181	301	110	018
54	A	000	060	220	180	360	180	000
	T	030	045	176	178	377	165	029
55	A	000	000	100	280	420	200	000
	T	008	020	119	165	442	214	032
56	A	000	060	100	100	320	380	040
	T	020	029	126	143	372	238	072
57	A	000	000	040	300	460	200	000
	T	001	008	076	147	496	246	026
58	A	020	080	260	380	240	020	000
	T	031	067	301	258	307	036	000
59	A	000	040	080	420	380	180	000
	T	012	032	183	221	430	115	007
60	A	000	020	240	220	440	060	020
	T	010	026	167	213	447	129	008
61	A	000	040	240	080	420	200	020
	T	017	033	161	183	412	171	023

Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
62	A	000	040	120	220	420	200	000
	T	016	029	143	169	407	201	035
63	A	000	040	160	300	320	160	020
	T	017	034	168	192	414	157	018
64	A	000	000	080	240	400	280	000
	T	007	017	091	129	409	278	071
65	A	000	000	180	100	460	240	020
	T	017	031	147	172	408	192	033
66	A	000	020	220	100	320	280	060
	T	010	021	144	248	411	243	053
67	A	020	020	040	040	240	340	300
	T	010	015	060	075	265	304	271
68	A	000	040	100	240	360	260	000
	T	016	028	129	153	393	227	054
69	A	000	020	240	480	200	060	000
	T	010	032	208	252	422	074	002
70	A	000	000	040	040	180	460	280
	T	002	005	029	050	236	347	331
71	A	300	360	280	040	020	000	000
	T	440	199	258	070	032	001	000
72	A	000	060	080	120	520	200	020
	T	016	031	149	173	410	190	031



Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
73	A	040	040	180	140	220	240	140
	T	049	042	130	122	299	228	130
74	A	000	060	220	260	400	060	000
	T	025	049	229	229	377	086	005
75	A	000	020	080	160	460	220	060
	T	007	015	197	139	422	263	057
76	A	000	060	220	280	340	080	020
	T	030	049	205	203	378	122	013
77	A	000	160	240	240	320	040	000
	T	075	092	286	212	276	056	003
78	A	020	080	240	260	300	100	000
	T	035	055	223	211	363	104	009
79	A	060	180	280	160	240	080	000
	T	101	096	264	189	270	072	008
80	A	020	280	380	220	100	000	000
	T	079	220	379	227	180	011	000
81	A	000	020	080	080	440	300	080
	T	007	013	083	118	390	297	092
82	A	000	000	000	020	260	500	220
	T	000	000	009	026	241	454	270
83	A	000	000	000	020	320	520	140
	T	000	000	010	032	296	473	189

Table 4.1 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
84	A	000	000	000	000	320	640	040
	T	000	002	028	071	404	397	098
85	A	060	200	200	100	400	040	000
	T	080	094	287	209	283	043	004
86	A	000	020	200	080	380	380	040
	T	009	020	114	155	427	273	002
87	A	000	020	040	160	380	380	020
	T	004	012	088	114	454	257	041
88	A	000	020	080	080	140	520	160
	T	008	012	061	084	299	322	214
89	A	000	040	280	100	300	380	000
	T	026	035	139	148	365	222	065
90	A	000	000	060	100	420	400	020
	T	002	008	072	132	467	277	042
91	A	000	080	300	280	260	080	000
	T	004	066	244	215	339	085	007
92	A	000	000	020	020	520	400	040
	T	000	002	029	080	444	378	067
93	A	000	020	040	080	660	200	000
	T	004	011	089	143	455	257	041
94	A	000	020	100	120	400	340	020
	T	005	015	103	155	451	236	035

Table 4.1 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	P	Successive Interval						
		1	2	3	4	5	6	7
84	A	000	000	000	000	320	640	040
	T	000	002	028	071	404	397	098
85	A	060	200	200	100	400	040	000
	T	080	094	287	209	283	043	004
86	A	000	020	200	080	380	280	040
	T	009	020	114	155	427	273	002
87	A	000	020	040	160	380	380	020
	T	004	012	088	144	454	257	041
88	A	000	020	080	080	140	520	160
	T	008	012	061	084	299	322	214
89	A	000	040	280	100	300	280	000
	T	026	035	139	148	365	222	065
90	A	000	000	060	100	420	400	020
	T	002	008	072	132	467	277	042
91	A	000	080	300	280	260	080	000
	T	004	066	244	215	339	085	007
92	A	000	000	020	020	520	400	040
	T	000	002	029	080	444	378	067
93	A	000	020	040	080	660	200	000
	T	004	011	089	143	455	257	041
94	A	000	020	100	120	400	340	020
	T	005	015	103	155	451	236	035

Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
95	A	000	020	220	100	420	240	000
	T	010	022	123	160	426	220	039
96	A	000	080	140	140	440	160	040
	T	034	044	165	166	364	184	043
97	A	000	020	120	060	320	440	040
	T	006	015	089	130	412	279	068
98	A	000	080	280	220	300	120	000
	T	004	060	218	198	350	116	014
99	A	000	000	040	180	360	420	000
	T	002	007	052	093	383	351	112
100	A	120	200	340	080	160	180	020
	T	191	109	241	252	218	075	014
101	A	000	020	100	220	380	260	020
	T	006	017	116	168	457	210	026
102	A	000	020	200	100	600	080	000
	T	007	021	156	215	466	128	007
103	A	000	040	120	140	540	160	000
	T	013	028	145	177	423	187	027
104	A	000	000	080	240	440	240	000
	T	006	014	099	148	441	249	043
105	A	000	080	340	040	460	080	000
	T	039	060	231	212	352	098	008

Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
106	A	000	140	380	240	220	020	000
	T	075	105	326	224	239	031	000
107	A	000	020	000	080	500	340	060
	T	003	009	066	109	403	320	090
108	A	000	140	320	320	180	040	000
	T	079	099	287	214	262	047	002
109	A	000	060	080	220	420	200	020
	T	019	033	158	177	405	180	028
110	A	000	100	260	160	340	080	060
	T	061	061	192	266	327	157	037
111	A	000	160	140	100	380	160	060
	T	082	063	175	144	297	173	066
112	A	000	000	060	020	400	460	060
	T	002	007	054	097	393	343	104
113	A	000	000	100	060	440	380	020
	T	005	014	094	144	445	254	044
114	A	000	000	020	040	320	480	140
	T	000	003	022	057	324	412	182
115	A	000	120	160	180	400	120	020
	T	068	063	205	178	333	137	026
116	A	020	080	240	100	260	260	040
	T	036	045	168	165	360	183	043

Table 41 (Continued)

Actual (A) and Theoretical (T) Proportions (p) of Sortings of Statements  
Keyed for the Spranger Values in the Method of Successive Intervals

(Decimal point omitted)

Statement	p	Successive Interval						
		1	2	3	4	5	6	7
117	A	000	000	020	080	600	300	000
	T	000	003	036	089	449	358	065
118	A	000	080	280	240	300	080	020
	T	045	061	222	200	347	112	013
119	A	000	000	120	140	360	340	040
	T	010	029	097	142	409	253	060
120	A	000	020	140	160	400	260	020
	T	007	018	178	112	453	206	026

Table 42

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
2	(-2.812) -3.057	(-2.455) -2.489	-1.751 -1.475	-1.282 -0.825	0.994 0.543	(1.908) 1.906
3	(-1.912) -1.908	-1.555 -1.388	-0.468 -0.460	0.305 0.134	1.555 1.385	(2.469) 2.631
4	(-1.762) -1.699	-1.405 -1.252	-0.358 -0.454	0.253 0.057	1.175 1.134	(2.089) 2.206
5	(-1.912) -1.914	-1.555 -1.445	-0.643 -0.608	0.050 -0.071	1.175 1.058	(2.089) 2.184
6	(-1.532) -1.532	-1.175 -1.134	-0.305 -0.423	0.000 0.033	0.842 0.992	2.054 1.948
8	-1.555 -1.458	-0.915 -1.048	-0.468 -0.318	0.253 0.150	1.175 1.135	(2.089) 2.117
9	(-1.762) -1.691	-1.405 -1.230	-0.524 -0.408	0.706 0.119	1.282 1.228	2.054 2.333
10	-2.054 -1.793	-1.175 -1.444	-0.643 -1.217	-0.524 -0.422	0.305 0.418	1.282 1.255
11	(-2.411) -2.532	-2.054 -2.017	-1.282 -1.097	-0.468 -0.508	0.706 0.732	2.054 1.968
12	(-1.903) -1.969	(-1.546) -1.536	-0.842 -0.764	-0.412 -0.270	0.994 0.772	1.751 1.652
13	(-2.466) -2.593	(-2.109) -2.124	-1.405 -1.288	-0.706 -0.753	0.050 0.606	1.751 1.499
14	(-2.108) -2.103	-1.751 -1.711	-0.915 -1.013	-0.643 -0.566	0.412 0.376	(1.326) 1.314
15	(-2.108) -2.123	-1.751 -2.761	-0.994 -1.111	-0.915 -0.694	0.202 0.184	(1.116) 1.058

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
16	-2.054	-1.282	0.000	0.468	2.054	(2.068)
	-1.832	-1.255	-0.253	0.434	1.824	3.207
17	-2.054	-1.751	-0.643	-0.202	0.915	(1.829)
	-2.039	-1.585	-0.777	-0.258	0.833	1.920
18	(-2.108)	-1.751	-0.915	-0.358	1.282	(2.196)
	-2.223	-1.710	-0.795	-0.208	1.026	2.256
19	(-2.108)	-1.751	-1.405	-0.643	0.305	1.751
	-2.306	-1.868	-1.086	-0.584	0.471	1.522
20	-2.054	-1.282	0.100	1.080	1.751	(2.665)
	-1.693	-1.148	-0.175	0.448	1.760	3.067
21	(-1.912)	-1.555	-0.468	0.305	0.994	(1.908)
	-1.810	-1.364	-0.569	-0.060	1.012	2.080
22	(-2.812)	(-2.455)	-1.751	-1.555	-0.358	0.994
	-2.944	-2.516	-1.755	-1.267	-0.239	0.784
23	-2.054	-1.175	-0.253	0.202	1.175	(2.089)
	-1.734	-1.278	-0.464	0.057	1.155	2.248
24	(-2.463)	(-2.106)	(-1.402)	-0.915	0.643	(1.557)
	-2.588	-2.112	-1.263	-0.718	0.428	1.569
25	(-2.236)	(-1.879)	-1.282	-0.524	0.915	(1.829)
	-2.370	-1.885	-1.020	-0.466	0.701	1.864
26	(-2.108)	-1.751	-0.915	-0.412	1.080	(1.994)
	-2.190	-1.706	-0.942	-0.288	0.877	1.908
27	(-2.411)	-2.054	-1.282	-0.643	0.253	1.751
	-2.504	-2.037	-1.204	-0.567	0.455	1.574
28	(-3.255)	(-2.898)	(-2.194)	(-1.707)	-0.643	0.842
	-3.389	-2.929	-2.108	-1.583	-0.474	0.629



Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
29	(-1.762) -1.806	-1.405 -1.384	-0.643 -0.631	-0.050 -0.118	0.583 0.867	2.054 1.879
30	-2.054 -2.018	-1.555 -1.728	-1.175 -1.208	-0.994 -0.876	-0.412 -0.175	0.706 0.522
31	(-2.812) -2.942	(-2.455) -2.472	-1.751 -1.633	-1.080 -1.096	-0.253 0.035	1.405 1.162
32	(-1.351) -1.290	-0.994 -0.881	-0.100 -0.152	0.412 0.312	1.555 1.301	2.054 2.282
33	(-2.108) -2.235	-1.751 -1.809	-1.080 -1.050	-0.915 -0.564	0.583 0.461	1.555 1.481
34	-1.751 -1.454	-0.842 -0.926	0.358 0.017	0.524 0.621	2.054 1.893	(2.968) 3.160
35	-1.555 -1.010	-0.202 -0.563	0.468 0.234	0.994 0.745	1.751 1.822	(2.665) 2.893
36	(-2.108) -2.495	-1.751 -2.057	(-1.622) -1.276	-1.175 -0.775	-0.050 0.279	1.751 1.329
37	-2.054 -1.718	-1.175 -1.242	-0.305 -0.394	0.583 0.155	1.282 1.295	(2.196) 2.435
38	(-2.812) -2.893	(-2.455) -2.437	-1.751 -1.624	-1.080 -1.102	-0.050 -0.005	0.522 1.088
39	(-2.411) -2.412	-2.054 -1.930	-1.080 -1.072	-0.358 -0.522	0.643 0.637	1.751 1.790
40	-2.054 -1.865	-1.282 -1.417	-0.524 -0.618	-0.100 -0.106	0.915 0.971	2.054 2.045

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
41	-1.751 -1.460	-0.915 -1.091	-0.202 -0.434	0.050 -0.012	0.706 0.876	1.751 1.760
42	(-1.762) -1.863	-1.405 -1.433	-0.643 -0.667	-0.412 -0.176	0.772 0.857	2.054 1.886
43	-2.054 -2.165	-1.751 -1.829	-1.282 -1.230	-0.994 -0.846	-0.253 -0.037	0.994 0.768
44	-2.054 -1.612	-0.915 -1.173	-0.202 -0.390	0.358 0.111	1.080 1.167	2.054 2.218
45	(-1.272) -1.173	-0.915 -0.716	0.358 0.098	0.772 0.620	1.751 1.718	(2.655) 2.812
46	(-2.411) -2.470	-2.054 -1.998	-1.405 -1.157	-0.412 -0.618	0.643 0.516	(1.557) 1.646
47	(-1.903) -1.988	(-1.546) -1.513	-0.842 -0.674	-0.151 -0.134	1.175 1.001	(2.089) 2.132
48	(-2.108) -1.998	-1.751 -1.455	-0.202 -0.487	0.412 0.133	1.555 1.440	(2.469) 2.741
49	-2.054 -1.944	-1.555 -1.418	-0.253 -0.480	0.151 0.121	1.555 1.387	(2.469) 2.647
50	-2.054 -1.950	-1.080 -1.411	-0.706 -0.450	0.000 -1.166	1.751 1.464	(2.665) 2.756
51	(-2.108) -2.310	-1.751 -1.855	-0.994 -1.043	-0.842 -0.522	0.151 0.574	2.054 1.666
52	(-1.912) -1.831	-1.555 -1.456	-0.583 -0.791	-0.305 -0.365	0.468 0.534	1.405 1.429
53	-1.751 -1.388	-0.772 -0.989	0.000 -0.278	0.202 0.178	1.080 1.137	(1.994) 2.093

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
54	(-1.912) -1.874	-1.555 -1.442	-0.583 -0.672	-0.100 -0.178	0.915 0.862	(1.829) 1.898
55	(-2.343) -2.407	(-1.986) -1.918	-1.282 -1.047	-0.305 -0.489	0.842 0.686	(1.756) 1.857
56	(-1.912) -2.054	-1.555 -1.651	-0.994 0.933	-0.643 -0.472	0.202 0.497	1.751 1.462
57	(-2.812) -2.919	(-2.455) -2.362	-1.751 -1.369	-0.412 -0.732	0.842 0.608	(1.756) 1.943
58	-2.054 -1.868	-1.282 -1.290	-0.358 -0.257	0.643 0.404	2.054 1.797	(2.968) 3.184
59	(-2.108) -2.249	-1.751 -1.709	-1.175 -0.748	0.100 -0.131	1.405 1.167	(2.319) 2.460
60	(-2.411) -2.340	-2.054 -1.798	-0.643 -0.832	-0.050 -0.212	1.405 1.092	2.054 2.391
61	(-2.108) -2.212	-1.751 -1.642	-0.583 -0.804	-0.358 -0.268	0.772 0.863	2.054 1.989
62	(-2.108) -2.146	-1.751 -1.693	-0.994 -0.885	-0.305 -0.367	0.842 0.720	(1.756) 1.807
63	(-2.108) -2.117	-1.751 -1.635	-0.842 -0.776	0.000 -0.226	0.915 0.934	2.054 2.088
64	(-2.456) -2.474	(-2.109) -2.022	-1.405 -1.217	-0.468 -0.700	0.583 0.387	(1.297) 1.470
65	(-1.976) -2.125	(-1.619) -1.662	-0.915 -0.859	-0.583 -0.340	0.643 0.754	2.054 1.844
66	(-2.411) -2.308	-2.054 -1.859	-0.706 -1.057	-0.412 -0.544	0.412 0.537	1.555 1.614

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
67	-2.054 -2.302	-1.751 -1.969	-1.405 -1.374	-1.175 -0.993	-0.358 -0.190	0.524 0.609
68	(-2.108) -2.130	-1.751 -1.703	-1.080 -0.940	-0.305 -0.451	0.643 0.578	(1.557) 1.603
69	(-2.411) -2.323	-2.054 -1.731	-0.643 -0.673	0.643 0.004	1.555 1.431	(2.469) 2.851
70	(-2.812) -2.836	(-2.455) -2.462	-1.751 -1.793	-1.405 -1.365	0.643 -0.462	0.583 0.436
71	-0.524 -0.151	0.412 0.356	1.555 1.261	2.054 1.841	(3.118) 3.062	(4.032) 4.278
72	(-1.912) -2.132	-1.555 -1.674	-1.080 -0.857	-0.643 -0.334	0.772 0.768	2.054 1.865
73	-1.751 -1.654	-1.405 -1.335	-0.643 -0.767	-0.253 -0.403	0.305 0.364	1.080 1.128
74	(-1.912) -1.965	-1.555 -1.444	-0.583 -0.515	0.100 0.080	1.555 1.334	(2.469) 2.583
75	(-2.411) -2.469	-2.054 -2.005	-1.282 -1.178	-0.643 -0.648	0.583 0.468	1.555 1.580
76	(-1.912) -1.884	-1.555 -1.413	-0.583 -0.571	0.151 -0.032	1.282 1.103	2.054 2.234
77	(-1.351) -1.438	-0.994 -0.964	-0.253 -0.118	0.358 0.425	1.751 1.566	(2.665) 2.703
78	-2.054 -1.816	-1.282 -1.338	-0.412 -0.486	0.253 0.060	1.282 1.210	(2.196) 2.354

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
79	-1.555 -1.274	-0.706 -0.852	0.050 -0.098	0.468 0.386	1.405 1.403	(2.319) 2.416
80	-2.054 -1.415	-0.524 -0.832	0.468 0.207	1.282 0.873	(2.346) 2.275	(3.260) 3.671
81	(-2.411) -2.482	-2.054 -2.046	-1.282 -1.267	-0.915 -0.768	0.305 0.282	1.405 1.329
82	(-3.602) -3.790	(-3.245) -3.286	(-2.541) -2.386	-2.054 -1.809	-0.583 -0.595	0.772 0.614
83	(-3.602) -3.852	(-3.245) -3.310	(-2.541) -2.343	-2.054 -1.724	-0.412 -0.419	1.080 0.880
84	(-3.080) -3.376	(-2.723) -2.841	(-2.019) -1.886	(-1.532) -1.275	-0.468 0.013	1.751 1.295
85	-1.555 -1.407	-0.643 -0.937	-0.100 -0.098	0.151 0.1440	1.751 1.675	(2.665) 2.699
86	(-2.411) -2.370	-2.054 -1.901	-0.772 -1.065	-0.524 -0.523	0.468 0.599	1.751 1.723
87	(-2.411) -2.660	-2.054 -2.156	-1.555 -1.257	-0.772 -0.681	0.253 0.531	2.054 1.739
88	(-2.411) -2.418	-2.054 -2.051	-1.282 -1.395	-0.915 -0.974	-0.468 -0.089	0.994 0.792
89	(-2.108) -1.944	-1.751 -1.548	-0.468 -0.842	-0.202 -0.390	0.583 0.563	(1.297) 1.512
90	(-2.616) -2.854	(-2.259) -2.329	-1.555 -1.392	-0.994 -0.792	0.202 0.471	2.054 1.723

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
91	(-1.762) -1.707	-1.405 -1.228	-0.305 -0.374	0.412 0.173	1.405 1.326	(2.319) 2.473
92	(-3.115) -3.443	(-2.758) -2.877	-2.054 -1.868	-1.751 -1.222	0.151 0.139	1.751 1.495
93	(-2.411) -2.667	-2.054 -2.162	-1.555 -1.261	-1.080 -0.684	0.842 0.531	(1.756) 1.741
94	(-2.411) -2.548	-2.054 -2.049	-1.175 -1.160	-0.706 -0.590	0.358 0.610	2.054 1.804
95	(-2.411) -2.319	-2.054 -1.851	-0.706 -1.016	-0.412 -0.481	0.706 0.645	(1.620) 1.766
96	(-1.762) -1.827	-1.405 -1.420	-0.772 -0.695	-0.385 -0.231	0.842 0.748	1.751 1.722
97	(-2.411) -2.497	-2.054 -2.401	-1.080 -1.226	-0.842 -0.704	0.050 0.394	1.751 1.488
98	(-1.762) -1.706	-1.405 -1.259	-0.358 -0.462	0.202 0.049	1.175 1.124	(2.089) 2.195
99	(-2.812) -2.844	(-2.455) -2.378	-1.751 -1.549	-0.772 -1.018	0.202 0.092	(1.116) 1.216
100	-1.175 -0.875	-0.468 -0.524	0.412 0.102	0.643 0.504	1.282 1.349	2.054 2.191
101	(-2.411) -2.497	-2.054 -1.989	-1.175 -1.083	-0.412 -0.502	0.583 0.720	2.054 1.938
102	(-2.411) -2.473	-2.054 -1.909	-0.772 -0.902	-0.468 -0.256	1.405 1.103	(2.319) 2.456

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
103	(-2.108) -2.213	-1.751 -1.738	-0.994 -0.892	-0.524 -0.350	0.994 0.791	(1.908) 1.928
104	(-2.466) -2.532	(-2.109) -2.046	-1.405 -1.179	-0.468 -0.623	0.706 0.547	(1.620) 1.712
105	(-1.762) -1.765	-1.405 -1.288	-0.202 -0.439	-0.100 0.105	1.405 1.250	(2.319) 2.391
106	(-1.437) -1.437	-1.080 -0.915	0.050 0.015	0.706 0.612	2.054 1.868	(2.968) 3.118
107	(-2.411) -2.713	-2.054 -2.249	(-1.769) -1.421	-1.282 -0.890	0.253 0.227	1.555 1.339
108	(-1.437) -1.410	-1.080 -0.925	-0.100 -0.062	0.772 0.492	1.751 1.657	(2.665) 2.818
109	(-1.912) -2.079	-1.555 -1.622	-1.080 -0.808	-0.358 -0.287	0.772 0.812	2.054 1.906
110	(-1.639) -1.545	-1.282 -1.164	-0.358 -0.484	0.050 -0.049	1.080 0.868	1.555 1.780
111	(-1.351) -1.392	-0.994 -1.060	-0.524 -0.468	-0.253 -0.089	0.772 0.710	1.555 1.505
112	(-2.616) -2.833	(-2.259) -2.365	-1.555 -1.529	-1.405 -0.994	-0.050 0.134	1.555 1.257
113	(-2.343) -2.580	(-1.986) -2.089	-1.282 -1.213	-0.994 -0.652	0.253 0.530	2.054 1.707
114	(-3.115) -3.265	(-2.758) -2.787	-2.054 -1.935	-1.555 -1.388	-0.305 -0.238	1.080 0.907

Table 42 (Continued)

Original and Derived Normal Deviates of the Statements Keyed for the  
Spranger Values in the Method of Successive Intervals

Statement	Successive Interval					
	1	2	3	4	5	6
115	(-1.532) -1.573	-1.175 -1.170	-0.583 -0.451	-0.100 0.010	1.080 0.980	2.054 1.945
116	-2.054 -1.802	-1.282 -1.398	-0.412 -0.679	-0.151 -0.218	0.524 0.753	1.751 1.720
117	(-3.115) -3.302	(-2.758) -2.750	-2.054 -1.766	-1.282 -1.135	0.524 0.193	(1.438) 1.515
118	(-1.762) -1.696	-1.405 -1.247	-0.358 -0.444	0.253 0.070	1.282 1.152	2.054 2.230
119	(-2.236) -2.341	(-1.879) -1.895	1.175 -1.098	-0.643 -0.588	0.305 0.487	1.751 1.558
120	-2.411 -2.462	-2.054 -1.958	-0.994 -0.831	-0.468 -0.482	0.583 0.731	2.054 1.940



Table 43

Initial ( $\underline{L}$ ) and Improved ( $\underline{L}'$ ) Estimates of the Modal Discriminal  
Process of the Boundary between Successive  
Intervals and Interval Sizes

Initial			Improved		
<u>Interval</u>	<u>L</u>	<u>Size</u>	<u>Interval</u>	<u>L'</u>	<u>Size</u>
1	-2.138	0.456	1	-2.115	0.454
2	-1.682	0.823	2	-1.661	0.810
3	-0.859	0.538	3	-0.851	0.519
4	-0.321	1.120	4	-0.332	1.093
5	0.799	1.094	5	0.761	1.089
6	1.893		6	1.850	
Sum	-2.308		Sum	-2.348	

Note.-- $\underline{L}$  and  $\underline{L}'$  are indeterminate for the last interval.

Table 44

Initial ( $\underline{S}$ ) and Improved ( $\underline{S}'$ ) Estimates of the Modal Discriminal  
Process of the Statements Keyed for the Spranger Values  
in the Method of Successive Intervals

Statement	$\underline{S}$	$\underline{S}'$	Statement	$\underline{S}$	$\underline{S}'$
2	0.502	0.327	21	-0.263	-0.271
3	-0.450	-0.449	22	0.938	1.016
4	-0.383	-0.390	23	-0.382	-0.389
5	-0.252	-0.263	24	0.396	0.354
6	-0.365	-0.369	25	0.145	0.104
8	-0.481	-0.498	26	-0.032	-0.061
9	-0.443	-0.449	27	0.346	0.319
10	0.084	0.218	28	1.258	1.230
11	0.191	0.116	29	-0.181	-0.172
12	-0.058	-0.049	30	0.530	1.035
13	0.430	0.398	31	0.773	0.727
14	0.229	0.325	32	-0.647	-0.683
15	0.357	0.532	33	0.235	0.270
16	-0.743	-0.674	34	-0.936	-0.866
17	-0.067	-0.073	35	-1.071	-1.089
18	-0.109	-0.147	36	0.448	0.472
19	0.257	0.273	37	-0.472	-0.475
20	-0.761	-0.705	38	0.778	0.766

Table 14 (Continued)

Initial ( $\underline{S}$ ) and Improved ( $\underline{S}'$ ) Estimates of the Modal Discriminal  
Process of the Statements Keyed for the Spranger Values  
in the Method of Successive Intervals

Statement	$\underline{S}$	$\underline{S}'$	Statement	$\underline{S}$	$\underline{S}'$
39	0.200	0.160	59	-0.183	-0.222
40	-0.219	-0.224	60	-0.101	-0.154
41	-0.324	-0.317	61	-0.055	-0.073
42	-0.152	-0.145	62	0.042	0.036
43	0.506	0.812	63	-0.096	-0.119
44	-0.438	-0.447	64	0.373	0.372
45	-0.944	-0.948	65	0.015	0.008
46	0.296	0.264	66	0.218	0.218
47	-0.188	-0.202	67	0.652	1.020
48	-0.447	-0.444	68	0.123	0.148
49	-0.437	-0.436	69	-0.311	-0.335
50	-0.480	-0.472	70	1.029	1.322
51	0.197	0.189	71	-2.156	-1.980
52	0.029	0.112	72	0.010	0.000
53	-0.510	-0.534	73	0.060	0.242
54	-0.150	-0.145	74	-0.397	-0.402
55	0.168	0.123	75	0.324	0.303
56	0.141	0.201	76	-0.291	-0.301
57	0.421	0.265	77	-0.747	-0.739
58	-0.713	-0.649	78	-0.382	-0.389

Table 44 (Continued)

Initial ( $\underline{S}$ ) and Improved ( $\underline{S}'$ ) Estimates of the Modal Discriminal  
Process of the Statements Keyed for the Spranger Values  
in the Method of Successive Intervals

Statement	$\underline{S}$	$\underline{S}'$	Statement	$\underline{S}$	$\underline{S}'$
79	-0.715	-0.746	100	-0.842	-0.984
80	-1.181	-1.012	101	0.185	0.118
81	0.441	0.467	102	-0.054	-0.126
82	1.491	1.297	103	0.028	0.004
83	1.411	1.112	104	0.302	0.250
84	0.961	0.751	105	-0.427	-0.432
85	-0.763	-0.757	106	-0.923	-0.864
86	0.206	0.180	107	0.567	0.540
87	0.363	0.282	108	-0.813	-0.793
88	0.638	0.872	109	-0.038	-0.046
89	0.057	0.115	110	-0.285	-0.273
90	0.477	0.354	111	-0.252	-0.210
91	-0.495	-0.496	112	0.670	0.631
92	0.912	0.649	113	0.332	0.271
93	0.366	0.284	114	1.067	0.988
94	0.271	0.206	115	-0.342	-0.343
95	0.158	0.135	116	-0.114	-0.087
96	-0.100	-0.074	117	0.823	0.603
97	0.380	0.369	118	-0.395	-0.402
98	-0.375	-0.381	119	-0.038	-0.046
99	0.694	0.662	120	0.164	0.102

Note.—The sum of  $\underline{S}$  = 0.010 and the sum of  $\underline{S}'$  = 0.006.

Table 45

V and s of the Statements Keyed for the Spranger Values  
in the Method of Successive Intervals

Statement	<u>V</u>	<u>s</u>	Statement	<u>V</u>	<u>s</u>
2	1.752	0.799	23	1.293	0.996
3	1.574	0.874	24	1.442	0.954
4	1.355	1.015	25	1.469	0.936
5	1.422	0.968	26	1.467	0.938
6	1.207	1.139	27	1.467	0.938
8	1.240	1.109	28	1.394	0.987
9	1.396	0.985	29	1.278	1.076
10	1.057	1.301	30	0.881	1.561
11	1.561	0.881	31	1.424	0.966
12	1.310	1.050	32	1.239	1.110
13	1.420	0.969	33	1.289	1.067
14	1.186	1.160	34	1.601	0.859
15	1.105	1.246	35	1.354	1.016
16	1.748	0.787	36	1.327	1.037
17	1.373	1.002	37	1.441	0.955
18	1.554	0.885	38	1.381	0.996
19	1.328	1.036	39	1.458	0.944
20	1.651	0.833	40	1.356	1.014
21	1.349	1.019	41	1.117	1.231
22	1.293	1.064	42	1.301	1.058

Table 45 (Continued)

V and s of the Statements Keyed for the Spranger Values  
in the Method of Successive Intervals

Statement	<u>V</u>	<u>s</u>	Statement	<u>V</u>	<u>s</u>
43	1.018	1.352	63	1.459	0.943
44	1.329	1.035	64	1.368	1.005
45	1.382	0.995	65	1.377	0.999
46	1.428	0.963	66	1.361	1.011
47	1.429	0.962	67	1.010	1.362
48	1.644	0.837	68	1.295	1.062
49	1.593	0.864	69	1.795	0.766
50	1.633	0.852	70	1.135	1.212
51	1.380	0.997	71	1.537	0.895
52	1.131	1.217	72	1.387	0.992
53	1.208	1.139	73	0.965	1.425
54	1.309	1.051	74	1.578	0.872
55	1.479	0.930	75	1.404	0.980
56	1.220	1.128	76	1.429	0.963
57	1.687	0.816	77	1.435	0.958
58	1.753	0.785	78	1.447	0.951
59	1.633	0.842	79	1.280	1.074
60	1.641	0.838	80	1.765	0.780
61	1.423	0.967	81	1.322	1.040
62	1.372	1.003	82	1.528	0.900

Table 45 (Continued)

V and s of the Statements Keyed for the Spranger Values  
in the Method of Successive Intervals

Statement	<u>V</u>	<u>s</u>	Statement	<u>V</u>	<u>s</u>
83	1.642	0.838	102	1.710	0.804
84	1.620	0.849	103	1.436	0.958
85	1.424	0.966	104	1.473	0.934
86	1.420	0.969	105	1.442	0.954
87	1.526	0.901	106	1.580	0.870
88	1.114	1.235	107	1.406	0.979
89	1.199	1.148	108	1.466	0.938
90	1.590	0.865	109	1.382	0.995
91	1.450	0.949	110	1.154	1.192
92	1.713	0.803	111	1.005	1.369
93	1.529	0.900	112	1.419	0.970
94	1.510	0.911	113	1.487	0.925
95	1.417	0.971	114	1.447	0.950
96	1.231	1.117	115	1.221	1.127
97	1.383	0.995	116	1.222	1.126
98	1.353	1.016	117	1.671	0.823
99	1.408	0.977	118	1.362	1.010
100	1.064	1.294	119	1.353	1.017
101	1.538	0.894	120	1.527	0.901

Note.--The sum of s = 117.986.

Table 46

Absolute Discrepancies between Actual and Theoretical Proportions  
Summated over the Statements Keyed for the Spranger Values  
in the Method of Successive Intervals

Value	Successive Interval						
	1	2	3	4	5	6	7
T	0.549	0.495	0.849	1.116	1.307	1.395	0.473
E	0.413	0.559	1.133	1.310	1.323	0.767	0.313
A	0.751	1.050	0.971	1.403	1.160	0.472	0.257
S	0.282	0.241	0.474	1.334	1.421	1.157	0.568
P	0.257	0.407	0.839	1.126	1.254	1.004	0.581
R	<u>0.233</u>	<u>0.348</u>	<u>0.710</u>	<u>0.909</u>	<u>1.152</u>	<u>0.955</u>	<u>0.491</u>
Sum	2.485	3.100	4.976	7.198	7.617	5.750	2.683
$\bar{X}$	0.021	0.026	0.042	0.061	0.064	0.049	0.023

Note.--The  $\bar{X}$  of the absolute discrepancies in each interval was obtained by dividing the sum of the absolute discrepancies in an interval by 118.



Table 47

$\bar{X}$ 's and Mdn's of the "Value Estimates" of  
the Spranger Values in the Method  
of Successive Intervals

Value	$\bar{X}$	<u>Mdn</u>	Value	$\bar{X}$	<u>Mdn</u>
T	4.6	3.4	S	7.3	6.1
E	1.8	0.5	P	5.5	5.9
A	-2.2	-1.2	R	8.8	9.0

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APPROVAL SHEET

The dissertation submitted by Eugene H. Welsand has been read and approved by five members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

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

January 31, 1959

Date



Signature of Adviser