

LANGUAGE PATTERNS OF REPRESSORS AND  
SENSITIZERS IN PERSONAL AND  
IMPERSONAL DESCRIPTIONS

By

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## I. INTRODUCTION TO PSYCHOLOGICAL ASPECTS OF LANGUAGE

Man has been concerned with language as an entity since the time of Plato's inquiries into the origin of languages. Language in relation to psychological variables is a relatively contemporary area of exploration, falling within the past century. Edward Sapir pioneered the exploration of this relationship in the United States when he argued that people see, hear, and otherwise experience largely because of their language habits. He stated (1940):

Language . . . is a self-contained, creative, symbolic organization which not only refers to experience largely acquired without its help, but actually defines experience for us by reason of its formal completeness and because of our unconscious projection of its implicit expectations into the field of experience.

In the theoretical framework of Alfred Korzybski (1941), thought processes are said to be diseased and faulty as a direct result of language usage. This theory of the confining qualities of language is dramatically illustrated by Aldous Huxley (1939):

It's extraordinary the way the whole quality of our existence can be changed by altering the words in which we think and talk about it. We float in language like icebergs--four-fifths under the surface and only one-fifth of us projecting into the open air of immediate, non-linguistic experience.

Psychoanalytic theory conceptualizes differing language expressions as reflections of dynamic personality functioning. Focusing particularly on errors in spoken and written language, Freud (1924) stated ". . . a suppression of a previous intention to say something is the indispensable condition for the occurrence of a slip of the tongue." Fenichel (1945) cites the development of speech and language as a decisive step in the building of reality testing. He further states that speech is "a weapon of the ego" in binding both the external world and inner excitations.

This theorizing involves language as a global communicative process. The interests of the present investigation are in formal, so-called "miniature" language approaches, which lend themselves to objective measurement. These are the Verb-Adjective Quotient (VAQ), the Type-Token Ratio (TTR), Personal Pronoun frequency (PP), Qualification Term frequency (Qual), and Allness Term frequency (All).

### Verb-Adjective Quotient

The oldest of these is the Verb-Adjective Quotient, which is defined as the simple arithmetic result of dividing the total number of verbs by the total number of adjectives in a language sample. The VAQ is an action-description ratio and is somewhat similar to the Rorschach introversive-extrotrusive balance since Rorschach movement responses (introversive) are based on action verbs and color responses (extratensive) are dependent on use of adjectives.

Marya Mannes (1963) writing in a magazine of book reviews identified verb and adjective usage as having masculine appeal and feminine appeal, respectively. After first qualifying her thoughts as an oversimplification, she suggested:

. . . that the verb dominates the "male" book and the adjective the "female." Certainly the verb is action and movement; the adjective, value and mood. The verb tells what happens, the adjective where and how and why.

This implication that verb and adjective frequencies vary in different kinds of writing and other language samples has been dealt with only minimally in the psychological research literature. Table 1 summarizes the VAQ research and it may be observed that most of the studies investigated VAQ with respect to adjustment or diagnostic category. One of the exceptions is Boder's (1940) study of Adjective-Verb Quotients in large samples of dramatic, legal, fictional, and scientific writing. He found that the relative frequency of verbs compared to adjectives increased sharply as he computed Science, Fiction, Law, and Drama AVQs in that order. Osgood and Walker (1959) found the VAQ in suicide notes to be significantly higher than in social letters and than in simulated suicide notes. However this latter investigation did not differentiate between the subjects' adjustments and the situations in which the language was written as the focal variable.

The typical study in this area used the VAQ as a dependent variable with diagnostic groupings as the independent

Table 1  
Summary of Studies with the Verb-Adjective Quotient

Author	Year	N	Population	Language Sample	$\bar{X}$ VAQ (unless noted)	
Boder <sup>a</sup>	1940	226	Dramatic writing	Dialogue from plays	AVQ = .112 VAQ = 8.93	
		110	Law statutes	Illinois and federal laws	AVQ = .200 VAQ = 5.00	
		80	Fictional writing	Prose from popular novels	AVQ = .352 VAQ = 2.84	
		140	Scientific writing	Theses and textbooks	AVQ = .755 VAQ = 1.32	
Osgood and Walker <sup>b</sup>	1959	69	Suicides	Suicide notes	VAQ significantly higher in suicide notes ( $p = .01$ )	
		72	Evanston, Ill. residents	Social letters		
Doob <sup>c</sup>	1958	49	Male college students in a psychology class	Essays on major and career	Not associated beyond chance with 28 behavioral measures	
Mann	1944	10	College freshmen	Written life story	1.96	
		10	Hospitalized schizophrenics			2.33
Belkan and Masserman	1940	5	Conversion hysterics	Twenty spoken stories	1.35	
		5	Anxiety states			3.11
		5	Obsessive-compulsives			2.17
Benton, et al.	1955	49	College students	Five spoken stories	5.00	
		11	High anxiety students		High and low anxiety groups not significantly different	
		12	Low anxiety students			

Fairbanks	1944	10	College freshmen Hospitalized schizophrenics	Spoken proverb interpretations	3.45 5.00
Busemann	1925	26	German school- children	Spoken stories on standard topics	VAQ correlated posi- tively with emo- tional instability
Lorenz and Cobb	1954	10 10 10 10 10	Normals Hysterics Obsessive-compulsives Manics Paranoid schizophrenics	Spontaneously produced interview material	1.07 1.70 1.71 1.68 1.35

<sup>a</sup>Only attributive adjectives were counted; quantitative and ordinal adjectives were excluded.

<sup>b</sup>The VAQ was extended in the form of a Noun + Verb : Adjective + Adverb Ratio.

<sup>c</sup>Verbs per hundred "noun-qualifiers" were counted.

variables. The typical result was higher VAQs in the groups of greatest maladjustment. The VAQ of spoken language correlated positively with emotional instability in school children (Busemann, 1925), was significantly higher on both spoken and written language in hospitalized schizophrenics than in college freshmen (Fairbanks, 1944; Mann, 1944), and was significantly higher in groups of hospitalized hysterics, obsessive-compulsives, manics, and paranoid schizophrenics than in normals in spoken language (Lorenz and Cobb, 1954). Still another study (Balkan and Masserman, 1940) found diagnostic group differences, in this case analyzing spoken Thematic Apperception Test stories; anxiety state patients had higher VAQs than obsessive-compulsive patients who in turn had higher VAQs than conversion hysterics. Other studies (Benton, et al., 1955; Doob, 1958) reported no significant relationships between Manifest Anxiety Scale groups and VAQ, and between 28 behavioral measures and VAQ.

Further inspection of Table 1 yields the following observations:

1. There was little replication of even broadly defined language samples from study to study.
2. Small samples were used in the diagnostic group studies.
3. Modifications of the VAQ were used which make generalizations about VAQ results uncertain.

This research on the VAQ may be summarized by stating that many methodological deficits were present and that a

trend appeared in the results suggesting that pathology is associated with a higher incidence of verb usage relative to adjective frequency.

### Type-Token Ratio

The Type-Token Ratio (TTR) is a measure of formal language introduced by Wendell Johnson (1944). It is the ratio of different words (types) to total words (tokens) in a given language sample. In a 100-word sample with 100 different words the TTR would be 1.00; in a 100-word sample with the same word repeated 100 times, the TTR would be .01. Thus the TTR is said to be a measure of vocabulary flexibility or variability. It has been computed for all of the words in a given sample, for overlapping or consecutive sets of 50 or 100 words, and for words in various grammatical categories.

The first study using the TTR was conducted by Fairbanks (1944) and represents the typical approach and use. His subjects were 10 hospitalized schizophrenics, ranging in age from 20 to 46 and in length of hospitalization from 1 month to 24 years, and 10 college freshmen chosen for their high IQs and rapid reading rates. The subjects were asked to talk about 14 proverbs presented to them, to describe situations in which they apply, and after they finished this task to talk about anything they wished until a 3,000 word language sample was obtained. One of the ways these data were analyzed was by TTR. Table 2 lists the results of this and 5 other TTR studies. In this study the schizophrenic group

Table 2  
Summary of Studies with the Type-Token Ratio

Author	Year	N	Population	Language Sample	$\bar{X}$	Range		
Osgood and Walker	1959	69	Suicides	Suicide notes	.71	Suicide notes had significantly lower TTRs at .01 level		
		72	Urbana, Ill. panel members' friends	Social letters			.66	.67 - .74 .46 - .74
Mann	1944	10	College freshmen	Written life story	.71	.67 - .74		
		10	Hospitalized schizophrenics				.66	.46 - .74
Chotlos	1944	108	Iowa children	Written stories on "Anything you want to"	IQ and TRR correlated +.52; chronological age and TRR corre- lated +.33	IQ and TRR correlated +.52; chronological age and TRR corre- lated +.33		
		36	IQ under 90				.64	.61 - .67
		36	IQ 90-109					
36	IQ over 109							
Fairbanks	1944	10	College freshmen	Spoken proverb interpretation	.64	.61 - .67		
		10	Hospitalized schizophrenics				.57	.49 - .62
Lorenz and Cobb <sup>a</sup>	1954	10	Normals	Spontaneously produced interview material	341	/ 1000 words		
		10	Hysterics				289	
		10	Manics		315			
		10	Obsessive-compulsives				284	
		10	Paranoid schizophrenics					320

Jaffe <sup>b</sup>	1958	1	Colleagues	Total spoken	.60 - .92
		1	Therapist-Pt.#B	Total verbal	.48 - .80
		1	Therapist-Pt.#C	interaction	.60 - .84

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<sup>a</sup>Counted the number of different words per 1000 consecutive words.

<sup>b</sup>Determined TTR for overlapping samples of 50 consecutive words spoken by both participants.

had a markedly lower average TTR than the college student group, with the final TTRs determined by averaging across thirty 100-word samples and across the 10 subjects in each group. Furthermore, the distributions within the groups show almost no overlap.

Similar results were found by Mann (1944), Lorenz and Cobb (1954), and Osgood and Walker (1959). These studies indicated that lower TTRs were present in written or spoken language of schizophrenics, of various neurotic and psychotic groups, and of suicides than in "normals." Chotlos (1944) departed from the usual pattern of focusing on the psychopathological and instead studied the TTRs of Iowa school children aged 8 to 18 on anything the children chose to write about. He reported highly significant positive correlations between TTR and IQ, and between TTR and chronological age. In an investigation of "dyadic speech," or the total speech produced by a two-group, Jaffe (1958) identified numerous interpersonal and intrapersonal factors that were associated with low TTRs and high TTRs. For example he noted that anxious blocking and stereotyped, circumstantial speech were intrapersonal factors associated with low TTRs.

Criticisms similar to those made of VAQ research may be made of the TTR studies; small samples tended to be used and the language samples were broadly defined. Similarly, also, a tentative generalization may be made; low TTRs tend to be associated with psychopathology, anxiety, dullness, and youth.

### Personal Pronoun Frequency

Grammatical forms of speech have been a subject for psychological study since Rowland (1907) investigated "The psychological experiences connected with the different parts of speech" in an introspectionistic framework. Of particular interest in the past 20 years have been personal pronouns as expressions of personality functioning and seven studies on this topic are summarized in Table 3. Pathology was associated with high personal pronoun usage in studies of spoken language by Fairbanks (1944) and Lorenz and Cobb (1954); in the first study hospitalized schizophrenics were reported to use more personal pronouns than college freshmen and, in the second, different groups of psychiatric patients were reported to use more total pronouns and the word "I" proportionately more than "normals." Balkan and Masserman (1940) found that the least anxious of three psychiatric groups used the fewest first person pronouns.

These results were contradicted in studies by Mann (1944) and Conrad and Conrad (1956). Mann reported that in written life stories college freshmen used more total pronouns than a schizophrenic group. Conrad and Conrad reported that high personal pronoun usage was associated with individual progress and "genuine involvement" in group therapy and with satisfaction of participants in professional staff meetings. Doob (1958) noted no significant results in his study of "ego" pronoun frequency in college students. Thus personal pronoun usage or its equivalent has been identified as being

Table 3  
Summary of Studies Involving Personal Pronoun Usage

Author	Year	N	Population	Language Sample	$\bar{X}$ % (unless noted)
Doob <sup>a</sup>	1958	49	Psychology college students	Essays on college major	Results not associated beyond chance with 28 behavioral measures
Mann <sup>b</sup>	1944	10 10	College freshmen Hospitalized schizophrenics	Written life story	14.57 13.12
Balkan and Masserman <sup>c</sup>	1940	5 5 5	Conversion hysteria Anxiety state Obsessive-compulsive	Twenty spoken T.A.T. stories	1.07 2.49 2.63
Fairbanks	1944	10 10	College freshmen Hospitalized schizophrenics	Spoken proverb interpretations	13.29 17.64
Wagner and Williams <sup>c</sup>	1961	170 11 11 11 11	Psychology college students High achievement imagery, High MMPI "K" Low AI, High "K" High AI, Low "K" Low AI, Low "K"	Spoken plans on school and career	5.90 6.84 6.72 7.33

Conrad and Conrad	1956	6	V.A. group therapy members Professional V.A. staff members	Content of therapy sessions Spoken content of staff meetings	High PP usage associated with individual progress in Gr. Therapy and with indiv. satisfaction with staff meetings
Lorenz and Cobb	1954	10	Normals Hysterics Obsessive-compulsive Manics Paranoid schizophrenics	Spontaneous spoken interview material	13.8 21.9 18.9 18.2 16.7

<sup>a</sup>Seven pronoun measures including three sets of "ego" pronouns counted as the pronoun measures.

<sup>b</sup>Total pronouns counted as the pronoun measure.

<sup>c</sup>Self-references counted as the pronoun measure.

associated with psychopathology, with some aspects of mental health, and with neither.

One particular kind of personal pronoun, namely self-reference, was among five psycholinguistic measures that Wagner and Williams (1961) used to analyze speech behavior in groups differing in Achievement Imagery (AI) on the Iowa Picture Interpretation Test (IPIT) and in defensiveness on the MMPI. The high and low AI groups were above the 75th and below the 25th percentiles, respectively. The high and low defensiveness groups were above and below the median on the MMPI "K" scale. The subject pool was composed of 170 students in general psychology at the University of Richmond. Eleven of these fell in the high AI, high "K" group, and equal numbers in the other three combinations of high and low AI and "K". The subjects provided the language samples by talking aloud to a dictaphone on the topics, stating what they think they should get out of general psychology, out of all their courses, and out of college. The analysis of self-references in these samples is shown in Table 3. Little difference appeared between the high and low AI groups or between the high and low "K" groups. Two of the other language measures investigated in this study will be discussed shortly. The significance of this study is certainly not the negative results just reported, but the use of a large number of subjects initially, selection of groups from this pool by objective, questionnaire methods, and the moderately well-defined referents for the language sample.

### Qualification and Allness Terms

The last two language measures considered here are Qualification Terms and Allness Terms. Qualification Terms are words such as approximately and perhaps, which enable the individual to modify the amount of commitment he makes in his statement. Allness Terms are extreme and polarized statements or words, such as always and none-whatsoever. Studies dealing with these two areas are summarized in Tables 4 and 5. Balkan and Masserman's (1940) group of hysterical psychiatric patients produced the largest number of Allness Terms and fewest Qualification Terms, while the obsessive-compulsive patient group used the fewest Allness Terms and the largest number of Qualification Terms. On both measures the anxiety-state patients were in the mid-range. The authors interpreted the obsessive-compulsives' patterns as part of a need ". . . to rationalize and elaborate the many ambivalences and uncertainties reflected in his fantasies." The hysterical patients' sweeping statements and minimal qualifications were associated with their characteristic absence of vagueness or ambivalence in their adjustment.

Osgood and Walker (1959) identified suicide notes as having significantly more Allness Terms and Qualification Terms than the letters of controls. Raimy (1948) reported more ambivalent, qualifying expressions in unsuccessful clients at the end of counseling than in successful clients. The raw scores in Wagner and Williams' (1961) four groups

Table 4

## Summary of Studies with Qualification Terms

Author	Year	N	Population	Language Sample	$\bar{X}$ (unless noted)
Balkan and Masserman	1940	5 5 5	Conversion hysterics Anxiety states Obsessive-compulsives	Twenty spoken T.A.T. stories	1.25 (per story) 2.68 3.69
Raimy <sup>a</sup>	1948	-	Clients	Counseling inter-views	At conclusion of counseling, more qualifying in unsuccessful clients than in successful clients.
Usgood and Walker <sup>a</sup>	1959	69 72	Suicides Friends of Urbana, Ill. panel	Suicide notes Social letters	Qual. terms significantly different in suicide notes ( $p=.01$ )
Wagner and Williams	1961	170 11 11 11 11	Psychology college students High AI, High "K" Low AI, High "K" High AI, Low "K" Low AI, Low "K"	Spoken plans on school and career	3.2 2.5 4.1 3.7

<sup>a</sup>Ambivalent constructions counted as qualification unit.

Table 5

## Summary of Studies with Allness Terms

Author	Year	N	Population	Language Sample	$\bar{X}$ (unless noted)
Balkan and Masserman <sup>a</sup>	1940	5	Conversion hysterics Anxiety states Obsessive-compulsives	Twenty spoken T.A.T. stories	.63 .53 .45
Osgood and Walker	1959	69 72	Suicides Friends of Urbana, Ill. panel	Suicide notes Social letters	Significantly more allness terms ( $p=.01$ ) in suicide notes
Wagner and Williams	1961	170	Psychology college students High AI, High "K" Low AI, High "K" High AI, Low "K" Low AI, Low "K"	Spoken plans on school and career	1.0 1.4 2.6 2.4

<sup>a</sup>"Certainty" terms were counted as the allness measure.

are reported in Tables 4 and 5, but the only significant difference was between high "K" and low "K" groups in number of Allness Terms. The more defensive subjects in the latter study used fewer Allness Terms ( $p = .07$ ).

The literature on the Qualification and Allness Term dimensions is smaller than on other language variables discussed. Furthermore it differs in the absence of adjustmental poles associated with term usage; only a tendency for defensiveness to be associated with use of qualifiers and minimal use of all-encompassing terms was present. Qualification and Allness Terms might be generalized and their use be considered as an expression of the way people perceive, organize and involve themselves linguistically in their environments.

One of the purposes of reviewing these language measures was to explore the development, background, and current meaning of their experimental use. A second purpose was to focus upon the sources of the language samples in these studies. The completion of the review now permits examination of this latter issue.

There has been a wide and largely uncontrolled range of stimuli used to elicit the language patterns and expressions of subjects. Typical of these stimuli were requests for the subject to write the story of his life (Fairbanks, 1944), to write about anything he wanted to (Chotlos, 1944), to create Thematic Apperception Test stories (Balkan and Masserman, 1940; Benton, et al., 1955), and to report what he hopes to get out of college (Wagner and Williams, 1961).

In most of these the subjects were free to write or talk about a wide variety of topics, depending on what set happened to be in mind. In the Chotlos language sample, for example, one subject may have written about his anxieties and fears, while another may have written about skyscraper construction or oxidation-reduction processes.

This potential, and in some cases likelihood, for a wide range of subject matter in the language samples develops special meaning in the context of Boder's (1940) study. He reported striking differences in one language measure between extensive samples of four areas of language. The frequency of verbs in proportion to adjectives was nearly seven times as great in conversational, dramatic language as in scientific descriptive language. This implies that in many of the studies of language variables, the discrepancies between manipulated clinical groups were due to the subjects producing different classes of language rather than different language patterns on the same class. Where significant differences were obtained, was this a result of varying clinical groups' tendencies to talk about different topics, or was it a result of the groups' dissimilar language patterns across all topics? One of the objectives of the current investigation was to vary both personality groups and language sources in order to explore this question.

Still another dimension involved in personality and language research is that of verbal ability, and of intelligence. One of the studies reviewed (Chotlos, 1944),

identified IQ as a major contributor to variance in TTRs and other language measures. Intelligence was deliberately and inextricably confounded with adjustmental level in two early studies of TTR and parts of speech (Fairbanks, 1944; Mann, 1944). The effects of intelligence were recognized by Balkan and Masserman (1940) when they matched their psychiatric groups by IQ. Similarly, Wagner and Williams (1961) attempted to rule out verbal ability influences by establishing that ACE and Cooperative English Test scores were independent of their personality variables. This implicit recognition of potential ability effects on language variables has occurred frequently without specific investigation of the effects in an adjustmental context. The integration of these effects with language source and personality variables therefore was posed as an issue in the current investigation.

## II. THE REPRESSION-SENSITIZATION DIMENSION

The concept of repression-sensitization may have a special relevance to the question of the relationship between the experiencing of feelings and miniature language patterns. Repression-sensitization (R-S) refers to modes of experiencing, with repressors defined as people who avoid and deny experiencing and sensitizers who exaggerate their experiencing and feelings.

The notion of repressors and sensitizers arose from the observation (Postman and Bruner, 1948; McGinnies, 1949; Bruner, 1957) that a wide range of individual differences existed in perceptual recognition thresholds of emotionally tinged stimuli on tachistoscopic presentations. At one extreme were subjects who characteristically did not recognize the emotional or threatening stimuli, and these were identified as repressors. The sensitizer label was attached to those, at the opposite extreme of the continuum, who recognized the stimuli at shorter exposure times than the other subjects.

Other studies produced more clinical and more general definitions of R-S. Altrocchi and Dickoff (1963) defined repressors as people who ". . . use avoidance, denial, and repression of potential threat and conflict as primary modes of adaption and ego-control." They stated that sensitizers

tended to be self-effacing, neurotic extroverts and were similar to patients that had symptoms of anxiety and depression.

Byrne (1961) stated that repressors have ". . . behavior mechanisms of a predominately avoiding type," while sensitizers exhibit predominately approaching, intellectualizing, obsessional behaviors. Byrne summarized the results of a number of studies on R-S and reported that those who repressed on perceptual tasks ". . . also tended to be identified as repressors on the basis of case history and interview material, to be classified by psychiatric personnel as internalizers, to remember success better than failure on a scrambled sentence task, to forget an anxiety-arousing Blacky picture, to respond to a sentence completion test with blocking, avoidance, denial, and cliches, . . ." Sensitizers on the other hand recalled failures, learned affective words as easily as neutral ones, admitted their inadequacies and shortcomings easily, and on a word-association test had short latencies for aggressive and succorant words.

No proposal is made for repression-sensitization as a pure, unique, or new dimension. Ullman's (1958, 1962) facilitation-inhibition dimension was defined in virtually the same terms as R-S. Cristie's (1963) annual review article on personality structure summarized the strong evidence for overlap of response-set, social-desirability, and R-S. Joy (1963) reported that Byrne's R-S MMPI scale intercorrelated more highly with 50 MMPI and California

Personality Inventory scales than any other scale used. Joy further noted R-S to correlate  $+0.72$  with the MMPI Depression scale,  $+0.60$  with Psychasthenia,  $+0.62$  with "F" (validity), and  $+0.40$  with Rokeach's Dogmatism scale. He obtained 20 correlations that were negative and greater than  $-0.50$ ; these might be summed up as scales of socialibility, well-being, and good adjustment, with defensiveness and social desirability prominent. Thus, R-S actually involves a broad range of adjustmental and experiencing variables, cutting across a number of other personality dimensions.

The R-S dimension itself has been shown to have satisfactory reliability and moderate validity. Byrne (1961) studied R-S in 133 college students at the University of Texas and found a split-half "r" of  $.88$  and a 6-week test-retest "r" of  $.88$ . Byrne also correlated his 156 item MMPI R-S scale with Ullman's facilitation-inhibition scale of 43 MMPI items, using these college students, and obtained an "r" of  $-.76$ . Ullman (1962) performed the same experiment with psychiatric patients and found a correlation of  $-.94$ . Altrocchi, Parsons, and Dickoff (1960) reported significantly lower self-ideal discrepancies in repressors than in sensitizers, and Byrne (1961) reported correlations of  $+0.62$  and  $+0.55$  between R-S and self-ideal discrepancies in two separate samples.

Byrne's conclusions, after reviewing the rationale, reliability, and validity of the repression-sensitization dimension, were that ". . . most of the evidence is positive

and indicates that repression-sensitization is a meaningful behavior dimension" and that ". . . the R-S scale appears to be a reliable test and, with minor exceptions, the evidence suggests that it is a measure of defensive behavior."

### III. STATEMENT OF THE PROBLEM

There were two parts to this investigation of language variables. The first part sought to explore the relationships between and contributions of personality, ability, and situational variables to language patterns. There is a large literature on each of these variables with respect to language usage, but there has been only a minimal integration of them. For the purposes of the present study, the following definitions of these variables were made:

Personality was defined by the repression-sensitization dimension, as scored from Byrne's (1961) revised scale.

Ability was defined by raw scores on the verbal ability section of the School and College Ability Test (1963).

Situation was defined as the "personal" description of one's self and the "impersonal" description of a picture of a room, as expressed in written language.

Language variables were defined as the Type-Token Ratio, the Verb-Adjective Quotient, and the frequency per thousand words of Personal Pronouns, Qualification Terms, and Allness Terms. In addition, the total number of words used in the description was included as a measure of productivity.

No suggestion was made that these definitions were in

any way encompassing or all-inclusive. Rather they were specific, limited measures of the stated general variables.

In the first part of this study the personality, ability, and situational variables were the independent measures and were manipulated by establishing different groups on repression-sensitization and SCAT verbal ability and by performing repeated measurements in the situations. The language measures were the dependent variables and were individually studied in relation to the independent variables. The lack of previous studies integrating these independent variables led to a series of null hypotheses in which the language measures were considered as a whole.

The null hypotheses:

1. There are no differences in the language patterns of repressors, sensitizers, and a middle group.

Rejection of this hypothesis is consistent with earlier findings that personality dimensions are associated with language measures. For example, the denial and avoidance of the repressors might be manifested in low Verb-Adjective Quotients, high TTRs, many Qualification Terms, and few Allness Terms. Conversely the exaggerated anxiety of the sensitizers might be seen in high Verb-Adjective Quotients, low TTRs, and so on.

2. There are no differences in language patterns used by subjects grouped according to verbal ability.

The explicit findings of one study (Chotlos, 1944) and the controls used in others (Balkan and Masserman, 1940; Wagner and Williams, 1961) suggested possible relationships

between certain language measures and verbal ability. Rejection of this hypothesis on the TTR is congruent with Chotlos' findings, and rejection of this hypothesis for Verb-Adjective Quotient and Qualification and Allness Terms justifies the controls of verbal ability which were used in the study of these measures.

3. There are no differences in language patterns used in personal and impersonal description situations.

Rejection of this hypothesis is consistent with the marked situational differences reported in the Boder (1940) study and implied in the Osgood and Walker (1959) study.

4. There are no significant interactions in the patterns of language found in the independent variables.

The sparsity of literature on this issue resulted in no directional expectations for rejection of this hypothesis.

Hypothesis number one was further explored in a limited sense. Extreme repressors and extreme sensitizers were defined and their language scores compared. The purpose of this additional comparison was to study the language patterns of especially deviant subjects on the repression-sensitization personality dimension.

The second part of the study was concerned with the language measures as independent variables. While the procedure followed in the first part of the present study and in most others was a manipulation of adjustmental groups and then a studying of language changes, the second aspect of the present investigation involved a manipulation of language groupings with an examination of concomitant adjustmental

category changes. In other words the focus was upon the language measures themselves.

The purpose of redefining the language measures as independent variables was to explore in a more direct manner than before the meaning of given language patterns. That is, there is evidence which suggests that subjects who are maladjusted in certain ways produce lower TTRs, for one instance, than control subjects. Now does it follow that subjects who produce lower TTRs than most people are maladjusted in these certain ways? And, how do they differ from subjects at the opposite end of the TTR distribution? These are the kinds of questions that the second part of the study sought to investigate.

The procedure was to select the extremes on the language measures, to compare the extremes with each other on each individual language measure, and to compare the extremes to the entire sample. The basis for comparison was chiefly the Minnesota Multiphasic Personality Inventory scales, with a single SCAT verbal ability score included. No specific hypotheses were made because of the exploratory nature of this part of the investigation.

#### IV. METHOD

##### Subjects

The subjects were 144 male undergraduate students who were attending the University of Florida in May of the Spring Trimester, 1963. All were either living in Tolbert Hall or were registered for one of the following courses: Introductory Psychology (PSY 201), Psychology of Adjustment (PSY 202), Introduction to Speech (SCH 201), or Introductory English (C-31, C-32, Eh 133). A plurality of the subjects came from the English courses, followed by the dormitory residents, the Psychology students, and the Speech students, respectively (see Appendix A, Table 20). This population of undergraduate male students was chosen because of their availability and because of the extensive standardization of the repression-sensitization scale on similar populations, e.g., Byrne (1961).

##### Instruments

The Byrne revised 127-item repression-sensitization scale of the Minnesota Multiphasic Personality Inventory was used as the R-S measure. Verbal ability was defined as the raw score of the verbal part of the School and College Ability Test (SCAT). The MMPI and SCAT are administered routinely to all entering students at the University of Florida.

The impersonal description stimulus was the 2-page picture of a living room and patio in color on pages 50-51 of 1001 Decorating Ideas (Consco Products, 1963). A 30-inch square image of this picture was projected by opaque projector on a white screen in rooms that were sufficiently darkened to permit easy perception of the image and sufficiently lighted to permit the subjects to write without discomfort. The personal stimulus was the request to the subject to "describe everything about yourself personally."

Six sheets of lined white paper stapled together in sets of three were prepared for each subject. Personal information forms were used which requested the following information: name, age, student number, academic classification, parental education, total parental income, marital status, and an open-ended statement about the meaning of the task as the subject saw it.

The standard ten MMPI clinical scales were tabulated for each subject as well as the three validity scales.

Finally, the actual language measures used were defined in the following manner:

Number of Words. The total number of words were tabulated by exact number; hyphenated words were counted as one word; words accidentally repeated were counted both times (e.g., "looking in the the room" = five words).

Type-Token Ratios. TTRs were tallied for each full 100 words in each description (TTRs were obtained for words 1-100, 101-200, 201-300, etc.); these were averaged to yield

a single TTR for each subject's impersonal description and a single TTR for his personal description.

Verb-Adjective Quotients. All verbs in a description sample were tallied, including auxiliary verbs and participles. All adjectives were similarly tallied, including quantitative, ordinal, and attributive adjectives. The total verb count was divided by the total adjective count and the Verb-Adjective Quotient was carried out to two decimal places.

Personal Pronouns. Sixteen words were defined as personal pronouns. I, me, my, myself, we, our, you, she, he, her, his, hers, him, your, they, their were all counted in any context.

Qualification Terms. Twenty-seven individual terms and phrases of ambiguity were counted; the most frequently occurring were almost, about, approximately, apparently, more-or-less, especially, maybe, perhaps, somewhat, and evidently.

Allness Terms. These were defined as extreme and polarized words. Qualified Allness Terms were not counted; e.g., that is about all. The following composed the complete list of Allness Terms: all, never, completely, always, anything, nothing, nobody, everybody, forever, utter, exactly, undoubtedly, wholly.

#### Administrative Procedure

Volunteers were solicited from the speech course and students wishing to fulfill course requirements for

experimental participation were solicited from the psychology courses by announcing in written and spoken form the opportunity to join in "Experiment Life Situation." The dormitory and English students participated by virtue of attending their regular floor and class meetings, respectively; at this time they were informed that an experiment was being conducted and they were asked to participate. Almost all of the students in the latter groups did serve as subjects.

The lined paper and the personal information sheets were passed out with the personal information sheet at the bottom to give the impression of anonymity. The order of administration of personal description and the impersonal description tasks was alternated with successive groups. The following instructions were given when the impersonal description was requested first.

The purpose of the tasks you will be given is to study language usage. This is a three part experiment which will last one hour. For the first part of the experiment, take the top three sheets of paper you have been given. They should be stapled together. Now (picture projected on screen) please look at the picture on the screen and try to describe everything you see. You may write as much as you want to, but be sure you fill at least both sides of one page. Do not list, and remember to describe everything you see. You will have 25 minutes.

(after 25 minutes)

Now turn to the next set of lined paper. This is the second part of the experiment. Please describe everything about yourself personally. Again you may write as much as you want to, but be sure to fill at least both sides of one page. Remember, give a complete personal description of yourself. You will have 25 minutes.

(after 25 more minutes)

Now take the personal information sheet and fill it out completely.

When the personal description was requested first, similar instructions were given with only the order changed from those above. In all administrations of the personal description part, at least one subject asked if the investigator desired a physical description. The standard reply was "It's up to you."

When all the descriptions had been collected, they were scored for the language variables by the investigator. The descriptions were chosen randomly for a second scoring by the investigator and by a colleague, and a very high degree of correspondence was found between the two scorings. Wagner and Williams (1961) also noted high scorer reliability on some of these measures; they computed rank-order correlation coefficients and obtained the following rho values for the two sets of judges' scores: Allness Terms = +.85, Qualification Terms = +.94, and Self-references = +1.00. In the present study it was felt that the objective, easily quantified nature of the language variables enhanced scoring reliability.

A total of 173 subjects participated in the personal and impersonal descriptions. Three were eliminated because they had left one of the descriptions blank or had jotted a cryptic note on the paper about their feelings of invasion of privacy. When the Minnesota Multiphasic Personality Inventory data were obtained from the files of the University Mental

Health Clinic, it was found that no data were available on 26 subjects. Therefore 144 subjects were left on whom all necessary information was present. Because the subjects took the MMPI over a period of three years, with some taking it immediately before the beginning of the semester in which the language data was collected, and some three years earlier, the issue of the reliability of the MMPI was raised. Analysis of the language data by time of taking the MMPI was performed, but no definitive answers were found. The analysis is shown in Appendix B, Tables 23 and 24.

The raw scores on the verbal section of the School and College Ability Test were obtained from privately distributed mimeographed papers produced by the Board of University Examiners, the University of Florida. The raw scores were chosen as a control over the changing percentile ranks among University of Florida students on SCAT scores from year to year. There were 10 subjects for whom no SCAT scores were available; the twelfth grade placement scores for this group were converted to percentile scores of University of Florida freshmen according to the Board of Examiners' publication, and then the percentile scores were converted to equivalent SCAT verbal raw scores for the individual student's year of entry.

### Statistical Procedure

Repressors, sensitizers, and a mid-group called neutrals were identified in the first part of the study of the 144 subjects. The high 30 on Byrne's revised R-S scale

of the MMPI were the sensitizers; the middle 30 were the neutrals; the low 30 were the repressors. The range of R-S scores for sensitizers was 50-81, for neutrals was 27-34, and for repressors was 2-15. There were 27 subjects in each of the "in-between" groups.

The exception to this division was the Type-Token Ratio analysis, in which five subjects were eliminated because of language samples of less than 100 words on one of the descriptions. The repression, neutral, and sensitization groups still contained 30 each, but the "in-between" groups then had 25 and 24. In addition the range of each of the R-S groups was expanded by one point on the R-S scale. The distribution of R-S scores is illustrated in Appendix A, Table 21.

These 90 subjects who had been classified as repressors, neutrals, or sensitizers were then classified further by their School and College Ability Test verbal raw scores, or raw score equivalents. Within each R-S group the 10 subjects with the highest SCAT verbal scores were identified as the High SCAT group, those with the middle 10 scores as the Mid group, and those with the lowest 10 scores as the Low SCAT group. The distributions and ranges of the SCAT groups were slightly different in each R-S group. As a result there were a few instances when subjects who were in different SCAT groups had identical SCAT scores. These distributions appear in Appendix A, Table 22.

The 90 subjects were thus divided into nine groups of 10 subjects each, three times by R-S scores, and three times more by SCAT verbal scores. Two measurements, one from the impersonal description of the room and a second from the personal description of self, were derived for each subject. This experimental design is illustrated in Table 6.

Table 6  
Design of the Experiment, Part 1

R-S	SCAT Verbal	Personal	Impersonal
Repressors	High	10	10
	Mid	10	10
	Low	10	10
Neutrals	High	10	10
	Mid	10	10
	Low	10	10
Sensitizers	High	10	10
	Mid	10	10
	Low	10	10
		90	+ 90 =
180 measurements			

Essentially this design is a Lindquist Type III model, with two sources of variance between subjects and one source of variance within subjects (Lindquist, 1953). The procedure for the analysis of the variance is shown in Table 7.

This analysis was performed six times, once for each of the language measures which served as the dependent variables.

Table 7

The Analysis of Variance for Repression-Sensitization,  
SCAT Verbal Ability, and Mode of Description

Source	df
(Between subjects	89)
Repression-sensitization (R)	2
SCAT Verbal (V)	2
R x V	4
Subjects within R x V	81
(Within subjects	90)
Personal-impersonal (P)	1
P x R	2
P x V	2
P x R x V	4
P x subjects within R x V	81
Total	179

In this first part of the study the repression-sensitization dimension was further investigated with the language variables still serving as the dependent variables. The 15 highest subjects on the R-S scale were defined as extreme sensitizers and the 15 lowest of the 144 subjects on the R-S scale were defined as extreme repressors. The range of R-S scores for the extreme sensitizers was 59-81 and that of the extreme repressors was 2-10. These two groups were compared by t test on the six language measures on both the personal and impersonal descriptions, a total of 12 t tests.

In the second part of the study the 144 subjects were studied with the primary focus on the language measures themselves. The high 30 and the low 30 subjects on each of

the six language measures were selected on the personal descriptions and then on the impersonal descriptions. The total number of selections was 12 high groups and 12 low groups. Of course these groups were not mutually exclusive and some subjects fell in several groups.

Fifteen "dependent" measures were tallied for these 12 groups; these 15 measures included MMPI scales one through ten, "L", "F", "K", and R-S, and the SCAT verbal raw scores. All of the analyses on the MMPI clinical scales were performed without the "K" correction.

The differences between means on the 14 MMPI scales and the SCAT score of the 12 high-low sets from the language variables were tested for significance by t test. Thus 12 times 15 or a total of 180 t tests were performed.

In addition the means and the standard error were computed for the 15 dependent variables; that is, the MMPI scales and the SCAT scores. Then confidence limits were estimated for the 0.05 and 0.01 levels of confidence (McNemar, 1955). Each of the 24 scores (two modes of description times six language measures times two extreme groups) falling in each of the dependent variables were evaluated with respect to the confidence levels. Therefore 360 scores, each a mean value for a group, were evaluated.

## V. RESULTS

The results of the analysis of variance section of Part 1 of the investigation are shown in Tables 8 and 9. In Table 8 the language measures were accumulated in groups of 10 subjects as proposed in Table 6. Therefore the first sum, 3241, in the personal description column, under the heading Number of Words, means that the average number of words used by repressors with high verbal ability was 324.1. It similarly can be seen that the average number of words used in the impersonal descriptions by the group of sensitizers with low verbal ability was 281.2.

The Type-Token Ratio and Verb-Adjective Quotient sums in Table 8 were multiplied by constants for ease of statistical computation. The TTRs were multiplied by 1000 and the VAQs were multiplied by 100. These constants appear again in the analysis of variance tables, mean squares column, but have no meaning or effect with regard to the F-ratios. Therefore in Table 8, the sum 7197 in the repressor-high verbal ability-personal description slot represents a mean TTR of .72; the sum 6228 under TTR in the neutral-low verbal ability-impersonal slot represents a mean TTR of .62. Under the VAQ heading, the sum 2870 in the repressor-low verbal ability-personal slot stands for a mean VAQ of 2.87. The

Table 8

Language Scores of R-S Groups and Verbal Ability Subgroups  
on Personal and Impersonal Descriptions<sup>a</sup>

	SCAT	Per- sonal	Imper- sonal	SCAT	Per- sonal	Imper- sonal
	<u>Number of Words</u>			<u>Type-Token Ratio<sup>b</sup></u>		
Repressors	High	3241	3051	High	7197	6631
	Mid	2858	2612	Mid	6877	6150
	Low	3674	3433	Low	6960	6470
Neutrals	High	3031	3097	High	7050	6574
	Mid	3506	3106	Mid	7050	6309
	Low	3349	2937	Low	6957	6228
Sensitizers	High	2774	2733	High	7032	6268
	Mid	3664	3398	Mid	7126	6316
	Low	3036	2812	Low	7083	6342
	<u>Verb-Adjective Quotient<sup>c</sup></u>			<u>Personal Pronouns /1000 Words</u>		
Repressors	High	1903	1049	High	1049	155
	Mid	1918	1137	Mid	1004	199
	Low	2870	1119	Low	1172	116
Neutrals	High	2048	1212	High	1063	172
	Mid	2108	909	Mid	1101	128
	Low	2326	1159	Low	1107	178
Sensitizers	High	1665	964	High	946	53
	Mid	2124	1194	Mid	1159	201
	Low	1778	1166	Low	1133	139
	<u>Qualification Terms /1000 Words</u>			<u>Allness Terms /1000 Words</u>		
Repressors	High	523	357	High	97	88
	Mid	443	307	Mid	103	38
	Low	297	289	Low	91	53
Neutrals	High	433	333	High	111	45
	Mid	363	274	Mid	113	44
	Low	276	306	Low	127	76
Sensitizers	High	398	343	High	132	43
	Mid	461	321	Mid	167	44
	Low	286	287	Low	136	72

<sup>a</sup>All scores represent the sum of scores for groups of 10 subjects.

<sup>b</sup>All TTR scores listed here were multiplied by a constant of 1000.

<sup>c</sup>All VAQ scores listed here were multiplied by a constant of 100.

number 964 in the sensitizer-high verbal ability-impersonal slot stands for a mean VAQ of .96.

Each of the scores listed under Personal Pronouns, Qualification Terms, and Allness Terms in Table 8 is the sum of the scores of the 10 subjects falling in the sub-classes. PP, Qual., and All. are expressed in units per 1000 words; this was computed by dividing the number of Personal Pronouns, for example, of each subject in personal and then impersonal descriptions by the number of words used in that description, and then multiplying the result by 1000. Therefore under Personal Pronouns, the 1049 in the repressor-high verbal ability-personal slot means that the mean for that sub-class is 104.9 Personal Pronouns per 1000 words used.

The data in Table 8 are summed and averaged in Table 9 in order to show the global relationships on the language measures between and within the independent variables. Notable among these within variable differences are those between the personal and impersonal descriptions; the personal descriptions yielded more words, more different words, proportionately more Personal Pronouns, Qualification Terms, and Allness Terms, and a high ratio of verbs to adjectives. Within the R-S variable, few differences were present. The primary noteworthy result was a lower production of words and a lower VAQ by the sensitizers than the other groups. Within the SCAT verbal ability variable, the High group produced fewer words, had a lower mean VAQ, lower PP/1000 words frequency, and a greater frequency of Qualification Terms. The

Low verbal ability group used more adjectives in proportion to verbs and used notably fewer Qualification Terms.

Table 9

Mean Language Scores of R-S Groups, of Verbal Ability Subgroups, and of Personal and Impersonal Description Samples

	Words	TTR	VAQ	PP /1000	Qual /1000	All /1000
Repressors <sup>a</sup>	314.5	.671	1.67	61.6	36.93	7.83
Neutrals	317.1	.669	1.63	62.5	33.03	8.60
Sensitizers	306.9	.669	1.48	60.5	34.93	9.90
High SCAT <sup>a</sup>	298.8	.679	1.47	57.3	39.78	8.60
Mid SCAT	319.1	.664	1.57	62.5	36.15	8.48
Low SCAT	320.7	.667	1.74	60.5	29.02	9.90
Personal <sup>b</sup>	323.7	.704	2.08	108.2	38.67	11.97
Impersonal	301.9	.637	1.10	14.9	31.30	5.59

<sup>a</sup>N = 30

<sup>b</sup>N = 90

The analysis of variance of these data is presented in Table 10, by source of the variance, mean squares, and F-ratios. The only source of variance that was found to produce consistent significant differences in the language variables was the personal-impersonal description. All six of the dependent measures were significantly different between the personal language sample and the impersonal language sample beyond the 0.01 level of significance.

The other significant F-ratios were produced by the verbal ability variable under Qualification Terms. The number of Qualification Terms used by the three verbal ability groups was significantly different at the 0.05 level of

Table  
Analysis of Variance Tables

Source	df	Words		TTR	
		MS	F	MS	F
(Between <u>Ss</u>	89)				
R (R-S)	2	1666	.08	.77	.04
V (SCAT)	2	8937	.44	3905	1.92
R x V	4	30032	1.47	3430	1.69
<u>Ss</u> /R x V	81	20449		2031	
(Within <u>Ss</u>	90)				
P (Descr.)	1	21212	8.67**	202944	13.15***
P x R	2	201	.08	1238	.80
P x V	2	2962	1.21	961	.62
P x R x V	4	1230	.50	474	.31
P x <u>Ss</u> /R x V	81	2446		1544	

\*0.05 level of significance

\*\*0.01 level of significance

\*\*\*0.001 level of significance

## or Six Language Measures

VAQ		PP/1000		Qual/1000		All/1000	
MS	F	MS	F	MS	F	MS	F
5651	.70	58	.10	223	.58	66	1.14
0681	1.32	816	1.42	1800	4.67*	10	.17
7163	.89	561	.98	173	.45	38	.66
8092		574		385		58	
8258	86.84***	391347	625.7***	2442	11.7**	1830	30.91***
8278	1.26	34	.05	104	.50	113	1.90
5420	1.09	425	.68	753	3.61*	55	.93
8268	1.26	300	.48	56	.27	17	.28
4989		626		207		59	

significance. The same level of significance was found for the interaction between verbal ability and personal-impersonal description.

There were no significant results in the repression-sensitization variable, or in any of the tested interactions, between R-S and other variables. Examination of the mean squares for R-S in Table 10 reveals that not only were no significant differences present, but that very little differences whatsoever between the R-S groups were found in these language measures.

The first major null hypothesis was that no differences between repression-sensitization groups would appear on the six language measures. The results failed to reject this hypothesis on any of the measures.

The second major null hypothesis was the prediction that the SCAT verbal ability groups would not differ on the six language measures. This hypothesis was rejected only on the Qualification Term measure, and was not rejected for the other five measures.

The third null hypothesis was that no differences would appear between the personal (self) and impersonal (room) descriptions on the language measures. The results rejected this hypothesis on all six counts. In each instance the probability of the personal-impersonal differences occurring by chance was less than one in a hundred.

The null hypothesis concerning interactions between the three independent variables was rejected one time in the

24 interaction measures tested. Overall the data failed to reject this hypothesis, but the one rejection under Qualification Terms was consistent with the significant findings of the interacting variables tested alone.

The further investigation of the repression-sensitization dimension yielded results that were essentially negative. The isolation of 15 extreme repressors and 15 extreme sensitizers from the total subject pool of 144 produced an R-S mean of 7.47 for the former group and an R-S mean of 65.60 for the latter group. The means, standard deviations, differences between the means, and  $t$  values of these two groups for the language dependent variables are presented in Table 11. In addition this table lists the SCAT verbal raw scores for the two groups; the SCAT means were identical for the two groups and the standard deviations similar enough to consider that verbal ability so measured was matched in the groups.

There was a greater difference between the R-S groups using this sampling of 15 subjects than in the earlier sampling of 30 subjects per group. Of the 12 mean differences shown in Table 11, only one is not larger than the mean differences between the R-S categories in Table 9; that is Qualification Terms, impersonal description.

The greater language differences between repressors and sensitizers in the extreme groups are noted in terms of mean scores; however these differences were accompanied also by broad dispersions about the means. Twelve  $t$  tests were performed and one was significant at the 0.06 level. This

Table 11

Language Data Comparison of Extreme Repressors (N=15)  
and Extreme Sensitizers (N=15) in a  
Population of 144 Subjects

	Repressors (N=15)		Sensitizers (N=15)		$\bar{X}_R - \bar{X}_S$	$t$
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
R-S scores	7.47	2.16	65.60	5.53		
SCAT	40.0	9.39	40.0	9.19	0	0
<u>Personal (self) Description</u>						
No. of words	326.9	95.2	296.2	165.4	30.7	.85
TTR	.704	.039	.707	.046	.003	.26
VAQ	2.28	1.01	1.80	.85	.48	.35
PP/1000	111.8	19.8	101.8	39.6	10.0	.85
Qual/1000	46.4	19.2	34.3	12.5	12.1	1.98*
All/1000	8.33	5.7	11.73	12.1	3.40	.96
<u>Impersonal (room) Description</u>						
No. of words	291.3	76.0	267.6	81.7	23.7	.81
TTR	.633	.036	.641	.050	.007	.64
VAQ	1.24	.82	1.00	.58	.24	.89
PP/1000	17.27	22.9	13.07	25.9	4.20	.47
Qual/1000	31.73	15.5	32.93	13.2	1.20	.22
All/1000	5.87	6.4	4.40	3.5	1.47	.74

\*p = 0.06

was Qualification Terms, personal description. This finding is amenable to inferences only in a minimal sense, since finding one of twelve such tests significant is probable by chance alone. This analysis of the extreme groups is seen as an additional failure to reject the first null hypothesis.

The second part of the study focused upon the language measures themselves as the independent variables. The means and standard deviations for each of the measures were computed by the arbitrary origin method for the 144 subjects. This information is presented in Table 12 in the form of separate means and standard deviations for the personal and impersonal descriptions.

Comparing these results to the mean scores for the same variables with the  $N = 90$  R-S groups in Table 9 yielded a high congruence on 8 of the 12 means. Somewhat lower means were obtained from the entire subject pool than the sample of 90 subjects on the following four measures: Number of Words, impersonal description (295.5 : 301.9); Number of Words, personal description (311.3 : 323.7); Verb-Adjective Quotient, personal description (1.94 : 2.08); and Qualification Terms, personal description (35.83 : 38.67). These tendencies of the R-S groups to write more and to use relatively more verbs to adjectives and more qualifiers than the subjects as a whole do not lend themselves to inferences about group composition. The dispersion measures about the means for the whole subject pool were at least five times greater than the mean differences shown above in parentheses and therefore strongly supported chance variation as an explanation.

Table 12

Means, Standard Deviations, and Extreme Group Ranges for Six Language Variables in 144 Subjects

Language Variables	$\bar{X}$	S. D.	Extreme Group Ranges	
			Hi (N=30)	Lo (N=30)
No. of Words:				
Impersonal description	295.48	84.86	364-527	105-263
Personal description	311.25	115.68	398-681	18-208
Type-Token Ratio:				
Impersonal description	.637	.045	.660- .750	.515- .600
Personal description	.705	.047	.733- .807	.590- .680
Verb-Adjective Quotient:				
Impersonal description	1.08	.56	1.43 -3.25	.35 - .67
Personal description	1.94	.81	2.54 -5.79	.24 -1.27
Personal Pronouns: <sup>a</sup>				
Impersonal description	15.72	22.49	23-170	0- 2
Personal description	110.13	26.38	127-186	6-93
Qualification Terms: <sup>a</sup>				
Impersonal description	31.73	13.73	42- 87	0-21
Personal description	35.83	15.38	48-140	0-23
Allness Terms: <sup>a</sup>				
Impersonal description	5.88	4.97	8- 35	0- 0
Personal description	12.50	8.21	18- 49	0- 4

<sup>a</sup>Expressed in frequencies per 1000 words.

Extreme groups of 30 subjects were selected for each of the language variables on the personal, and then the impersonal description. For the TTR variable the high 30 and the low 30 of 139 subjects were the extreme groups as a result of the elimination of five subjects who did not produce the 100 words on both personal and impersonal descriptions which was necessary for TTR scoring. On the five remaining language measures the high 30 and low 30 subjects were drawn from the entire subject pool. The ranges of language scores for each of the extreme groups appears in Table 12.

When these extreme groups were selected, sometimes there were two or more subjects with the same scores which fell at the cutoff point. In the case of Allness Terms, impersonal description there were 43 subjects with scores of zero. The subjects for the extreme groups in these cases were randomly chosen; thus the 30 subjects using low Allness Terms, impersonal description, were not deliberately, if at all, different from 13 other subjects not so classified on Allness Term usage.

Examination of the standard deviation (S.D.) column in Table 12 reveals a consistent finding on all six language variables. The standard deviations for the personal descriptions were greater than the standard deviations for the impersonal descriptions. The differences were minimal for TTR, Personal Pronouns, and Qualification Terms, but were marked for Number of Words, VAQ, and Allness Terms. A greater variability in the language in the personal descriptions also was

found in comparisons of the ranges. For example the VAQs on the impersonal descriptions ranged from .35 to 3.25 while the personal description range was .24 to 5.79. This broader personal description range was present on all language measures.

For each language measure the high extreme and the low extreme groups were compared on the personal and the impersonal descriptions. The dependent variables were the ten MMPI clinical scales, the three MMPI validity scales, the R-S MMPI scale, and the SCAT raw verbal score. None of the MMPI data included the correction for "K" used in plotting profiles.

The results of the  $t$  tests comparing the high and low language groups are presented in Table 13. Each entry in the table represents a  $t$  value obtained by the high-low comparison in that description situation and for that MMPI or SCAT scale. These results are summarized in Tables 14 and 15 and the actual mean scores of the high-low groups are presented in Tables 16, 17, and 18.

Examination of Table 13 reveals that 94 of the 180  $t$ s were less than one and therefore did not approach significance. There were 58 degrees of freedom in each  $t$  test and significance at the 0.10 level was obtained when  $t$  was equal to or greater than 1.67. Similarly the 0.05, 0.01, and 0.001 levels of significance occurred approximately at 2.00, 2.66, and 3.46, respectively.

Comparison of High and Low Language Usage Subjects by t Tests

	No. of Words		TTR		VAQ		Pp/1000		Qual/1000		All/1000	
	room	self	room	self	room	self	room	self	room	self	room	self
	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>	<u>t</u>
MMPI:												
K	1.76#	.18	1.67#	.66	.43	.89	1.20	.59	1.80#	1.73#	1.49	1.48
F	.78	.35	.39	.97	1.23	3.26**	.19	.31	.45	2.42*	3.12**	1.36
Hs	.12	1.03	.99	.62	1.53	1.45	2.71**	.09	1.67#	.95	2.48*	1.04
D	.85	.09	1.24	.60	.17	1.10	1.87#	3.69***	.22	1.81#	.52	.28
Hy	1.09	1.66	.33	1.42	.47	.65	3.97***	2.94**	.33	2.94**	.80	.04
Pd	.50	1.89#	1.43	.59	.20	2.23*	.13	.18	1.73#	.20	1.35	.43
Mf	.75	1.63	1.09	.77	1.20	.77	.69	.06	1.55	1.94#	.50	.37
Pa	1.20	.15	1.68#	.84	1.68#	1.34	.57	1.20	2.79**	1.47	1.26	1.20
Pt	.04	.87	.75	.69	.20	1.68#	1.56	.07	2.65**	1.37	1.99*	1.00
Sc	.71	.86	.34	1.71#	.17	1.51	.49	.44	1.61	1.42	.69	2.39*
Ma	.85	.97	.13	.41	.88	.38	1.71#	1.26	.38	1.44	.51	.31
Si	1.18	1.34	1.62	1.29	1.42	.80	1.42	1.02	.84	1.81#	1.59	.28
L	.26	.18	.78	.96	.26	.10	.52	.85	.54	.93	.96	1.55
R-S	.94	.79	1.04	.74	.71	.96	1.34	.28	1.53	.85	1.29	1.01
SCAT:												
Verbal	.03	.35	.78	1.92	.42	1.00	2.17*	2.83**	2.52*	1.80#	1.24	1.32

#0.10 level of significance  
 \*0.05 level of significance  
 \*\*0.01 level of significance  
 \*\*\*0.001 level of significance

Table 14

## Significance Levels for High and Low Language Usage Subjects Comparison

	No. of Words		TTR		VAQ		PP/1000		Qual/1000		All/1000	
	room	self	room	self	room	self	room	self	room	self	room	self
<u>MMPI:</u>												
K	*		*						*		*	
F				**					**	**	**	**
Hs				**	**				*	**	**	**
D				*	*	**			*	*	*	*
Hy				**	**	**			**	**	**	**
Pd		*		**	**				*	*	*	*
Mf												
Pa			*		*				**	**	*	*
Pt				*	*				**	**	**	**
Sc									**	**	*	*
Ma					*							**
Si										*		*
L												
R-S												
<u>SCAT:</u>												
Verbal				**	**	**	**	**	**	**	*	*

\*p less than 0.10  
 \*\*p less than 0.05

Table 15

## Summary of Significance Levels for High-Low Comparison

Unit Summarized	Significant <u>ts</u> , p=0.10	Significant <u>ts</u> , p=0.05	Possible Significant <u>ts</u>
No. of Words	2	0	30
TTR	3	0	30
VAQ	4	2	30
PP/1000	8	6	30
Qual/1000	13	5	30
All/1000	4	4	30
Room description	18	9	90
Self description	16	8	90
<u>MMPI scales:</u>			
K	4	0	12
F	3	3	12
Hs	3	2	12
D	3	1	12
Hy	3	3	12
Pd	3	1	12
Mf	1	0	12
Pa	3	1	12
Pt	3	2	12
Sc	3	1	12
Ma	1	0	12
Si	1	0	12
L	0	0	12
R-S	0	0	12
<u>SCAT:</u>			
Verbal scale	4	3	12

The distribution of significant ts is illustrated in Table 14 and tabulated in Table 15. It is evident that the occurrence of significant ts in the Number of Words, TTR, and VAQ columns is well within the realm of chance. For example under TTR, the occurrence of three two-tailed ts significant at the 0.10 level out of a possible 30 is half the number that would be predicted by chance alone. The appearance of no significant ts at the 0.05 level in the TTR comparisons is less than the chance expectations of three significant ts per language variable. Similar observations may be made for the Number of Words and VAQ variables.

Significant ts for the Personal Pronouns and Qualification Term variables occurred at a frequency greater than chance expectation. There were eight significant ts at the 0.10 level and six at the 0.05 level for Personal Pronouns per 1000 words. Qualification Terms per 1000 words produced 13 and 5 ts significant at the 0.10 and 0.05 levels, respectively.

Table 14 indicates that five of the six significant MMPI scales for PP fell in the "neurotic triad" of the Hypochondriasis, Depression, and Hysteria scales. The mean scores, which appear in Table 17, reflect these results; the low PP usage subjects were strikingly higher than the high PP subjects on these three scales in the five significant comparisons (out of a possible total of six significant comparisons). In addition the low PP subjects were significantly higher on both SCAT verbal ability comparisons.

No such concentration of significant results was found in the Qualification Terms. Rather the significant differences were scattered on 11 scales, including the SCAT verbal scale. The frequent users of Qualification Terms generally were higher than the infrequent group on the significant MMPI scales and on the SCAT scale.

The high users of Allness Terms were significantly different from the low users on four MMPI scales at both the 0.10 and 0.05 levels. No consistent pattern was formed except the occurrence of three of these four significant ts in the room description. Four significant differences were judged to be slightly greater than chance expectations at the 0.05 level.

The frequency of significant results in the room versus self descriptions and on each of the scales is summarized in Table 15. The frequency differences between the modes of description were minimal and are not noteworthy. The most frequent occurrences of the scales at the 0.10 level were on the "K" MMPI scale and the SCAT verbal scale; at the 0.05 level the most frequent occurrences were on the "F", Hysteria, and SCAT verbal scales. No significant results whatsoever appeared on the MMPI "L" and repression-sensitization scales; scales with only one 0.10 level significant difference were the Masculinity-Femininity, Hypomania, and Social Introversion scales. Inspection of the distribution in Table 14 confirms that most of the significant differences were in the "K", "F", and first seven clinical scales among the MMPI measures.

A word of caution must be inserted here about the possible meanings of these results. The number of significant ts is unimposing next to the number computed and they lend themselves only to discussion of trends and suggestions. The comments just made about the distribution of results within variables should be interpreted within this framework.

The procedure just described was a comparison of the extremely high subjects on each language variable to the extremely low subjects on these same variables, in terms of MMPI and SCAT scales. The same data, that is, the means of the extreme groups on these scales, were investigated from another viewpoint; these means were individually examined with respect to the means for the entire subject pool. The comparison of MMPI adjustment and verbal ability of sets of extreme groups with other extreme groups was minimally productive, but a comparison of the extreme groups with the central tendencies of the population was substantially productive.

The means of the 14 MMPI scales, uncorrected for "K", and the mean of the SCAT verbal scale for the 144 subjects in the study are listed in the first column of Table 16 and are repeated in the same position in Tables 17 and 18. The standard errors of these means are presented in the second column in Table 16. Each of these standard errors was multiplied by 1.96 and 2.58 (McNemar, 1955) to obtain confidence limits about the means at the 0.05 and 0.01 levels, respectively. Therefore the 0.05 limits about the mean for

Table 16

Mean MMPI and SCAT Scores of Extremely High and Extremely Low  
Groups on Word Usage and TTR

Scales	S.E.	Name	Number of Words						Type-Token Ratio									
			Room			Self			Room			Self						
			High	Low	High	Low	High	Low	High	Low	High	Low	High	Low				
15.479	.420	K	15.70	16.67**	16.07	16.23	15.20	16.63**	14.97	15.53	4.93*	4.53	3.87	3.57**	4.43	4.63	4.13	
4.382	.279	F	4.27	4.16	4.47	5.00	4.80	5.53**	4.63	4.17	4.31	4.16	4.47	5.00	4.80	5.53**	4.63	4.17
4.639	.301	Hs	19.16	18.17**	18.70	18.77	19.33	20.77**	19.00	18.93	19.062	19.90	20.53	21.70**	20.90	20.67	20.83	19.83
19.062	.431	D	19.13**	16.30	16.20	14.70**	15.73	16.87	15.60*	19.83	20.549	19.90	20.53	21.70**	20.90	20.67	20.83	19.83
20.549	.377	Hy	16.70	25.33	26.73**	24.83	25.90	24.63*	25.43	15.60*	16.458	16.30	16.20	14.70**	15.73	16.87	16.07	15.60*
16.458	.369	Pd	26.20	10.47**	10.10	10.03	10.17	9.37*	10.10	25.43	25.534	25.33	26.73**	25.90	24.63*	26.33	26.43	25.43
25.534	.440	Mf	9.90	10.57	11.00	9.83**	11.27	12.27*	11.77	9.70	9.931	9.90	10.63	10.57	10.17	9.37*	10.10	9.70
9.931	.216	Pa	10.63	10.57	11.00	9.83**	11.27	12.27*	11.77	10.80	11.138	10.63	10.57	11.00	10.17	9.37*	10.10	9.70
11.138	.421	Pt	11.20	10.23	10.40	9.23**	11.10	11.57	11.87	10.80	10.979	11.20	10.40	10.40	11.10	11.57	11.87	10.80
10.979	.573	Sc	17.23	16.40**	17.47	16.53*	17.43	17.30	16.43*	9.53*	17.264	17.23	16.40**	17.47	17.30	17.30	16.83	16.43*
17.264	.322	Ma	25.73	23.63	21.63**	24.03	24.83	27.73**	24.47	16.43*	25.021	25.73	23.63	21.63**	24.83	27.73**	24.47	16.43*
25.021	.784	Si	3.83	3.93	3.83	3.90	3.80	3.50	3.77	26.77*	3.708	3.83	3.93	3.80	3.50	3.77	3.40	26.77*
3.708	.167	L	34.07	30.63	32.67	29.77*	33.23	37.03*	34.33	3.40	32.924	34.07	30.63	32.67	37.03*	34.33	31.63	3.40
32.924	1.521	R-S	39.23	39.27	39.43	39.97	40.63*	39.43	42.47**	31.63	38.972	39.23	39.27	39.43	40.63*	39.43	39.53	31.63
38.972	.722	SCAT-V								39.53								39.53

\*0.05 level of confidence

\*\*0.01 level of confidence

Table 17

Mean MMPI and SCAT Scores of Extremely High and Extremely Low Groups on VAQ and Personal Pronouns

Scales Mean (N=144)	Name	Verb-Adjective Quotient				Personal Pronouns/1000 Words			
		Room		Self		Room		Self	
		High	Low	High	Low	High	Low	High	Low
15.479	K	15.90	16.27	15.73	14.97	16.80**	15.77	15.20	15.70
4.382	F	4.67	5.30**	3.40**	5.07*	4.53	4.43	5.03*	4.87
4.639	Hs	4.10	5.23*	4.10	5.17	3.53**	5.53**	4.10	4.17
19.062	D	19.27	19.47	19.20	20.47**	18.33	20.50**	16.10**	20.37**
20.549	Hy	21.30*	20.97	20.17	21.63**	19.50**	22.30**	18.90**	20.97
16.458	Pd	17.33*	17.17	15.60*	17.37*	16.27	16.17	16.43	16.57
25.534	Mf	27.20**	25.80	25.67	26.57*	25.53	24.73	25.50	24.42
9.931	Pa	11.07**	10.27	10.03	10.67**	10.17	9.90	10.47*	9.90
11.138	Pt	11.40	11.13	10.73	12.97**	9.93**	12.03	11.13	11.23
10.979	Sc	11.53	11.30	10.20	12.27*	10.10	10.67	11.33	10.73
17.264	Ma	18.03*	17.17	17.40	19.03**	18.10**	16.43**	17.40	16.27**
25.021	Si	25.13	22.60**	24.40	25.83	23.47*	26.00	24.43	26.23
3.708	L	3.60	3.50	3.73	3.77	3.53	3.73	3.60	3.93
32.924	R-S	33.90	31.30	33.33	36.83*	29.33*	34.23	32.10	33.13
38.972	SCAT-V	40.57*	39.93	38.70	40.23	38.87	42.20**	37.83	43.17**

\*0.05 level of confidence

\*\*0.01 level of confidence

Table 18

Mean MMPI and SCAT Scores of Extremely High and Extremely Low Groups on Qualification Terms and Allness Terms

Scales	Qualification Terms/1000 Words				Allness Terms/1000 Words				
	Mean (N=144)	Room		Self		Room		Self	
		High	Low	High	Low	High	Low	High	Low
15.479	14.63*	16.17	15.00	13.53**	16.67**	15.40	15.00	16.26	
4.362	4.50	4.27	3.83	5.07*	5.27**	3.67*	4.20	4.90	
4.639	3.90*	5.13	4.47	5.17	3.80**	5.63**	5.70**	4.93	
19.062	19.27	19.43	19.63	17.50**	19.27	19.87	19.40	19.73	
20.549	20.17	20.40	20.90	18.83**	20.57	21.13	21.27	21.30*	
16.458	18.17**	16.80	16.77	16.93	17.50**	16.43	16.60	16.26	
25.534	26.73**	24.93	25.93	23.67**	24.60*	25.27	26.13	25.70	
9.931	11.20**	9.87	10.47*	9.77	10.03	9.43*	10.43*	9.86	
11.138	13.63**	10.07*	12.77**	10.93	9.30**	11.97	13.27**	11.93	
10.979	12.67**	10.47	12.37*	10.43	9.83	10.77	14.20**	10.93	
17.264	16.80	17.17	16.93	18.33**	17.67	17.17	17.53	17.83	
25.021	26.70*	25.20	27.83**	24.60	23.23*	26.07	26.00	25.50	
3.708	3.76	3.97	3.37*	3.73	3.73	4.10*	3.00**	3.60	
32.924	37.33**	31.73	37.00**	33.87	29.20*	33.93	38.07**	34.36	
38.972	41.17**	37.30*	40.93**	38.17	37.33*	39.23	36.67**	39.70	

\*0.05 level of confidence

\*\*0.01 level of confidence

"K" were computed, adding to and subtracting from 15.479 the number  $.420 \times 1.96$ , or 0.823; the 0.05 limits for "K" were 14.656 - 16.302. The same operations were carried out on the other 14 scales for these limits and a similar procedure for the 0.01 confidence limits.

The MMPI and SCAT mean scores of each of the extreme groups ( $N = 30$ ) on the language variables are listed across the rows in Tables 16, 17, and 18. Those subjects who were extreme in Number of Words and TTR have their means grouped in Table 16, the extremes in VAQ and Personal Pronoun usage in Table 17, and the extremes in frequency of Qualification and Allness Terms in Table 18. These means are identified separately for the room and self descriptions. Sixty means are listed for each of the language variables, a total of 360 means.

After the confidence limits were computed for each of the population means, the extreme sample means were inspected to determine whether or not they fell within these 0.05 and 0.01 limits. For example the first extreme sample mean in the first row of Table 16 is "K" = 15.70 for the 30 subjects who produced the most words in describing the room. This falls within the range 14.656-16.302 and does not differ from the population mean at the 0.05 level of confidence. The next number in that row, 16.67, does fall outside these limits, and indeed outside the 0.01 limits, and thus it is indicated that the sample mean is not a chance deviation from the population mean. The confidence limits outside of

which the individual sample means fall are indicated by asterisks.

A total of 114 means were found to fall outside the 0.05 confidence limits of 360 means examined. This included 105 out of 336 MMPI scales means and 9 out of 24 SCAT scale means. The actual comparison of the sample means may be made by noting the total sample means listed in the left columns.

Sixty-five of the 360 means examined fell outside the 0.01 confidence limits. This included 5 SCAT verbal scale sample means and 60 MMPI means. The number of means falling outside both the 0.05 and 0.01 limits were several times chance expectations.

Beyond the simple observation that the frequency of the extreme group means falling as they did was non-chance, some comments may be made about their distribution among the language, situational, and subgroup variables. The distribution of those means that differed from the population means beyond the 0.05 level of confidence is presented in Table 19, which is a summary of the results of the confidence limits testing in Tables 16, 17, and 18. Table 19 categorizes the MMPI results separately from the SCAT results, and performs this for the extreme groups ( $N = 30$ ) on each of the six language variables and for both modes of description.

The greatest frequency was on the Qualification Terms variable, in which a total of 22 means out of a possible 56 were outside the 0.05 limits. The greatest number of

Table 19

Distribution of Extreme Group Means Falling Outside the  
0.05 Confidence Limits

Language Variables	MMPI						SCAT					
	Room			Self			Room			Self		
	High	Low	Total	High	Low	Total	High	Low	Total	High	Low	Total
No. of Words	2	4	15	2	7	15	0	0	0	0	0	0
TTR	0	8	12	0	4	12	1	0	1	0	0	2
VAQ	5	3	20	2	10	20	1	0	0	0	0	1
PP/1000	7	4	17	4	2	17	0	1	0	1	1	2
Qual/1000	9	1	22	6	6	22	1	1	1	1	0	3
All/1000	8	4	19	6	1	19	1	0	0	0	0	1
Totals	31	24	105/336	20	30	105/336	4	2	2	2	1	9/24

deviations of the sample means from the population means on this variable was the group of 30 subjects who used the most Qualification Terms in describing the room; this group was deviant on 9 of 14 MMPI scales and was higher than the population on 7 of them. On the other hand the group using the fewest Qualification Terms on the room description differed from the population on only one MMPI scale.

This difference did not appear in the self descriptions, in which both the high and low qualifying groups deviated from the population on six MMPI scales. There was no overlap on MMPI scales that were deviant in the two groups.

The second and third highest numbers of deviations among the language variables were on VAQ and Allness Terms, respectively. Twenty VAQ means exceeded the scale confidence limits, and ten of these were in the subgroup using the fewest verbs in proportion to adjectives in their self descriptions. The other three VAQ extreme groups produced far less deviant means than this, and the MMPI discrepancies between sample and population that predominated in the low VAQs on the self descriptions, were found to be greater in the high VAQs on the room descriptions.

Nineteen Allness Term means were outside the MMPI scale confidence limits and were distributed rather uniformly on the personal (self) and impersonal (room) descriptions. The subjects using the largest number of Allness Terms deviated more from the whole subject pool than did the subjects using the fewest Allness Terms.

Among the extreme users of Personal Pronouns there occurred a less pronounced but essentially similar finding to the Allness Term results. The high users of Personal Pronouns on both modes of description deviated more from the population on MMPI scales than did the low Personal Pronoun users.

The first two language variables listed, Number of Words used and TTR, had the smallest number of MMPI means that differed from the population means. There were 15 in Number of Words and 12 in TTR. Examination of the distribution of these deviant MMPI means in the TTR classes reveals that all of the deviant means were among the low TTR subjects. In both descriptions there were no MMPI scale differences between the subjects who had high TTRs and the population; on the other hand there were eight and four means that were deviant among the low TTRs on the impersonal and personal descriptions, respectively.

Results in the same direction were found on the Number of Words variable. Little difference was found comparing the MMPI scales of the high word producers with the scales of the subject pool, but much more marked differences were found when examining the low word producers.

The columns for the MMPI scales in Table 19 were totaled and only slight discrepancies were present. More means outside the 0.05 limits were present in the room descriptions than in the self description, but this was only 55 to 50. Seven more of these means were found in the high

frequency groups than the low frequency groups in the room descriptions, while ten more means were found in the low frequency groups than in the high frequency groups in the self descriptions. The grand total in the MMPI columns indicates that 105 means of 336 examined were outside the 0.05 confidence limits, as noted earlier.

The examination of the SCAT columns is less complicated than the MMPI process, for the maximum number in each cell is one and the minimum number is zero. Again the high variable in frequency count was Qualification Terms, which produced three out of a possible four means lying outside the 0.05 confidence limits about the population SCAT verbal mean. On the impersonal (room) description the high qualifying subjects were on the average higher in verbal ability than the population and the low qualifiers were lower on this measure. On the personal description the high qualifiers were again higher in verbal facility while the low qualifiers did not differ from the overall mean.

The high TTR producers on both modes of description had higher mean SCAT scores than the population, while the lower TTR subjects did not differ from the whole group. Therefore two of the four TTR groups had deviant SCAT scale scores.

Two of four Personal Pronoun group means on the SCAT scale differed from the group as a whole. The subjects using the fewest personal pronouns had higher mean SCAT scores than the subject pool.

One of four means differed on the VAQ and Allness Term measures. On the VAQs, the subjects producing higher VAQs on the room descriptions had higher SCAT scale scores, and the subjects producing the most Allness Terms on the room description had lower SCAT scores than the population.

The sixth language variable, Number of Words, produced no deviant means out of the four possibilities.

Examination of the columns in the SCAT portion of Table 19 reveals the greater tendency of the room over the self description situation to bring out verbal ability differences in the extreme language groups. That is, there were six extreme group means that were outside the 0.05 SCAT confidence limits on the room description, while there were only three on the self description.

The distribution of means which were different from the population at the 0.05 level of confidence was tabulated for each of the MMPI and SCAT scales. Generally they were bunched closely, with the exception of the "L" scale in which only three deviant means were found. Six deviant means out of the possible total of 24 were obtained for the "K" and Schizophrenia scales. Seven deviant means were found in the Depression, Psychopathic deviate, and Masculinity-Femininity scales. Eight deviant means were obtained for the Hypochondriasis, Social Introversion, and repression-sensitization scales. Finally, the "F", Hysteria, Paranoia, Psychasthenia, Hypomania, and SCAT verbal ability scales contained nine deviant means each.

In concluding the presentation of the statistical results of the investigation, a further note must be added. All of the data have been abstracted from the uniquely organized productions of the participants for the purpose of objective analysis of the explicitly abstracted measures. In this approach there is a loss of the manifest contextual variables as well as the omission of the personal gestalt inherent in these descriptions. In order to correct somewhat for this loss, selections from the descriptions are appended (Appendix C). These selections are identified in terms of the two descriptive situations, the language variables illustrated, and personality (R-S), SCAT verbal ability, age, and academic classifications of the writers.

## VI. DISCUSSION

### The Language Measures as Dependent Variables

Personal and impersonal description. The analyses of variance clearly identified the mode of description as the significant source of variance in every language measure studied. It was significant beyond the 0.01 level on all six analyses, while the repression-sensitization variable was significant on none, and the verbal ability measure on only one, Qualification Terms. No a priori predictions were made, nor were any unspoken expectations present for these results.

On some of the language variables the striking significance of the personal-impersonal description variable is seen easily post hoc. The markedly higher VAQ on the self description above that of the room description confirms the results of Boder's study, in which he reported lower VAQs in scientific, descriptive writing than in the more personal texts of drama and fiction. The frequency of Personal Pronouns seems to have been a natural consequence of the definition of the description variables; that is, in the self descriptions it is expected that subjects will use many Is and mes while in the room description few Is and many its will appear.

Before considering the significance of the personal-impersonal differences in relation to some of the other language variables, it is necessary to review the testing situation. For both descriptions the subjects were asked to write for 25 minutes and to cover at least two sides of a single sheet of lined paper. Now in describing themselves, the subjects had an enormous repertoire of material upon which to draw; some discussed their early childhoods, some wrote of their physical features, some focused on their goals in life, others described their most immediate and intimate feelings and anxieties, and so on. On the other hand in describing the room, the subjects had a much more limited set of materials to write about. The room contained one couch, one coffee table, a rug, a painting, flowers, and so on. The room description was more precisely defined and more limited than the self description, and as a consequence, many subjects may have found it more difficult to write for the required number of pages and for the required time on the room description.

The data support this interpretation of the situational demands. Approximately 20 more words were used on the average in the personal description than in the impersonal description, a difference significant past the 0.01 level. The TTR comparisons produced a lower TTR in the impersonal description that was significantly less at the 0.001 level than the personal description. On the personal description the subjects wrote more with a greater diversity of words.

An observer noting the greatly increased production of Qualification Terms and the increased number of words on the personal description might be tempted to hypothesize that the subjects as a whole were exhibiting a form of defensive behavior. He might reason that the greater threat of describing themselves was manifested in the subjects' modifying their statements more and writing more to justify their self descriptions. He might further press his case by pointing out that the VAQ, a "known" measure of anxiety was greater by almost twofold on the personal description.

This possibility is not likely in accounting for the present results. The VAQ differences have already been discussed in terms of the stimulus qualities. It is not unexpected that relatively more adjectives than verbs are used in describing a room, a situation which implicitly calls for adjective usage, than in describing oneself. The differences in the number of words used have been discussed also in terms of the stimuli. Finally the increase in Qualification Terms was accompanied by an increase in Allness Terms used in personal description, which weakens the argument that increase in Qualification represents defensive qualifying. Likewise, this argument would have to be rejected on the basis of the repression-sensitization results. The lack of significant differences between the R-S groups, in the face of the wide individual differences in R-S scores, indicates that defensiveness so measured was not related to the language variable patterns.

The consistent differences between the personal and impersonal descriptions on the language measures have extensive implications for the meaning of other studies in language when the lack of significant differences on the personality variable is considered. These results raise as an issue the actual contents and topics of the language samples of the previous studies. For example, in the Balkan and Masserman (1940) study in which T.A.T. cards were used to elicit the language samples, patients identified as anxiety states were found to have clearly higher mean VAQs than the obsessive-compulsives and conversion hysterics. Was this due to the different language style and structure the groups used, or was it a result of different content production in groups using the same style and structure? In other words did the hysterics blandly describe the mountain and other physical features of card 11 of the T.A.T., while the anxiety states created highly interpersonal stories with many characters and much emotion? If this was true, and there are indications that it was from the authors' reports, then perhaps the original conclusions about the language of phantasy of the T.A.T. varying with psychoneurotic groups should be supplanted with a statement about the varying contents of the T.A.T. with psychoneurotic groups.

Lorenz and Cobb acknowledged this division between structural and topic portions of language with their introductory statement that ". . . within the universality of structure and inherent stability of the statistical

properties, grammatical divisions, rules of syntax, and denotative word meaning," there is considerable freedom of the individual to select, choose, and arrange the form as well as the content of what he says. They observed that in their 1000 word speech samples ". . . considerable latitude existed in the choice of content materials." Although they did not specifically investigate content, the suggestion was present in their study as well as this one that content differences were a major factor in the VAQ, TTR, and Pronoun frequency results.

The most undefined language referents were those of Chotlos, in which he told the subjects to ". . . write about anything you want to write about, just make it up as you go along." His conclusions that higher IQs and higher age levels were associated with more highly differentiated language structures may be true, but the data he collected, with their potentially enormous topic range, cannot substantiate these conclusions, at least in this form. It is speculated that the high IQ subjects may have produced language samples in content spheres quite divergent from that of the low IQ subjects and that the language analyses may have reflected this divergence rather than that of structural language on given topics. Chotlos may have confused content variability with structural variability.

In this context it is interesting to note that two studies in which the subjects had a very limited field of linguistic referents and which used questionnaire-derived

personality dimensions, there were only minimal differences between the personality groups (Benton, Hartman, and Sarason, 1955; Wagner and Williams, 1961). The topic repertoire in these studies focused on thoughts about the subjects' majors and careers; this content delineation is felt to have been closely associated with the lack of many significant results.

Repression-sensitization. The lack of significance of the R-S groups on the analyses of variance merits individual attention, for most of the personality groups studied on language measures have produced some significant results and because the repression-sensitization dimension has consistently differentiated between varying kinds of behavior in other studies (Altrocchi and Dickoff, 1963; Altrocchi, Parsons, and Dickoff, 1960; Altrocchi, Shrauger, and McLeod, 1963; Byrne, 1961, 1963; Byrne, Barry, and Nelson, 1963; Joy, 1963; Tempone, 1962; and Ullman, 1958, 1962). As noted above, one possible explanation is the use of questionnaire-derived personality dimensions rather than behaviorally-derived in the sense of psychiatric patients.

The kind of subjects who participated in this investigation may have contributed to the R-S results on the language variables. All of the subjects were college students and most were probably adequately adjusted since none were at that time hospitalized for psychiatric reasons. The studies reporting significant results have generally included overtly pathological groups of subjects (Balkan and Masserman, 1940; Fairbanks, 1944; Mann, 1944; Lorenz and Cobb, 1954; and

Osgood and Walker, 1959) while non-significant or marginally significant results were found in studies using college students (Benton, et al., 1955; Doob, 1958; Wagner and Williams, 1961; the present study). However very different methodologies were used in the two groups of investigations just cited and conclusions about sample differences as causal agents would be premature.

Another possibility to account for the absence of a relationship between R-S groups and language structure is the nature of R-S itself. While R-S may have meaning with regard to speed of tachistoscopic perceptions, perhaps it is insensitive to those elements in personality functioning that are associated with language structure. The content of the repressors' and sensitizers' self descriptions may be used as an example. The investigator observed repressors whose self descriptions were anxious, concerned, and apparently psychopathological; sensitizers were noted whose self descriptions were idealized, full of denial, with no admissions of any concerns; and there were neutrals who described themselves as anxious and others who described themselves as totally without worry or problems. Thus, self-descriptive content of the language of repressors and sensitizers need show no necessary relation to the description of repressors and sensitizers derived from questionnaires or non-language behavior.

The lack of significance on the formal, structural language measures in differentiating the R-S groups raises

a further question: If matched R-S groups were based on extremes of defensiveness and over-experiencing of feelings derived from the subjects' own self descriptions instead of the MMPI scale, would the structural language patterns have varied significantly? This question was not explored and future research might be directed toward its resolution.

An additional issue is the effects of the recency of the MMPI administration on the reliability of the R-S measure. The results of the time-of-administration analyses were not definitive in rejecting or accepting the time interval between MMPI testing and collection of the language sample as an influencing factor. However a substantial collection of the MMPI literature (Welsh and Dahlstrom, 1956) has indicated that the reliability of the commonly used MMPI scales is adequate over time.

Thus, four possibilities are suggested to explain the failure of R-S to be reflected in the language patterns: (1) the use of college students as subjects; (2) the use of a questionnaire method to select from the subject pool; (3) a real insensitivity of the R-S scale; and (4) time lag between obtaining the R-S MMPI data and collecting the language sample.

Verbal ability. The null hypotheses generated with regard to verbal ability and the language variables were not rejected on five of the variables, but on Qualification Terms significant differences between verbal ability groups and interaction between verbal ability and personal-impersonal

description were found. The High verbal ability group used the most Qualification Terms, the Mid ability group the middle number of Qualification Terms, and the Low ability group by far the least Qualification Terms. This pattern was present on both descriptions, but on the room description the qualifiers used by the Low and Mid groups were close in number with relatively many more used by the High group; on the self description the number of Qualification Terms used by the Mid and High groups were close and both far greater than that of the Low ability group.

The lack of significant differences between the verbal ability groupings and TTR did not support the conclusions of Chotlos and again raises the issue of content of Chotlos' language sample as a TTR influence.

The greater use of qualifiers by the subjects higher on the SCAT verbal ability measure may well reflect a more precise and accurate way of writing and of self-expression by these students. That is, the individual who reports that the window is "approximately eight feet tall" is responding in a better defined manner than another person who omits the "approximately." The word "approximately" in this case adds the element of uncertainty and extends the situational definition.

In noting the absence and presence of significance resulting from the verbal ability analyses, it is proper to consider the base for these analyses. The subjects were given the SCAT at varying times in the three years preceding

testing for language, and unreliability effects may have modified the meaning of their SCAT verbal ability scores at the time that the language sample was obtained. In addition there were 10 subjects who had equivalents of the SCAT scores for their verbal ability measures, and possible error lay in the equating process. However it is felt that these are sources of only minimal error.

A somewhat greater deterrent to extensive inferences being drawn from the language and verbal ability data is the manner of division of the subjects into the groups by verbal ability. The high 10, low 10, and middle 10 in the R-S groups were identified as the High, Low and Mid verbal ability groups. This arbitrary process in which two subjects with the same SCAT score may have been classified into different verbal ability groups if one subject were a sensitizer and the other a repressor, yielded groupings of High, Low, and Mid ability which were tentative, rough, and at places overlapping.

These guidelines for verbal ability groupings served to hinder rather than enhance group differences, and the negative, non-significant results therefore must be accepted cautiously. On the other hand the positive finding with regard to Qualification Term incidence is a more certain one to be so determined in spite of the nature of the ability groupings.

Extreme repressors and extreme sensitizers. A similar finding of the Qualification Term measure as the only

significant language variable occurred in the t test analysis of the extreme repressors and extreme sensitizers (Table 11). While it is true that one out of twelve two-tailed ts falling significant at the 0.06 level is a chance incidence, the repetition of Qualification Terms as the single significant measure in two separate analyses with different variables is likely not due to chance alone. Furthermore the later analyses with the language variables independently manipulated reaffirmed that Qualification Terms usage was associated more than any other language measure studied with MMPI and SCAT differences.

The extreme repressor-extreme sensitizer analysis itself was of the type the author has criticized in others. That is, it was a simple, unidimensional comparison of two groups on languages measures. Nevertheless the absence of substantial significant results appears as a confirmation of the findings noted earlier on the R-S dimension.

Comparisons with other studies. The personal-impersonal description measure has been demonstrated to be the only one that consistently differentiated language usage. For this reason the results for the entire subject pool of 144 students on their room and self descriptions, rather than by R-S and SCAT groups, were chosen to be compared to other studies in the numerical language measure results. The wide diversity of situations, the use of spoken rather than written language, and the reporting of results in other forms than used in this study, when the numerical results were reported

at all in other studies, makes numerical differences subject to a broad range of influences. For this reason only studies that used written language in similar situations and that reported the language measures in equivalent forms were compared.

The VAQ results in this study and others may be observed by examining Tables 1 and 12. The sample and situation which seems closest to the present study was the collection of written life stories in college freshmen by Mann (1944). The comparison of these results with the personal description by the college students of all classes in the current investigation yields close results in VAQ. The Mann language sample had a mean VAQ of 1.96, while that of the present personal description sample was 1.94.

Similar comparisons of this study with the Mann study yield very congruent data. The Mann freshmen language had a TTR of 0.71 and Personal Pronoun frequency of 14.6%, while the current study found a mean TTR of 0.705 and a PP frequency of 11%. Therefore, in spite of the geographical divergence and the 19-year span between collections of the language samples, the language used by these college student groups were highly consistent on the three common structural measures.

The only other VAQ study with raw data reported was Boder's, in which the descriptive, scientific writing had a mean VAQ of 1.32 (converted from adjective-verb quotient scores), the fiction VAQ was 2.82, and the drama VAQ was 8.93. This lowered VAQ on the impersonally descriptive mode of

course was found in the current study also, with a mean VAQ of 1.08 for the room description and a VAQ of 1.94 on the self description.

The remaining studies that were reviewed using the VAQ, TTR, and Personal Pronouns, and all of the studies using Qualification Terms and Allness Terms were not amenable to comparison for one or more of the reasons stated earlier.

A final note may be added in examining the language data for all of the subjects in Table 12. In every language variable the standard deviation was greater for the personal description than for the impersonal description, although very large differences appeared on just three of the six variables. This clearly indicates the meaning of the situational definition in terms of the subjects' variability; that is, the room description with its more explicitly and narrowly defined external referents led to greater similarity in a structural sense than did the self description. It was contended that this difference reflects the wider range of content elicited by the personal description situation.

#### The Language Measures as Independent Variables

Many of the conclusions drawn from the first part of this investigation are seemingly contradicted when the results of the second part of the study are examined. These contradictions primarily center about the relationship between adjustmental variables on the MMPI and the language variables studied. This occurs because the two parts were separate

investigations, although the same basic data and many of the same classifications were used. In the first part the personality measure was the independent variable and the language units the dependent measures; this order was reversed in the second part as the language measures became the manipulated variables.

The apparent contradiction is between the negative finding with respect to the personality dimension in the first part, and the positive findings about this relationship in the second part. This contradiction dissipates when the operations involved are considered; the early part led to the conclusion, among others, that extreme R-S groups do not produce different formal language patterns, while the later part led to the inference that extreme language usage groups do produce R-S (and other MMPI) scores that are different from the entire subject pool.

t test analyses. In the second part of the study the extreme groups of the high and low 30 subjects on each language variable were selected, MMPI and SCAT means were computed, and the data were analyzed in two ways. First t tests were performed between the high and low group MMPI and SCAT means, and the results presented in Tables 13, 14, and 15. The Personal Pronoun and Qualification Term variables were the only ones of the six that had more significant ts than were expected by chance.

The significant ts on the Personal Pronoun tests formed a distinct pattern. The low users of Personal Pronouns in the

room descriptions were significantly higher than the high PP users on the "Hs" (0.01 level), "D" (0.1), and "Hy" (0.001) scales. The low users of Personal Pronouns in the self descriptions were significantly higher than the high PP users on the "D" (0.001 level) and "Hy" (0.01) scales.

The "Hs", "D", and "Hy" scales are referred to commonly as the neurotic triad and their simultaneous elevation in the low PP users suggests that some dynamic-motivational elements are present. One interpretation of this is that a reluctance to use Personal Pronouns is associated with a neurotic denial of self-involvement. It was also found that the low PP users had significantly higher verbal ability scores than the high PP users and therefore no causal or unidimensional inferences can be drawn confidently from the extreme PP group patterns.

While more Qualification Term ts were significant than any other language variable, the 13 significant ts were scattered without any noticeable pattern among 10 MMPI scales and with a noticeable pattern in the two SCAT tests. Both of the SCAT t tests were significant, the room description test falling beyond the 0.05 level and the self description falling beyond the 0.1 level. On both modes of description the frequent Qualification Term users were higher on the verbal ability measure than the infrequent Qualification Term users. This supports the relationship between SCAT verbal ability and Qualification Term usage reported in the first part of the study.

The four remaining language variables, Number of Words, Type-Token Ratio, Verb-Adjective Quotient, and Allness Terms, yielded only chance occurrence of significant t tests comparing their extremes. However all of these as well as Personal Pronoun frequency and Qualification Terms did fall at a greater than chance incidence outside the 0.05 confidence limits of the means for the whole subject population. These more positive findings on the confidence limit analysis were due to a number of factors.

The discrepancy between the t test and confidence limits analyses. Obviously there were different goals for the t tests and the confidence limits analysis. In the former the purpose was to compare extreme groups, to accentuate linear differences on the language variables; in the latter the purpose was to examine the relationships between the extreme language groups and the population as a whole. Beyond this there were statistical factors present. In the t tests there were just 58 degrees of freedom, and this combined with the wide dispersion of MMPI and SCAT scores within the extreme language groups to produce relatively small numbers of significant ts. In the analysis by confidence limits the variance within the extreme groups was not taken into consideration since the level of confidence was determined by whether the mean alone of these extreme groups was within or without the confidence intervals about each scale mean. Therefore the wide variances that had resulted in non-significance of some fairly large mean differences

between the extreme groups themselves were not a factor in testing the confidence limits.

In the confidence limits procedure the standard errors of the means were determined by dividing the standard deviations by the number of subjects and extracting the square root. Because the whole subject pool was used, the square root of 144, or 12, was divided into the standard deviations, and the division by this relatively large number produced small enough standard errors to make even those means that were modestly different from the population means fall outside the confidence limits. However the extreme group means were included in the population means, an influence that could have made the population and extreme group means closer than the confidence interval setting assumed.

Analysis by confidence limits. The confidence limits data were presented in Tables 16, 17, 18, and 19 and the frequency of different language extreme group means falling outside the 0.05 limits was pointed out in the results section.

The patterns and distributions of the language variables of the extreme groups that were beyond the 0.05 level of confidence are felt to have the following implications.

1. The subjects using the fewest words differed more than the high word producers from the average on the MMPI, and generally in the direction of less pathology and higher defensiveness.

2. The high Type-Token Ratio subjects had sharply higher verbal ability scores than most subjects. This supports the results of the Chotlos study and is divergent from

the results on this relationship in the first part of the study.

3. The low Type-Token Ratio subjects varied notably from the subject population on many MMPI scales, with a particular lowering of intellectualization, as indicated by their lower mean on the MMPI "Mf" scale and a tendency to greater introversion indicated by their lower MMPI "Si" scale.

4. The subjects with high VAQs in their room descriptions and those with low VAQs on their self descriptions had many MMPI scales elevated over that of the subject pool. Thus the highest MMPI scales were found in the subjects who deviated most from the expectation of the VAQ that proportionately more adjectives would be used in the room description and proportionately more verbs in the self description.

5. The users of few or no Personal Pronouns were markedly higher on verbal ability than the overall subject group and tended to have a higher neurotic triad on the MMPI. These results were also found in the t test analyses. Thus the low Personal Pronoun users appeared to be more neurotic and to have superior verbal skills.

6. The high users of Personal Pronouns were lower generally on the neurotic triad than the mean of the 144 subjects. Those using the most PPs in the room description were also more defensive, as indicated by a high "K" and low R-S on the MMPI.

7. The extremely high Qualification Term producers had higher verbal ability scores than the SCAT means. This was the most powerful single relationship between any variable and the SCAT verbal ability measure in terms of the confidence levels.

8. The frequent users of Qualification Terms appeared to admit more symptoms, were more open, more anxious, greater intellectualizers, and less defensive than the general subject population. This was indicated by their higher scores on the "F", "Mf", "Pt", "K", and R-S scales.

9. The high Allness Term subjects on the room description were more repressive and less anxious than the overall mean, while the high Allness Term subjects on the self description were more anxious with a number of elevated MMPI scales.

10. The high Allness Term subjects had lower verbal ability scores than the entire subject pool.

Of course this list of the ten major implications does not cover all the extreme language groups and did not focus

on the conformities of some of the extreme groups to the overall means. For example, the extremely low users of Allness Terms on the personal descriptions had MMPI and SCAT means that fell within the 0.05 confidence limits on 14 of the 15 scales; for practical purposes there were no differences between the subject pool and this extreme group on the adjustmental and verbal ability measures.

A general conclusion that may be drawn from this analysis is that questionnaire-derived personality measures are indeed related to extreme use of language measures in the context of the confidence limits procedure. The confidence limits analysis and to a lesser degree the t tests failed to support the non-relationship between these variables suggested by the first part and did support the research literature finding relationships between personality units and language measures.

This confidence limits analysis found that repression-sensitization had the median number of deviant extreme group means, and as a result some of the earlier discussion of possibilities of R-S as an insensitive scale may be amplified. In this part of the study it served on the whole neither better nor worse than the 13 most commonly used MMPI scales. For the whole investigation there were no indications that R-S is an especially meaningful behavioral correlate of language patterns. Neither the defensiveness nor the open anxiety theoretically associated with R-S extremes were manifested in language usage. Thus it was felt that caution

should be employed in treating R-S as a single, general dimension of personality. Repression itself is a broad concept that can be applied to many areas of behavior, but repression as measured by Byrne's revised MMPI scale would seem to be most applicable to the specific fields in which positive results have been established. Thus a distinction is drawn between repression as a generalized, clinical entity and repression as an objectively-scored response to 127 true-false questions.

Finally, of the six language variables studied, Qualification Terms appeared to be most persistently differentiated and the most persistent differentiator. It was related especially to verbal ability as measured by the SCAT and it may prove to be a most useful formal language measure in the future.

## VII. SUMMARY

The purpose of this study was to investigate the contributions of personality, verbal ability, and situational variables to structural language usage and to explore test behavior associated with extreme use of this structural language. The six language measures studied were the Type-Token Ratio, Verb-Adjective Quotient, Personal Pronoun frequency, Qualification Term frequency, Allness Term frequency, and Number of Words used.

Written personal descriptions and descriptions of a projected picture of a room served as the situational stimuli and language sources. The MMPI repression-sensitization scale and SCAT verbal scores were the personality and verbal ability measures. In addition the main 13 MMPI scales were used in the exploratory part of the study.

The subjects were 144 college students at the University of Florida in May, 1963. They were divided into repressor, neutral, and sensitizer groups and High, Mid, and Low verbal ability subgroups. In the initial part of the investigation repression-sensitization and SCAT verbal ability were the sources of variance tested between subjects and the description situation was tested within subjects. The six language units served as the dependent variables.

A Lindquist Type III analysis of variance for each of the language variables indicated that the primary significant source of variance was the situation, or mode of description. The personal descriptions produced Type-Token Ratios, Verb-Adjective Quotients, Personal Pronouns, Qualification Terms, Allness Terms, and Numbers of Words that were greater than those of the impersonal descriptions beyond the 0.01 level of significance. No significant results were found for repression-sensitization and differences between SCAT measures were significant only for the Qualification Term variable. High verbal ability was associated with frequent use of Qualification Terms beyond the 0.05 level of significance.

In the second part, which was the exploratory section of the study, the language units were treated as the independent variables. Confidence limits testing and analyses by t tests were performed on the extremely high and extremely low users of the different language measures and it was found that the MMPI, SCAT, and modes of description varied in meaningful ways in these extreme groups.

It was concluded that the nature of the situation eliciting the language sample was central to the formal aspects of the language produced and that there is a need for linguistic study of non-content variables to define the external language referents more precisely.

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APPENDIX A

Distribution of Subjects by Source, Repression-  
Sensitization, and Verbal Ability

Table 20  
Distribution of Subjects by Source

Source	Subjects with MMPI	Subjects without MMPI	All Subjects
Tolbert Hall:			
Section 2	13	2	15
Section 3	20	3	23
Section 5	8	2	10
Total	<u>41</u>	<u>7</u>	<u>48</u>
Eh 133	20	2	22
G-3	<u>51</u>	<u>5</u>	<u>56</u>
Total	71	7	78
Psy 201	10	4	14
Psy 202	<u>15</u>	<u>6</u>	<u>21</u>
Total	25	10	35
Sch 201	7	2	9
All Sources	144	26	170

Table 21

Distribution of Repressors, Neutrals, and Sensitizers on the R-S Scale

Repressors		Unclassified		Neutrals		Unclassified		Sensitizers	
R-S	f	R-S	f	R-S	f	R-S	f	R-S	f
2	1	16	3	27	5	35	3	50	1
5	2	17	2	28	3	36	2	51	1
6	2	18	1	29	1	37	2	52	3
8	4	19	1	30	10	38	2	53	2
9	4	20	2	31	4	39	3	56	3
10	4	21	2	32	1	40	5	57	1
11	3	22	3	33	2	42	2	58	1
13	6	23	3	34	4	45	1	59	2
14	1	24	3			47	2	60	2
15	3	25	4			48	2	62	1
		27	3			49	3	63	1
								64	1
								65	1
								66	3
								67	1
								68	2
								70	2
								74	1
								81	1
Totals	30		27		30		27		30

Table 22

Distribution of High, Mid, and Low SCAT Groups with Respect to Repressors, Neutrals, and Sensitizers

SCAT Verbal Groups	Repressors	Neutrals	Sensitizers
High	53 <sup>a</sup>	53	58
	52	53	55
	47	52	54
	46	52	51
	45	50	50
	45	49	49
	45	49	47
	43	48	46
	43	46	45
	42	43	44
Mid	41	43	44
	39	43	43
	39	42	41
	39	42	40
	38	41	37
	38	37	36
	38	35	36
	38	35	34
	36	34	34
	36	34	34
Low	35	34	33
	35	33	33
	31	32	33
	31	32	31
	30	31	30
	29	30	30
	28	29	27
	20	28	25
	19	27	24
	16	26	24

<sup>a</sup>Raw scores on SCAT, verbal ability section

APPENDIX B

Distribution of Language Variables by Year  
of MMPI Administrations

Table 23

Distribution of Language Variables by Year of MMPI Administration: A Reliability  
Check Using No. of Words, TTR, VAQ, and Personal Pronouns

No. of Words	Repressors			Neutrals			Sensitizers			Repressors			Neutrals			Sensitizers			
	sa	rb	r	s	r	r	s	r	r	s	r	s	r	s	r	s	r		
1959-60	Nc	3		4	4	6	6												
	Md	370	304	332	276	379	335	3	3	.72	.64	4	4	.71	.65	6	6	.72	
	SDe	122	72	57	85	135	96			.04	.06			.02	.05			.01	.04
1961	N	8	8	9	9	5	5	8	8	.70	.65	9	9	.70	.67	3	3	.72	.65
	M	292	288	372	336	212	270			.02	.06			.02	.04			.03	.03
	SD	103	69	108	68	146	145												
1962	N	7	7	10	10	15	15	6	6	.69	.65	10	10	.69	.61	15	15	.70	.63
	M	306	321	288	287	318	297			.02	.03			.05	.05			.05	.05
	SD	134	67	111	84	133	83												
1963	N	12	12	7	7	4	4	12	12	.70	.63	7	7	.71	.63	4	4	.71	.62
	M	349	302	332	305	348	281			.04	.03			.03	.05			.01	.01
	SD	130	98	83	99	79	100												

TTR

VAQPP

1959-60	N	3	3	4	4	6	6	3	3	4	4	6	6
	M	1.71	.64	2.16	.73	1.75	.88	98.3	5.6	101.2	4.2	112.5	12.2
	SD	.13	.09	.73	.16	.71	.39	17.6	4.2	19.4	3.0	9.7	10.7
1961	N	8	8	9	9	5	5	8	8	9	9	5	5
	M	2.10	1.04	2.14	1.18	1.88	1.08	107.9	19.9	111.6	13.7	108.4	7.8
	SD	.89	.44	.59	.36	.93	.46	25.7	16.9	23.3	10.4	42.8	5.7
1962	N	7	7	10	10	15	15	7	7	10	10	15	15
	M	2.40	1.34	1.94	1.10	1.97	1.05	100.3	9.4	111.2	12.4	102.4	11.7
	SD	1.20	.78	.60	.34	.95	.49	28.4	5.5	4.5	10.3	40.0	24.7
1963	N	12	12	7	7	4	4	12	12	7	7	4	4
	M	2.35	1.12	2.51	1.18	1.55	1.70	113.8	19.0	107.0	30.6	121.3	26.5
	SD	1.28	.79	1.47	.53	.58	.87	22.2	25.4	8.5	34.4	28.5	22.5

a self description  
 b broom description  
 c number of subjects  
 d mean  
 e standard deviation



APPENDIX C

Selected Written Samples

High Type-Token Ratios

"I see a living room with a sofa and a table and a footstool. The rug makes the room look far more comfortable than it might otherwise be, but it would be better if extended to the wall. The curtains look somewhat old-fashioned and therefore do not correlate well with the abstract painting."

20-year-old junior in Arts and Sciences  
R-S=37 (between neutral and sensitizer),  
SCAT=49 (High)

"As I said previously, I'm not really to sure about the 'rest!! I think that I have a pretty good temperment and usually have no trouble getting along with all types of people. I do get rather sarcastic at times and I definitely believe my sense of humor is purely synical."

23-year-old freshman in University College  
R-S=36 (between neutral and sensitizers),  
SCAT=36 (Mid)

Low Type-Token Ratios

"I see a modern living room that is beatifully decorated. It has pleasant lighting. On the left is an extra large couch. Above the couch their is a large modern painting. The couch is gold with a red pillow on it. In front of the couch is a large walnut coffee table."

21-year-old senior in Engineering  
R-S=34 (neutral), SCAT=27 (Low)

"Since I have been in college, I really have found no particular major field, but I believe that I have a predilection for political science and perhaps later I can enter law school. I have traveled considerably, both while in the service and as a civilian. Because of my travels to Latin America, I have an interest in learning the Spanish language. Also since my wife is from South America, I have been encouraged to learn Spanish."

33-year-old sophomore in University College  
R-S=25 (between repressor and neutral),  
SCAT=51 (High)

High Verb-Adjective Quotients

"The color scheme tends to blend. I cannot see any sharp dividing line in the color pattern. The reflection of the highly polished table and floor tends to give a picture of

cleanliness. The sofa and the furniture I can discern, shows a taste of comfort and a degree of relaxation."

21-year-old freshman in University College  
R-S=56 (sensitizer), SCAT=44 (High)

"I guess you might say I not to talkative unless around a group of people I know, but this doesn't really worry me. I am always thinking about what other people think of me, except of course when we go out and get drunk. I am not a heavy drinker, but ever once in a while do like to go out and really get potted."

19-year-old freshman in University College  
R-S=13 (repressor), SCAT=29 (Low)

### Low Verb-Adjective Quotients

"Against the wall is a large sofa. It is white with a gold floral-like design. Large matching cushions are making the back with three small pillows propped together on the back corner of the sofa. The small pillows are of two shapes. One is round and red. The other two are square and colored yellow-gold and creame respectively."

20-year-old sophomore in University College  
R-S=18 (between repressors and neutrals),  
SCAT=33 (Low)

"I weighe about 200 pounds am about 5' 10" tall and have brown hair and green eyes. I went to school at miami for about three years then we moved to Gainesville, Florida and been here ever since. I have a girl-38-24-34- she is a red-head and also lives in G'ville and attends the U of F . . . I have had one broken leg, one broken arm and one cut head."

19-year-old sophomore in University College  
R-S=48 (between neutral and sensitizer),  
SCAT=31 (Low)

### High Personal Pronoun Frequency/1000 words

"I picture myself as entering the living room of a fairly new home. I first notice a picture of abstract art on the wall above a very long and decorated couch. The art picture reminds me of one I saw similar to it yesterday. This living room is furnished in very good taste in my opinion."

20-year-old sophomore in University College  
R-S=28 (neutral), SCAT=42 (Mid)

"I think that I am not very tactful. I have a good memory though, but I just don't know how to apply what I do know. I do not get mad easily, but when I do, I let it boil inside of me until it almost makes me sick. I think this is wrong. I think that maybe I'm a little afraid to lose my temper."

18-year-old sophomore in University College  
R-S=68 (sensitizer), SCAT=44 (High)

Low Personal Pronoun Frequency/1000 words

"The coffee table looks like it is mahogany and is very long. There are several books, a magazine, a cigarette box and an ash tray. The rug on the floor is beige and white. The large picture window is framed by horrible gold drapes."

19-year-old freshman in University College  
R-S=17 (between repressor and neutral),  
SCAT=52 (High)

"Am twenty year old, white male and will be a college graduate with a major in accounting by the first of August. I participate in Baptist Student Union activities, but yet am a devout believer in Darwin's Theory of Evolution, as set forth in his 'Origin of Species,' and 'Descent of Man.' As a result I believed that all life existing today evolved from inorganic matter under atmospheric conditions which no longer exist."

20-year-old senior in Business Administration  
R-S=25 (between repressor and neutral),  
SCAT=41 (Mid)

High Qualification Terms/1000 words

"The flowers suggest that maybe someone in the house has a garden outside. Maybe they were bought from the store. The large window glass and the curtain are what suggests that the house is fairly modern. Sliding glass doors--possibly--lead out to the patio or background. The family spends some time in the yard it appears because of the table and chairs. Possibly they have barbecues or eat their evening meals out their in the summer."

21-year-old junior in Arts and Sciences  
R-S=8 (repressor), SCAT=36 (Mid)

"I am the serious type. Sometimes it seems I am an 'introvert,' but if this be so I'm an 'over-compensating' one and one who, atypically, likes to laugh. The best argument for

my possible introversion is perhaps my occasional introspective activities."

21-year-old junior in Journalism  
R-S=9 (repressor), SCAT=45 (High)

Low Qualification Terms/1000 words

"Here is a view of a modern living room with a wall size window viewing an outside patio. The floor is covered with a thick rug. The furnishings consist of a footstool with a cushion and high legs, a coffee table of dark coloring which is long and narrow. The table is low and styled of old design as the old grand piano."

20-year-old junior in Engineering  
R-S=30 (neutral), SCAT=34 (Mid)

"The first thing I remember is living in a low-cost government housing project. Every afternoon I would go out and wait for my big brother to come home from school. He was in the first grade. I was two. The first recollection I have of my parents is at this housing project. It was early evening. Mother was crying and father was shouting and throwing dishes all over. He was drunk. I decided that adults were not safe to be around."

19-year-old sophomore in University College  
R-S=20 (between repressor and neutral),  
SCAT=41 (Mid)

High Allness Term Frequency/1000 words

"Everything in the room and outside too now begins to look artificial. The books are there but don't look ready for reading, the yard is too crowded with furniture and it looks as if too much is in one place. In all I could be comfortable if the lights were turned down and the crowded lawn was moved around a bit. One strange thing comes to mind, in the entire photograph, there is not one television set, radio, or phonograph. This room really is fantasy!"

20-year-old senior in Engineering  
R-S=6 (repressor), SCAT=47 (High)

"I am a very friendly person but I really don't make friends very easily. I have always been content with the friends I have. I have never had any chance to project a different view to anyone. That is the main reason why I never joined a fraternity. I would always be myself at it seems you must you have to be something much greater than yourself to belong to a fraternity. I have always been physically fit and

could always play any sport. I could never stand to loose at any sport. I always played with only one thought in mind, to win."

18-year-old freshman in University College  
R-S=39 (between neutral and sensitizer),  
SCAT=31 (Low)

Low Allness Term Frequency/1000 words

"This type of setup is very similar to my house. The couch is the most favorable element because it looks comfortable. The lighting looks very friendly. The carpet is very attractive and looks like it would be very comfortable. I don't like the painting because of its abstractness."

18-year-old sophomore in University College  
R-S=40 (between neutral and sensitizer),  
SCAT=30 (Low)

"I have a long thin neck, long dangling arms, which have been developed to a degree through work and exercise. I have long slender fingers with short torn fingernails. I have a slight speech impediment, which used to be a greater difficulty in past years."

19-year-old sophomore in University College  
R-S=10 (repressor), SCAT=42 (High)

## BIOGRAPHICAL SKETCH

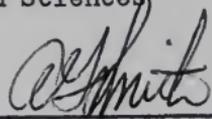
Stanley Leon Brodsky was born July 22, 1939, at Boston, Massachusetts. In June, 1956, he was graduated from Central High School of Manchester, New Hampshire. From 1956 until 1960 he attended the University of New Hampshire and in 1960 received a Bachelor of Arts degree in Economics. He has been a graduate student at the University of Florida from 1960 until the present time and was granted the Master of Arts degree in 1962. He was employed as a graduate research assistant in the Department of Psychology in 1960-1961 and in the Mental Health Clinic 1961-1962. From February, 1962, to August, 1963, he served as resident dormitory counselor in South Hall and during the summer of 1962 he worked as a psychology trainee at the Veteran's Administration Hospital, Gulfport, Mississippi. In 1963-1964 he interned in clinical psychology at Walter Reed General Hospital, Washington, D. C. and he is currently serving as a commissioned officer in the Medical Service Corps of the United States Army.

Stanley Leon Brodsky is married to the former Annette Mae Ratner and resides in Silver Spring, Maryland. He is an associate member of the American Psychological Association and a member of the Florida Psychological Association.

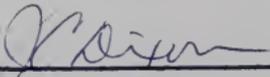
This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Arts and Sciences and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

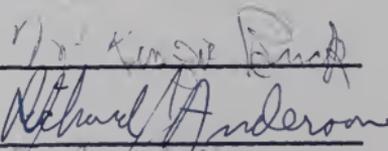
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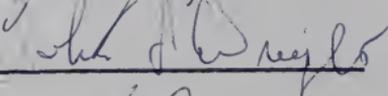
  
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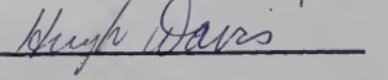
  
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