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Cognitive Complexity and Etiological Conflict Areas of Paranoid Schizophrenics

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COGNITIVE COMPLEXITY AND ETIOLOGICAL CONFLICT AREAS OF PARANOID SCHIZOPHRENICS

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James Michael Willis

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APPROVAL SHEET

This thesis is submitted in partial fulfillment of

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Abstract

Based on research on cognitive complexity and characteristics of paranoid and nonparanoid schizophrenics as described in the clinical literature, it was hypothesized that paranoid schizophrenic Ss would reveal a higher base level of cognitive complexity than nonparanoid Ss. It was further hypothesized that stimuli representative of conflict areas pertaining to the development of paranoid symtomatology would result in attentuated cognitive complexity and increased heart rate difference for paranoid Ss. Three groups of Ss, paranoid schizophrenics, paranoid schizophrenics in remission, and nonparanoid schizophrenics, were selected from a population of hospitalized patients. Each group consisted of eight Ss. Subjects were presented disparate information about stimulus slides, some of which were chosen to represent conflict areas. Measures of heart rate difference and cognitive complexity were determined for each stimulus presentation. Analysis of the data suggests that the measures used for cognitive complexity were invalid, but heart rate difference data and negative adjective responses to stimulus categories indicated stimuli of homosexual content were most stress producing for paranoid subjects.

COGNITIVE COMPLEXITY AND ETIOLOGICAL CONFLICT

AREAS OF PARANOID SCHIZOPHRENICS

Introduction

This study attempts to determine the relationship between cognitive complexity (CC) and specific areas of conflict thought to be associated with the etiology of paranoid symtomatology.

Cognitive Complexity

The impetus for the construct cognitive complexity evolved from Kelly's (1955) psychology of personal constructs, an attempt to integrate seemingly opposing views of humanistic and scientific psychology. This theory of psychological functioning gives primary emphasis to the active exploratory propensities of the individual. One aspect of this theory has dealt with an observer's impression formation of another.

Personality theorists in approaching the implications of Kelly's theory have been interested in research on the concept of cognitive styles. Cognitive styles refer to relatively fixed patterns of experiencing the world, and mechanisms by which information about the environment

is selected, organized and combined. Of these, the area of cognitive style research most concerned with individual differences in the ability of the individual to differentiate the behavior of others has been cognitive complexity-simplicity. A cognitive system, like any system, is composed of a set of elements in varying degrees and kinds of relationships to one another. The elements of an interpersonal cognitive system are considered as interpersonal constructs. These constructs may be connected to one another by relationships based on such factors as similarity, temporal or physical contiguity, or logical or psychological implication. A cognitive system is considered relatively complex in structure when: 1) it contains a relatively large number of elements, and 2) the elements are integrated hierarchially by relatively extensive bonds of relationship.

A person is thought to form an impression of another by: 1) ordering aspects of another's appearance or behavior to one or more constructs in the S's interpersonal cognitive system, and 2) inferring the presence of other attributes in consequence of the relationships that exist among constructs in his cognitive system. Bieri (1961) says CC in its most general sense is a

theoretical principle which is intended to indicate something about the manner in which the individual structures his social world. Bieri (1966) defines CC as the tendency to construe social behavior in a multidimensional way, such that a more cognitively complex individual has available a more versatile system for perceiving the behavior of others than does a less cognitively complex person.

Present data indicates that CC is not a global trait across content domains. A series of studies investigated the assumption that a person's level of CC, with respect to various intellectual domains is reflected in his score on a standard intelligence test. This assumption was tested by correlating intelligence test scores with measures of interpersonal cognitive complexity. Regardless of the intelligence measure, ACE (Mayo, 1959; Sechrest and Jackson, 1961) or the SAT (Rosenkrantz, 1961) the relationship was not significant. A study by Supnick (1964) indicated that CC differs with respect to importance of interpersonal relationships, and similarity of the observed to the S forming an impression. Vannoy (1965) did a factor analytic study of various instruments reported as measuring interpersonal CC. No unitary dimension was found and the author concluded that CC is not a general trait in terms

of dealing with one's interpersonal environment. His results also suggested that none of the instruments employed measure all the independent, distinct tendencies of which CC consist. Such results suggest that the generality of CC does not extend across content domains, and is also restricted to limited dimensions within a domain. As stated by Bannister and Fransella (1971, p. 109): "It would be very easy to fall into the error of thinking of cognitive complexity-simplicity as a trait dimension on which a person occupies a fixed position. There is no reason to suppose any such thing. A person could well be extremely cognitively complex in relation to other people and yet simple when dealing with his family."

Within the domain of interpersonal impression formation Bieri (1955) did perhaps the first experiment on the effects of CC. Since that time many studies have investigated CC and its relationships with impression formation. Supnick's (1964) data suggest that an individual's constructs relative to others with whom he interacts frequently and intimately will be more complex than his constructs relevant to categories of people with whom he interacts less intensely. Campbell (1960) and Scott (1963) found Ss low in CC compared with highs were more likely to

separate people into two groups on the basis of a good-bad dichotomy. Evidence also indicates that cognitively complex Ss are better able to integrate conflictual information about another person into their impression of that person. Gollin (1954), Haire and Grunes (1950), Pepitone and Hayden (1955), Zajonc (1960), and Cohen (1961) all did studies investigating the ability of Ss to integrate disparant information about others, and Nidorf (1961) looked at a given individual's ability to integrate conflictual material and the relationship of this ability to the individual CC. Results were supportive of the thesis that cognitively complex individuals are more frequently able to integrate conflictual information into their impression of another.

Additionally, Miller (1968) and Kelso (1973) have shown that under conditions of stress an observer's impression formation tends to become more simple. These results indicate, that, if in fact part of the conflictual elements a S is asked to integrate into his impression results in stress, the CC of that S should be attentuated. Campbell's (1960) results also suggest that, under stressful conditions a S would tend to form an impression of mostly negative or mostly positive attributes, but not with a balance of such attributes.

Paranoid Symptomatology

Investigations relating CC to the cognitive processes of hospitalized populations are virtually nonexistent; nevertheless; the fact that CC is restrictive to dimensions within a content domain readily relates to several aspects of the process of maladjustment which appears to characterize paranoid schizophrenics. Cameron (1963) describes paranoid reactions as attempts to escape tension and anxiety through processes of denial and projection, which result in more or less systematized delusions. These systematized delusions seem to always focus upon persons and interpersonal relationships. It appears that the symptoms of paranoid persons more clearly than other psychotic groups represent specific disturbances of interpersonal relationships in which blame is transferred in a very literal fashion to certain individuals or groups in order to deal with what are thought to be intrapsychic sources of anxiety.

Paranoid reactions are thought to be less regressed than are other schizophrenic psychoses, in the sense that total disorganization is not evident. As Cameron (1963, p. 475) says, "it appears that paranoid reactions may be a combination of neurosis and psychosis". The psychotic element appears in the fixed, inflexible delusional

development and in the distortion of social reality. The neurotic element appears in the good "residual object relations" which, in many cases, allow the patient to carry on a relatively normal life. The paranoid schizophrenic is characterized by poor interpersonal rapport. Often he is cold and resentful of other persons. Many are argumentative, scornful, and given to caustic remarks. In short, reactive paranoid schizophrenics seem to be dealing with interpersonal relationships, at least those suggestive of essential areas of conflict, in a relatively cognitively simple manner while other aspects of their life adjustment are dealt with in a more cognitively complex manner. The chronic undifferentiated schizophrenic, on the other hand, tends to be characterized by a more global, total disorganization not differentiating between various aspects of his environment. Such characteristics might well be associated with a global, simple cognitive relationship to the environment.

Several studies have investigated various proposed conflict areas of paranoids. Although results have in some cases been contradictory there appears to be evidence that this group of patients have strong, but unacceptable homosexual urges (Zamansky, 1958) and are unusually sensitive

to maternal censure cues (Heilbrun and Norbert, 1971). The theoretical dynamics thought to relate to these conflict areas may vary to some degree from theorist to theorist, but regardless of whether homosexual urges are considered to result from anxiety incurred at the idea of relationships with women or a defense against powerful agressive wishes against male figures this content appears to be relevant to the formation of the paranoid delusional system. Many clinical theorists have hypothesized that paranoid thinking evolves from a defensive combination of unacceptable urges and some form of projection of these feelings. There are admittedly many possible areas of conflict; however, those mentioned seem representative in that they deal with areas that are considered important in several theoretical systems and have been empirically demonstrated to play a role in the origin of paranoid thinking. In all cases stressful content thema involve a lack of opportunity to build a conception of a stable, friendly, dependable world which affects the paranoid's feelings of self esteem, sensitivity to attitudes of others, and lack of sensitivity to his own attitudes.

Cognitive Appraisal of Stress

A body of research has dealt with the relation-

ships of autonomic nervous system response measures to psychological stress. Shean and Schmaltz (1973) suggest that heart rate variability is indicative of the presence of stress and that patterns of response differ significantly between paranoid schizophrenics and nonparanoid schizophrenics, with paranoids evidencing greater variability. Paranoid Ss verbally report less stress than the nonparanoid Ss.

The role of cognitive appraisal in the assignment of threatening or nonthreatening significance to a particular stimulus or configuration of stimuli has been discussed by Arnold (1960), who theorizes that an emotion implies an evaluation of a stimulus as either harmful or beneficial. Lazarus (1966) considers that the process of appraisal and the assignment of threatening, nonthreatening, or neutral value to a stimulus configuration depends upon two classes of antecedents: factors in the stimulus configuration itself, and factors within the psychological structure of the individual. Thus, the same stimulus configuration might be considered stressful or not, depending upon the cognitive appraisal of the individual perceiving it.

The present study was designed to test a number

of hypotheses regarding the differential cognitive appraisal (threatening or nonthreatening) of an interpersonal stimulus configuration by paranoid and nonparanoid schizophrenic patients. It was predicted that stimuli representative both of neutral, and conflict areas involved in the paranoid delusional system would elicit distinct patterns of cognitive appraisal on the part of these Ss. Thus, although base levels of CC may differ in paranoid and nonparanoid schizophrenics only those stimuli representative of conflict areas would produce a distinctly different response pattern in the paranoid Ss. Specifically it was anticipated that this response pattern would be identified by attenuated CC scores and increased heart rate variability. The stimulus categories presenting homosexual urges and censuring mothers were anticipated to have the effects predicted. Measurement of CC was attempted using an absolute difference score of positive minus negative adjective responses for each stimulus trial. Based on Campbell's (1960) results a complex response would be indicated by a low absolute score. Subjects were supplied the adjectives instead of having them produce their own descriptive terms to facilitate the procedure. This seemed justifiable in light of Tripodi and Bieri's (1963) conclusion that CC

scores were comparable whether using constructs provided by the Ss or constructs supplied by the E. Since a complex cognitive system is considered to have a relatively large number of elements, the total number of adjectives was also considered as a potential measure of CC. Therefore, stimuli presenting areas of conflict were predicted to result in lower CC scores for paranoids as compared to other stimuli, as well as increased heart rate variability indicative of psychological stress.

Method

Subjects. Subjects were 24 male patients at Eastern State Hospital, Williamsburg, Virginia. The Ss were separated into three groups, paranoid schizophrenics, paranoid schizophrenics in remission, and nonparanoid schizophrenics. Selection of Ss was on the basis of previous hospital diagnosis and a 30-60 minute clinical interview. Those Ss with a current staff diagnosis of paranoid schizophrenic and which expressed clear signs of both delusions of grandeur and persecution, as judged by the experimenter and one experienced clinician were classified as paranoid schizophrenics. Those Ss with a paranoid diagnosis but which did not evidence delusional

thought during the interview were classified as "paranoids in remission." Those Ss diagnosed as chronic undifferentiated and which did not evidence paranoid delusions during the interview were classified as nonparanoid schizophrenics.

Participation in the experiment was voluntary and Ss were informed that they could leave the experimental situation at any point they desired. At the end of the experiment, all Ss were paid $1.60 and thanked for their cooperation and willingness to participate in the study.

Apparatus. Heart rate (HR) was continuously recorded throughout the experimental session on an E & M Instrument's Model 4 Physiograph. Zinc coated EKG electrodes, coated with Sanborn Redux electrode paste were attached to the right forearm of the Ss. The HR measure was triggered by the R wave of the EKG and transformed by the cardiotachometer into an easily measured recording.

Ss were tested individually in a darkened 10 x 12 room while seated in an easy chair with an arm rest. Stimulus slides were shown on a wall directly in front of the S, five feet from the front leg of the chair. Slides were projected by a Kodak Carousel projector and presented a viewing size approximately 36 inches x 48 inches. Tape-recorded descriptions of the slides were played on a Sony

#TC-104 taperecorder.

Stimuli. Twelve slides were presented to the Ss. The slides presented six stimulus categories (2 slides for each category), neutral persons, maternal censure, homosexual urges, heterosexual sex, birth, and transvestism. The slides within these categories were:

a. Neutral persons. One slide of a male and one of a female composed this group. Both stimulus persons were dressed in colonial garb and had a neutral facial expression.

b. Maternal censure. Each slide in this category was of a middle aged woman in a stern pose, making a hand gesture typically associated with censure.

c. Homosexual urges. One slide was of a nude male in a body builders pose. The other showed two nude adolescent boys wrestling.

d. Heterosexual sex. In this group were two different slides of the same couple in male superior and female superior intercourse.

e. Birth. This group consisted of two slides of a human baby and its mother during the birth process.

f. Transvestism. Two scenes of a man in various stages of applying female attire were presented on each slide.

A taped description of each slide was presented during each visual presentation. See Appendix E. These descriptions included some interpretation of what the stimulus person(s) was doing in the slide as well as ascribing personality characteristics to that person. This information was presented in a manner to pose a conflict of input about the stimulus person(s) in each slide.

> Example. The taped description of one of the slides presenting transvestism says: "The man in these two scenes states that he is confident of his sexual identity but never-the-less is willing to dress as a man on some occasions and a woman on others."

This description says the man is confident of his sexual identity, but at the same time the slide depicts a man dressed as a man in one scene and others of him dressing as a woman. This information suggest that in fact the man is not entirely confident of his sexual identity.

Procedure. Prospective Ss were located by surveying hospital records. Upon developing a list of pros-

pects the nursing staff in each building was contacted and questioned regarding their observations as to the individual's diagnosis. Prospective Ss for whom there was a consensus between official staff diagnosis and nursing staff observations as to categorization as either paranoid or chronic undifferentiated categories were then contacted and asked to participate in the study. If willing, the S was given an appointment and later escorted to the building where the experimental apparatus was set up. There he was introduced to the interviewer, and if agreeable participated in an interview. This interview was conducted by an "experienced clinician" in order to assure the appropriateness of S categorization. These interviews were tape-recorded, with the permission of the Ss, and jointly listened to by the E and interviewer. Employing the criterion referred to in the subjects description final categorization of the Ss for purposes of the study was completed. Immediately following the interview, the E showed the apparatus to the S and gave him a written description of the experimental procedure. The E read this description over with the S and then answered any questions which it evoked. The S was then asked to sign a statement of his willingness to participate in the experiment. It was made clear

that the S could terminate the procedure, at any point, if he wished, and that the E reserved the right to terminate the procedure if it was deemed necessary.

At this point each S was asked to complete the Interpersonal Discrimination Test (IDT) developed by Carr (1965) as a measure of CC. After completion of this questionaire, he was seated facing the wall upon which the stimulus slides were to be shown, and EKG electrodes were attached. Instructions were repeated, as they appeared in the written description, and the procedure continued. Each slide was presented for a 10 second interval simultaneously with a taperecorded description. The description was played twice in order to give the S ample opportunity to attend to this source of information. After completion of the second description a list composed of 14 adjectives was read to the S by the E. Prior to reading the list, on each occasion, the E introduced it with the instructions: "If you were asked to describe the person in the slide whom you have just heard information about, which of these words would you use? Tell me "yes" for a word you would use and "no" for one you would not". The words composing the list were independently judged by three judges for connotative valence and interjudge correlations were +1.00.

The list included seven words judged positive in valence and seven judged negative. The words appeared on the list, positive words alternating with negative words, with a random starting point for each presentation. Upon completion of this procedure for each of the twelve stimulus slides the electrodes were removed from the S. He was then asked to complete two more questionaires, the Ullman-Giovannoni scale, (Ullman-Giovannoni, 1964), a measure of the process-reactive continuum; and items from the Self Description Questionaire (Schmaltz, & Shean, 1973) reported to differentiate between paranoid and nonparanoid Ss. Subsequent to completion of these questionaires the E engaged the S in conversation for a period to ascertain that the S had not been unduly stressed by the experimental procedure. The S was then paid, thanked for his participation, and returned to his building.

Sometime during the following week the S was again contacted and briefly interviewed by the E in order to further assure that no stressfull effects of the experiment were apparent. During this same session the S was administered the Weschler Adult Intelligence Scale (WAIS) Information, Vocabulary, and Block Design subtests in order to obtain an IQ estimate of the S. The Ss were all informed

that professional help would be available should they feel its need due to stressful after effects of the experiment. There have been no such request to this date. Further appreciation was expressed to each S and he was informed that this concluded the study.

Results

Multiple two-tailed t tests were performed to determine whether subject groups differed on the following measures: age, education level (highest grade completed), chronicity (months of hospitalization), Ullman-Giovannoni scores, medication level in phenothiazine equivalents (Himwick,1965), IDT, and scores on the Information, Vocabulary and Block Design subtests of the Weschler Adult Intelligence Scale. For each measure, comparisons were made between all possible group combinations (paranoids and paranoids in remission, paranoids and chronic undifferentiated, and, paranoids in remission and chronic undifferentiated). As can be seen in Table 1, there were no significant differences between groups with regard to age, education level, IDT, chronicity, Ullman-Giovannoni scores or medication levels.

Significant differences were found between groups on the WAIS subtests. On the Information subtest paranoids

Table 1

t-tests: Group Data

Variable	Group	$\bar{X}$	$\bar{Y}$	*t* value
Age				
	P-PR	31.00	30.62	N.S.
	P-C	31.00	35.50	N.S.
	PR-C	30.62	35.50	N.S.
Educational Level				
	P-PR	12.37	11.75	N.S.
	P-C	12.37	10.75	N.S.
	PR-C	11.75	10.75	N.S.
Month's Chronicity				
	P-PR	42.69	44.25	N.S.
	P-C	42.69	48.75	N.S.
	PR-C	44.25	48.75	N.S.
Ullman-Giovannoni Scores				
	P-PR	6.37	7.12	N.S.
	P-C	6.37	7.75	N.S.
	PR-C	7.12	7.75	N.S.
WAIS Information				
	P-PR	11.75	8.75	1.85*

Table 1 (continued)

Variable	Group	$\bar{X}$	$\bar{Y}$	t value
	P-C	11.75	7.62	2.69*
	PR-C	8.75	7.62	N.S.
WAIS Vocabulary				
	P-PR	11.50	8.75	N.S.
	P-C	11.50	6.62	3.00**
	PR-C	8.75	6.62	2.09*
WAIS Block Design				
	P-PR	10.50	9.12	N.S.
	P-C	10.50	7.12	2.53*
	PR-C	9.12	7.12	1.81*
Medication Level				
	P-PR	378.70	391.40	N.S.
	P-C	378.70	409.30	N.S.
	PR-C	391.40	409.30	N.S.
IDT				
	P-PR	25.12	19.37	N.S.
	P-C	25.12	26.25	N.S.
	PR-C	19.37	25.12	N.S.

Note. P is paranoid schizophrenic, PR - paranoid schizophrenic in remission, and C - chronic undifferentiated schizophrenic.
*$p < .05$
**$p < .01$

scored significantly higher than paranoids in remission (t = 1.85, df = 14, $p < .05$) and chronic undifferentiated Ss (t = 2.69, df = 14, $p < .01$). For the Vocabulary subtest paranoid (t = 3.00, df = 14, $p < .01$) and paranoid in remission Ss (t = 2.09, df = 14, $p < .05$) scored higher than chronic undifferentiated Ss. Differences were also observed on the Block Design subtest. Paranoids (t = 2.53, df = 14, $p < .05$) and paranoids in remission (t = 1.81, df = 14, $p < .05$) scored higher than the nonparanoid Ss. These results indicate that I.Q. differences existed between the groups, therefore analyses of covariance, holding I.Q. constant, were used to analyze heart rate and cognitive complexity data.

The methods used for quantification of HR and CC measures are described below. Heart rate was continuously recorded throughout the experimental procedure; a 10 second prestimulus and 10 second stimulus interval were scored for each stimulus trial. Heart rate was scored for the fastest (HR-MAX) and slowest (HR-MIN) interbeat intervals in both periods. A heart rate variability (HR-V) score was obtained by subtracting HR-MIN from HR-MAX, then a variability difference (HR-D) score was obtained by subtracting the prestimulus HR-V from the stimulus interval

HR-V.

Two CC scores were obtained for each stimulus trial. An absolute CC score defined as the difference between the number of negative and the number of positive adjectives used on a given trial. The total number of adjectives used was scored as a second CC measure.

Heart-rate and CC data derived as described above were analyzed by means of separate 3 (diagnostic categories) x 12 (stimulus trials) and 3 (diagnostic categories) x 6 (stimulus categories) x 2 (stimulus category repetitions) split plot factorial (Kirk, 1968) analysis of variance and analysis of covariance. Analysis of covariance was used to correct for group differences in IQ, therefore analysis of variance tables are shown in those instances in which effects of IQ were not observed.

The stimulus categories presented during each trial are shown in Table 2. Results of the analysis of variance for HR-D are shown in Table 3. Significant interaction effects were not observed with analysis of variance. Nevertheless, multiple two-tailed t tests were utilized to compare differences between groups on trials predicted to be relevant to the origin of paranoid behavior, i.e., categories CM, HS. Results of these comparisons (Table 4)

Table 2

Stimulus Categories

Category		Category Number	Trials
Neutral persons	(N)	1	1,9
Censuring mother	(CM)	2	2,7
Transvestite	(T)	3	3,11
Homosexual content	(HS)	4	4,10
Birth	(B)	5	5,8
Heterosexual sex	(XS)	6	6,12

Table 3

Analysis of Variance: Heart Rate Difference

Source	Degrees of freedom	Mean square	F ratio
Diagnostic Category (A)	2	.80	N.S.
Error - Ss W.Gps.	21	87.74	
Stimulus Category (B)	5	45.96	N.S.
A x B	10	60.13	N.S.
Error - B x Ss W. Gps.	105	44.86	
Repetitions of Stimulus Category (C)	1	9.57	N.S.
A x C	2	37.70	N.S.
Error - C x Ss W. Gps.	21	26.58	
Trials (D)	11	41.12	N.S.
A x D	22	46.42	N.S.
Error - D x Ss W. Gps.	231	38.67	
B x C	5	42.59	N.S.
A x B x C	10	34.47	N.S.
Error - BC x Ss W. Gps.	105	34.90	

Note. Ss W. Gps. is Subjects within groups

Table 4

t tests: Heart Rate Difference (trials 2,4,7,10)

Trial	Groups	$\bar{X}$	$\bar{Y}$	t value
2 (CM)				
	P-PR	1.88	-.63	N.S.
	P-C	1.88	-1.56	N.S.
	PR-C	-.63	-1.56	N.S.
4 (HS)				
	P-PR	1.25	-3.44	N.S.
	P-C	1.25	1.56	N.S.
	PR-C	-3.44	1.56	N.S.
7 (CM)				
	P-PR	.94	-3.13	N.S.
	P-C	.94	-3.13	N.S.
	PR-C	-3.13	-3.13	N.S.
10 (HS)				
	P-PR	8.13	2.81	1.71*
	P-C	8.13	-1.56	3.11***
	PR-C	2.81	-1.56	N.S.

*p .10
***p .001

Note. P is paranoid schizophrenic, PR is paranoid schizophrenic in remission, and C chronic undifferentiated schizophrenic.

indicate that significant differences in HR-D were observed during presentation of homosexual content, i.e., category HS on trial 10. On three of the four trials presenting the categories CM or HS paranoid Ss evidenced greater HR-D than the other two groups, and on the fourth greater HR-D than paranoid in remission Ss. Trial 10 resulted in greater HR-D for paranoid Ss compared to paranoid in remission ($p < .10$) and nonparanoid Ss ($p < .001$). Figure 1 (Groups X Trials) and Figure 2 (Group X Categories) show these differences. These figures also suggest that a great deal of intertrial variability was evidenced in the HR-D data for both paranoid in remission and nonparanoid Ss, while the only sharp increases in HR-D for paranoid Ss occurred on trials associated with homosexual content (trials 4, & 10) or a censuring mother (trial 2).

Analysis of absolute CC data indicated significant differences for stimulus categories ($F = 2.88$, $df = 5/105$, $p < .05$) and trials ($F = 1.91$, $df = 11/231$, $p < .05$). These results appear in Table 5. Figure 3 illustrates mean absolute CC plotted as a function of stimulus categories. Newman-Keuls multiple comparisons shown in Table 6 indicate that category T resulted in significantly higher absolute CC ($p < .05$) than responses to categories B, and

Figure 1. Mean heart rate difference: Group X Trial interaction.

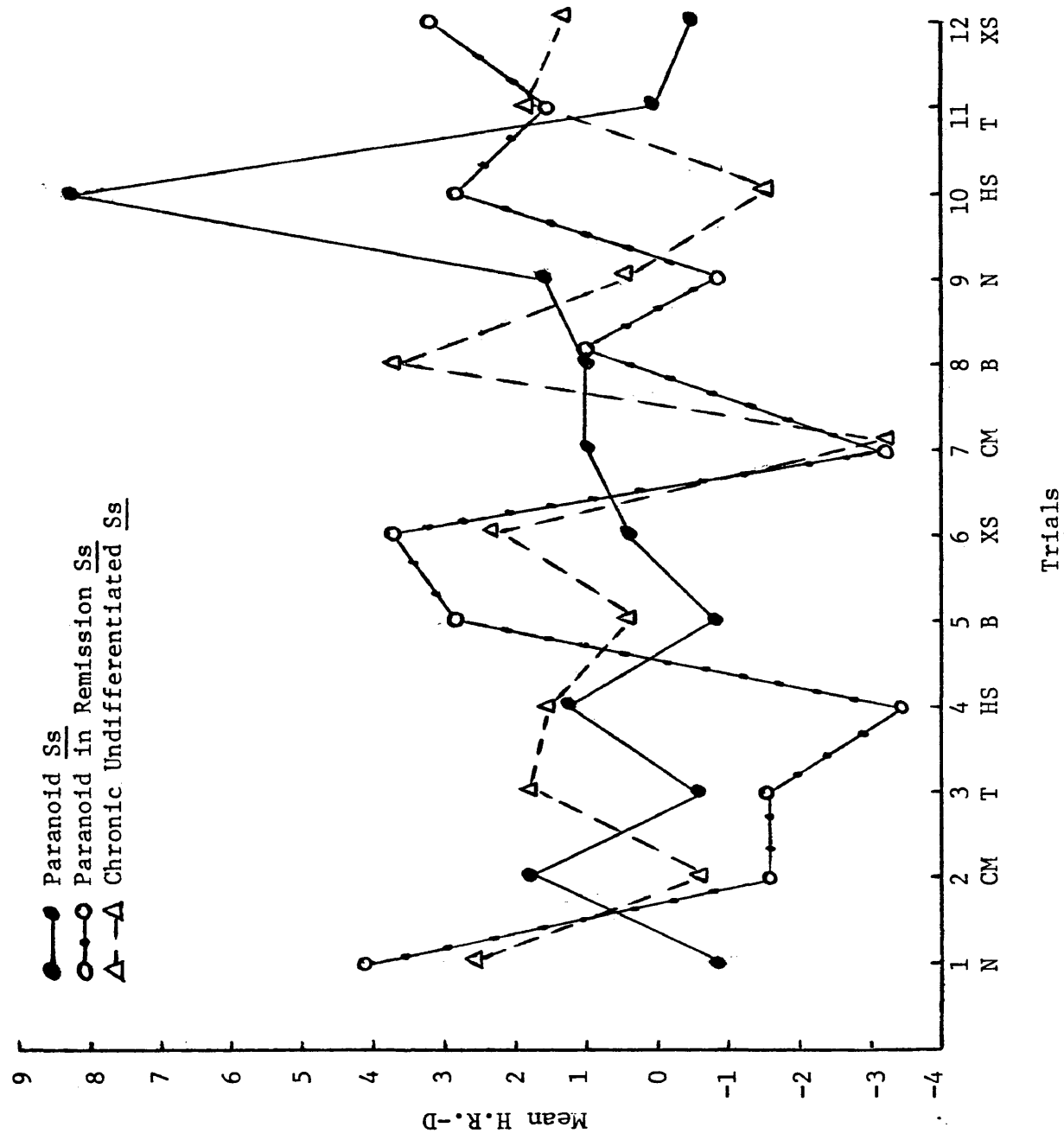

Paranoid Ss
Paranoid in Remission Ss
Chronic Undifferentiated Ss
Mean H.R.-D
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
1 N
2 CM
3 T
4 HS
5 B
6 XS
7 CM
8 B
9 N
10 HS
11 T
12 XS
Trials

Figure 2. Mean heart rate difference: Group X Category interaction.

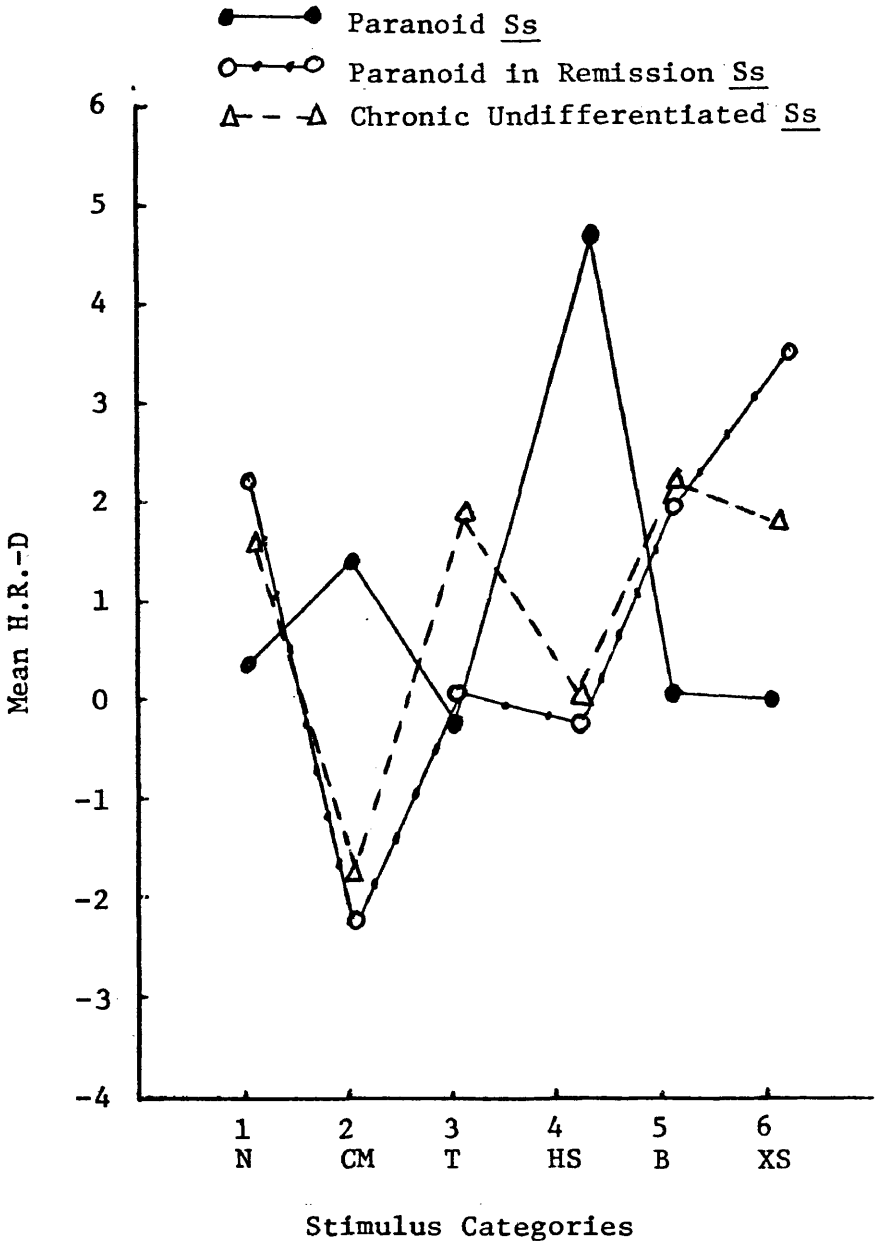

Paranoid Ss
Paranoid in Remission Ss
Chronic Undifferentiated Ss
Mean H.R.-D
6
5
4
3
2
1
0
-1
-2
-3
-4
1 N
2 CM
3 T
4 HS
5 B
6 XS
Stimulus Categories

Table 5

Analysis of Variance: Absolute CC Score

Source	Degrees of freedom	Mean square	F ratio
Diagnostic Category (A)	2	9.73	N.S.
Error - Ss W. Gps.	21	15.48	
Stimulus Category (B)	5	8.43	2.88*
A x B	10	2.82	N.S.
Error - B x Ss W. Gps.	105	2.92	
Repetitions of Stimulus Category (C)	1	.68	N.S.
A x C	2	2.09	N.S.
Error - C x Ss W. Gps.	21	3.24	
Trials (D)	11	5.50	1.91*
A x D	22	2.05	N.S.
Error - D x Ss W. Gps.	231	2.88	
B x C	5	3.53	N.S.
A x B x C	10	1.27	N.S.
Error - BC x Ss W. Gps.	105	2.76	

Note. Ss W. Gps. is Subjects within groups

*$p < .05$

Figure 3. Mean absolute CC for combined groups as a function of stimulus categories.

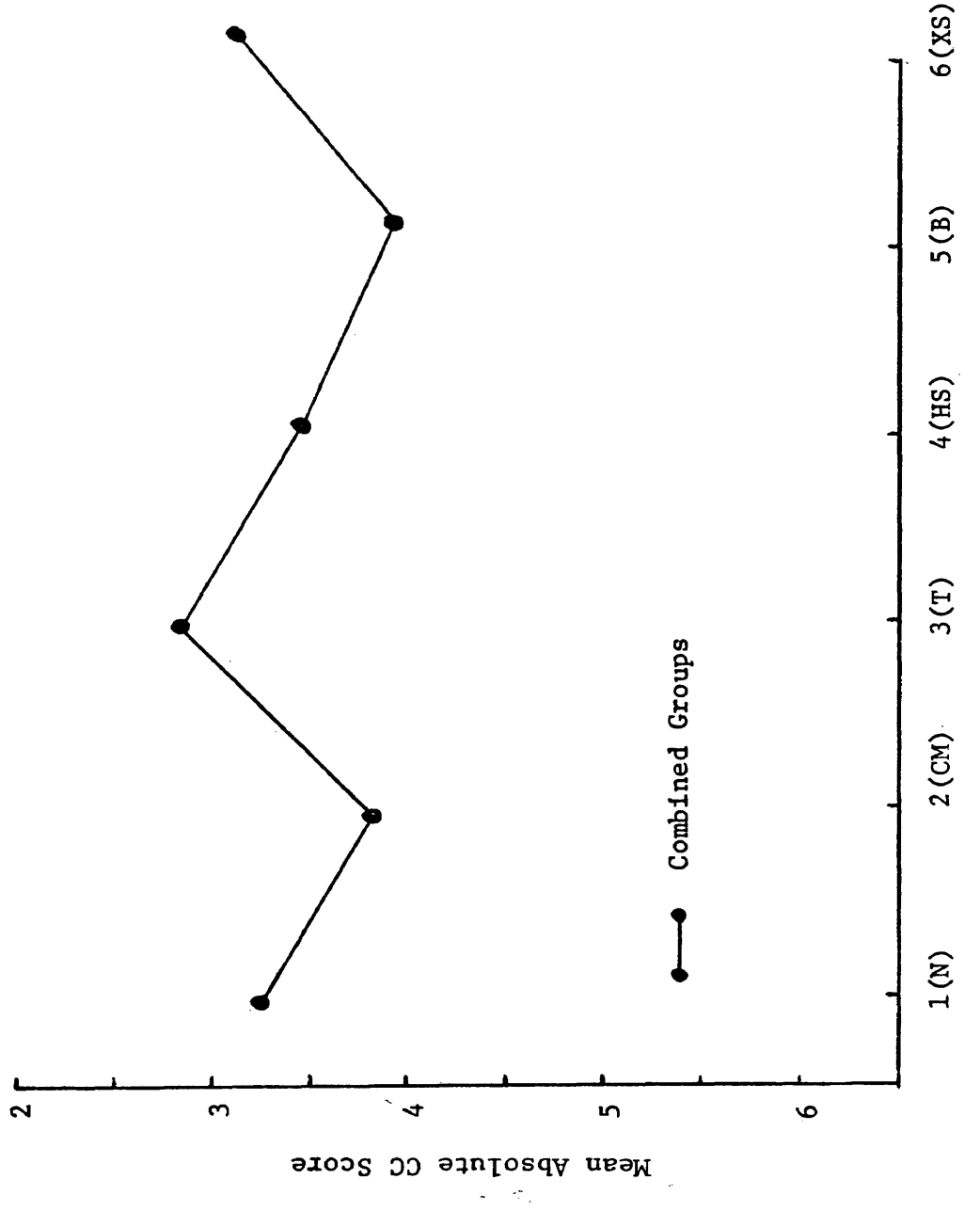

Mean Absolute CC Score
2
3
4
5
6
Combined Groups
1(N)
2(CM)
3(T)
4(HS)
5(B)
6(XS)
Stimulus Categories

Table 6

Newman-Keuls Multiple Comparisons Test:

Absolute CC (stimulus categories)

Category		B	CM	HS	N	XS	T
	Mean	3.96	3.82	3.52	3.25	3.15	2.86
B	3.96	—	.14	.34	.71	.81	1.10*
CM	3.82		—	.30	.57	.67	.96*
HS	3.52			—	.27	.37	.66
N	3.25				—	.10	.39
XS	3.15					—	.29
T	2.86						—

*$p < .05$

CM. Figure 4 shows that trials on which stimuli in the T category were presented produced the most complex absolute CC score. Group by trial differences were not significant but as can be seen from Figure 5 chronic undifferentiated Ss tended to produce the most complex response, on this measure, across all trials.

Analysis of variance of the total adjectives CC score as shown in Table 7 indicates significant differences for trials ($F = 1.96$, $df = 11/231$, $p < .05$) and stimulus Categories X Repetitions ($F = 2.64$, $df = 5/105$, $p < .05$). Differences were present between groups ($F = 3.90$, $df = 2/21$, $p < .05$), but these differences were eliminated with analysis of covariance which held the effects of IQ constant. Plots of mean total Adjectives X Trials (Figure 6) and mean total Adjectives X Categories (Figure 7) reveal that only categories CM, and B resulted in consistent responses during each trial. As indicated by Figure 8 chronic undifferentiated Ss tended to use more adjectives on all trials than either of the other two groups.

The results of the analysis of both CC measures led the author to suspect that response bias may have confounded these measures. Many Ss responded indiscriminately using many adjectives which resulted in high CC scores on

Figure 4. Mean absolute CC for combined groups as a function of trials.

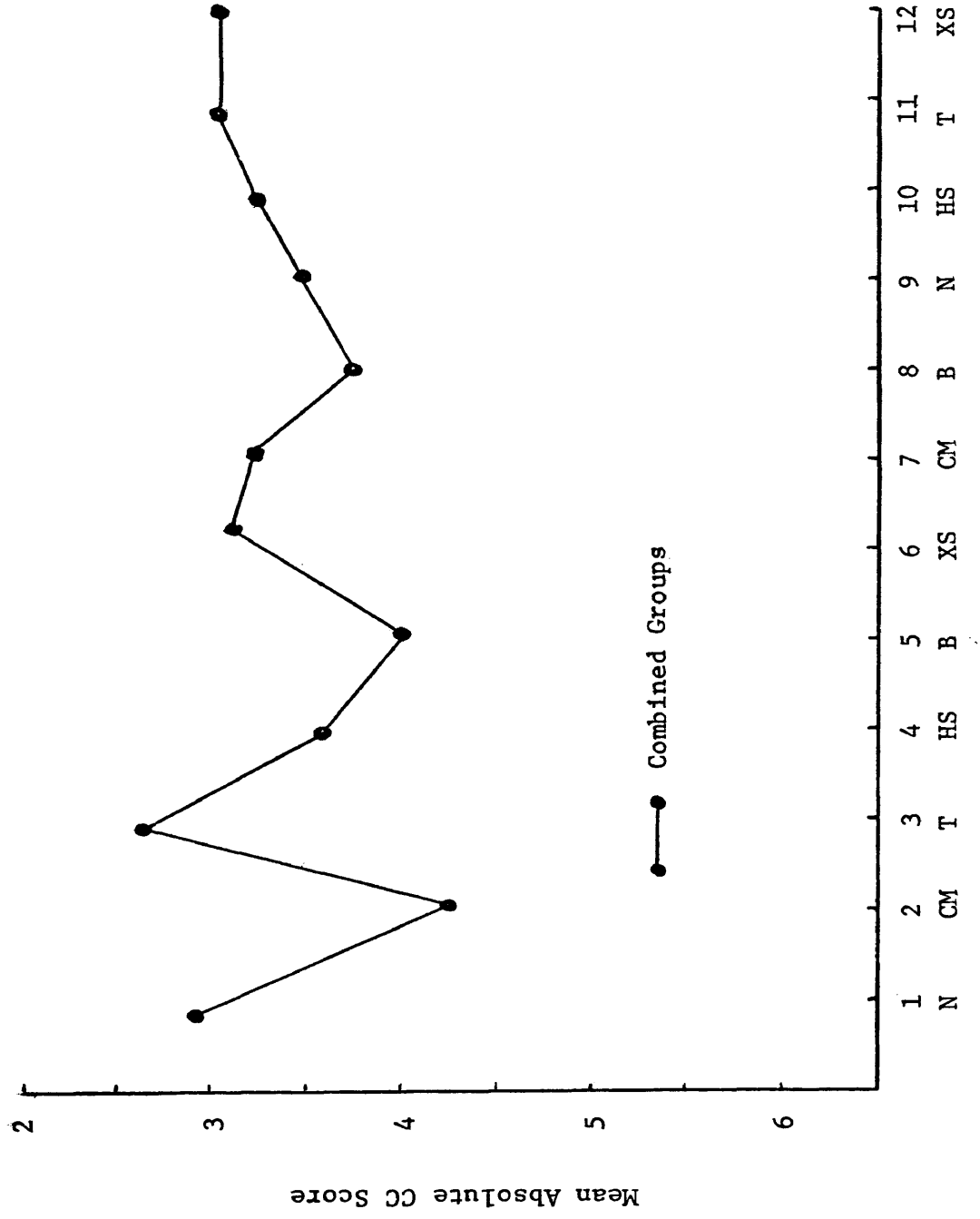

Mean Absolute CC Score
2
3
4
5
6
Combined Groups
1 N
2 CM
3 T
4 HS
5 B
6 XS
7 CM
8 B
9 N
10 HS
11 T
12 XS
Trials

Figure 5. Mean absolute CC: Group X Trial interaction.

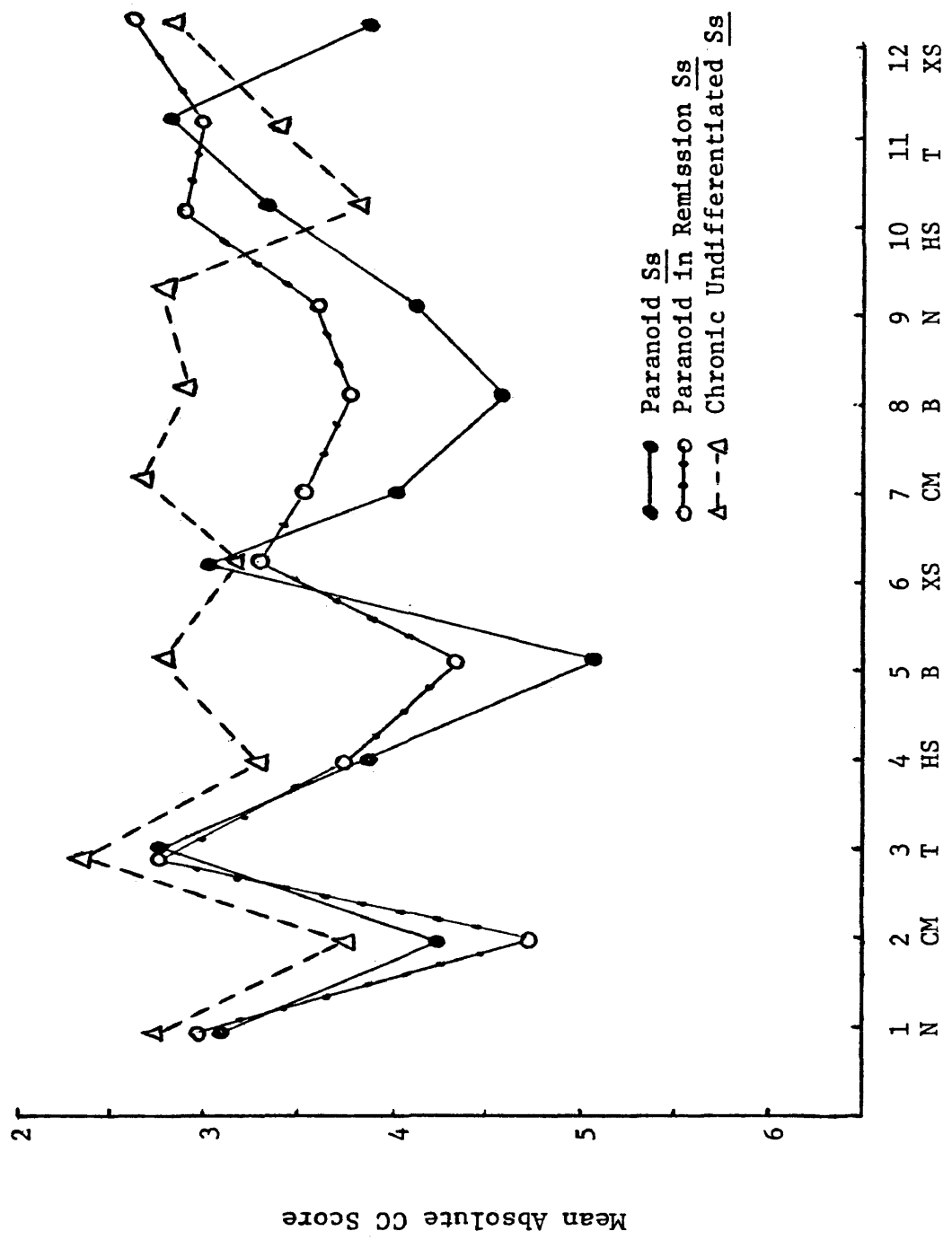

Mean Absolute CC Score
2
3
4
5
6
1 N
2 CM
3 T
4 HS
5 B
6 XS
7 CM
8 B
9 N
10 HS
11 T
12 XS
Trials
Paranoid Ss
Paranoid In Remission Ss
Chronic Undifferentiated Ss

Table 7

Analysis of Variance: Total Adjectives CC Score

Source	Degrees of freedom	Mean square	F ratio
Diagnostic Category (A)	2	90.15	3.90*
Error - Ss W. Gps.	21	23.10	
Stimulus Category (B)	5	5.41	N.S.
A x B	10	2.54	N.S.
Error - B x Ss W. Gps.	105	2.89	
Repetitions of Stimulus Category (C)	1	5.56	N.S.
A x C	2	7.19	N.S.
Error - C x Ss W. Gps.	21	5.80	
Trials (D)	11	5.56	1.96*
A x D	22	2.91	N.S.
Error - D x Ss W. Gps.	231	2.83	
B x C	5	5.71	2.64*
A x B x C	10	2.42	N.S.
Error - BC x Ss W. Gps.	105	2.16	
Analysis of Covariance			
Diagnostic Category (A)	2	.94	N.S.

Table 7 (continued)

Source	Degrees of freedom	Mean square	F ratio
Error - Ss W. Gps.	21	23.03	

Note. Ss W. Gps. is Subjects within groups

*p < .05

Figure 6. Mean total adjectives for combined groups as a function of trials.

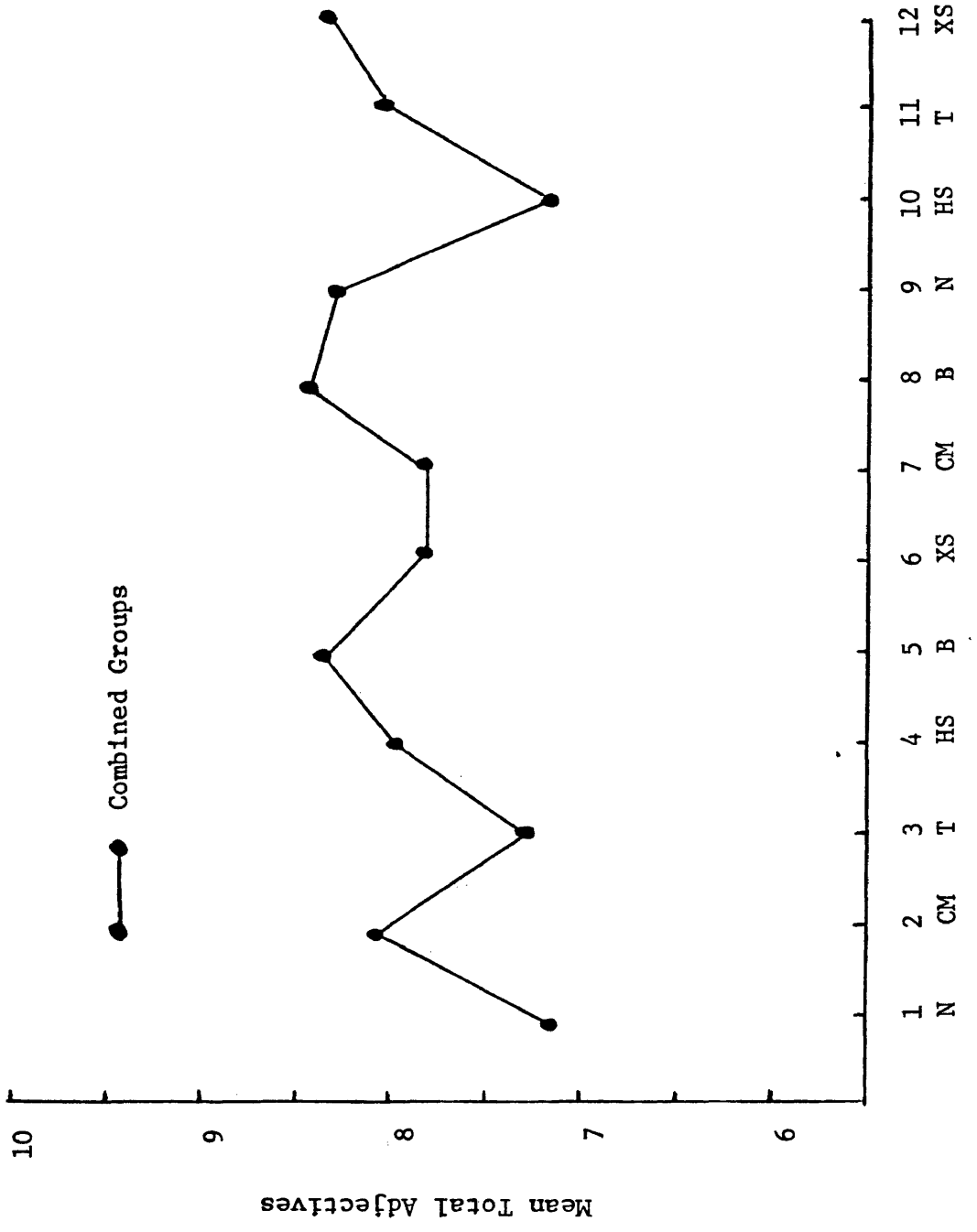

Mean Total Adjectives
10
9
8
7
6
Combined Groups
1 N
2 CM
3 T
4 HS
5 B
6 XS
7 CM
8 B
9 N
10 HS
11 T
12 XS
Trials

Figure 7. Mean total adjectives: Category X Repetitions interaction.

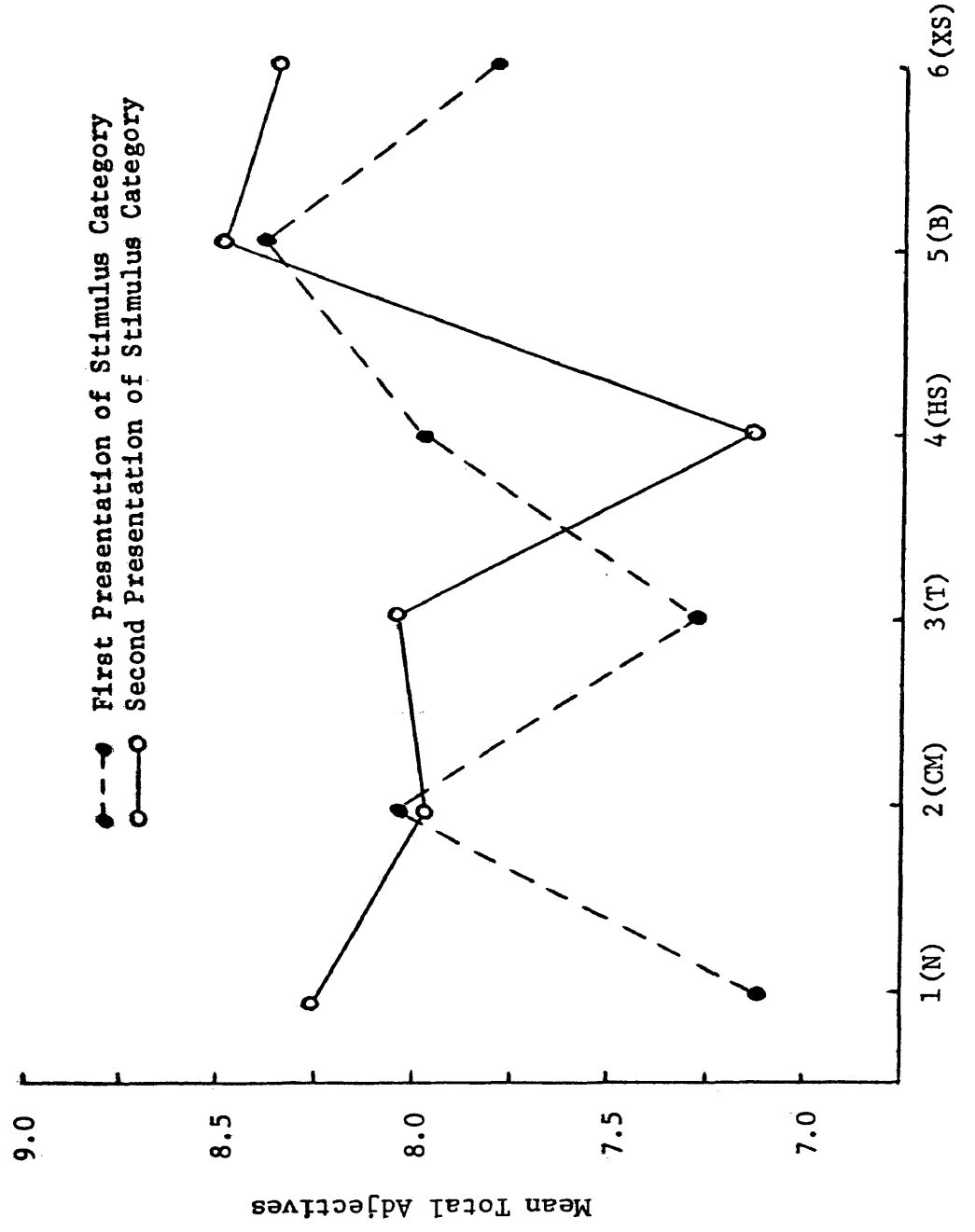
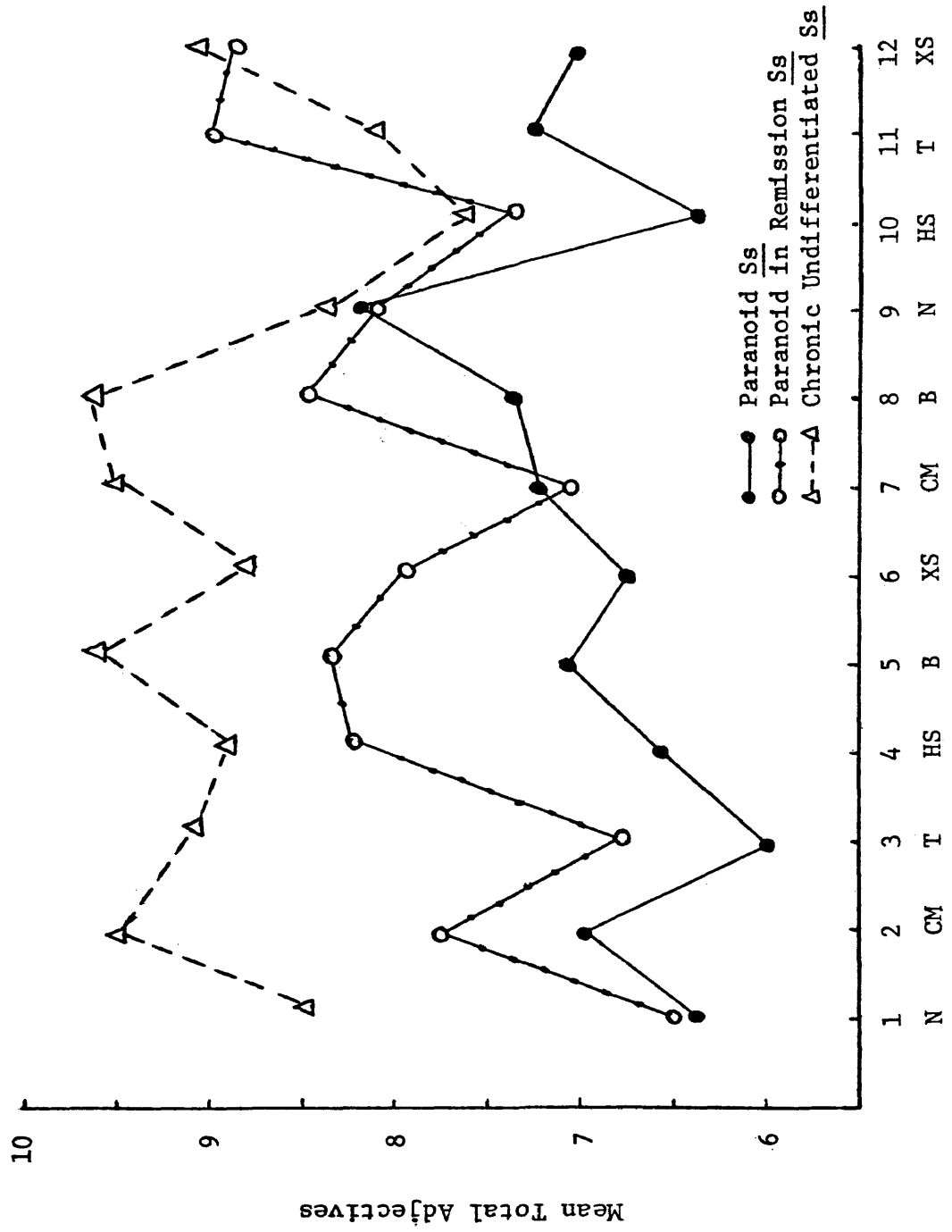

First Presentation of Stimulus Category
Second Presentation of Stimulus Category
Mean Total Adjectives
9.0
8.5
8.0
7.5
7.0
1 (N)
2 (CM)
3 (T)
4 (HS)
5 (B)
6 (XS)
Stimulus Categories

Figure 8. Mean total adjectives: Group X Trial interaction.


Mean Total Adjectives
10
9
8
7
6
1 2 3 4 5 6 7 8 9 10 11 12
N CM T HS B XS CM B N HS T XS
Trials
Paranoid Ss
Paranoid in Remission Ss
Chronic Undifferentiated Ss

both measures. It appeared that the least guarded and least intelligent Ss would be more likely to respond in such a manner, for these Ss would be less able to make differentiations and would not feel a need to be guarded in the use of negative words. Figure 8 shows that chronic undifferentiated Ss, who scored lowest on tests of IQ, did in fact use more adjectives across trials than Ss in the other groups. Figure 5 indicates that Ss in the nonparanoid group also had less variability in absolute CC score across trials than other groups as well as the lowest scores. The above evidence suggests a tendency for the nonparanoid group to indiscriminately use both positive and negative adjectives. A Pearson correlation was computed correlating total IQ estimate score with total adjectives used in order to determine the relationship of these two variables. The result ($r = -.41$) indicated the tendency for Ss scoring lower on IQ estimates to respond "yes" to more adjectives. In order to investigate what effects this response tendency had on the results it was felt that a reanalysis of the data was appropriate. CC measures were rescored eliminating all adjectives that were used by a given S on 10 out of 12 trials. It was anticipated that this method would eliminate the response

bias of indiscriminantly using words and the remaining words would be those indicating any within subject variability. After eliminating all such words a corrected absolute CC score and total adjectives CC score was computed and analyzed. Scores for the number of negative words, after this correction procedure, were also analyzed. It was felt that by analyzing the negative words some insight into the behavior affecting the responses might be gained. It was anticipated that the caustic character of paranoids would result in liberal use of negative adjectives, particularly to threatening stimuli.

Analysis of variance of the corrected absolute CC score shown in Table 8 indicated significant differences in stimulus categories ($\underline{F} = 3.25$, $\underline{df} = 5/105$, $p < .01$) and trials ($\underline{F} = 1.84$, $\underline{df} = 11/231$, $p < .05$). Figure 9 reveals that the categories HS, and XS produced responses scored highest in CC while category B produced responses scored lowest. Table 9 shows the results of the Newman-Keuls multiple comparisons test and indicates that the differences mentioned are significant ($p < .01$). Figure 10 shows that these category tendencies resulted from responses in a consistent direction on both trials contributing to the categories mentioned.

Table 8

Analysis of Variance: Corrected Absolute CC Score

Source	Degrees of freedom	Mean square	F ratio
Diagnostic Category (A)	2	3.65	N.S.
Error - Ss W. Gps.	21	18.02	
Stimulus Category (B)	5	6.66	3.25***
A x B	10	2.39	N.S.
Error - B x Ss W. Gps.	105	2.05	
Repetitions of Stimulus Category (C)	1	.28	N.S.
A x C	2	7.95	3.15*
Error - C x Ss W. Gps.	21	2.52	
Trials (D)	11	3.84	1.84**
A x D	22	2.58	N.S.
Error - D x Ss W. Gps.	231	2.08	
B x C	5	1.73	N.S.
A x B x C	10	1.69	N.S.
Error - BC x Ss W. Gps.	105	2.03	

Note. Ss W. Gps. is Subjects within groups

*p < .10
**p < .05
***p < .01

Figure 9. Mean corrected absolute CC for combined groups as a function of stimulus categories.

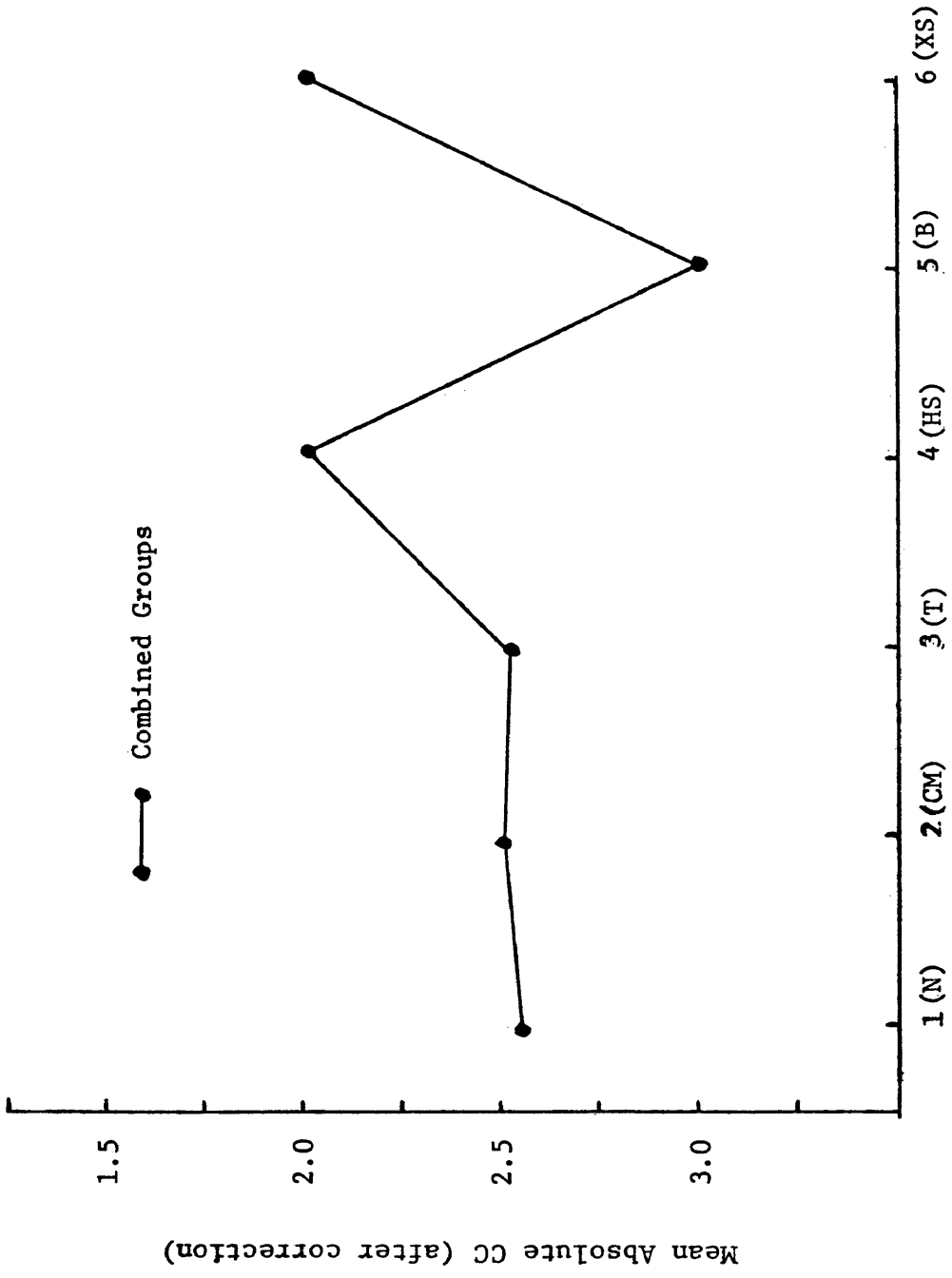

Mean Absolute CC (after correction)
1.5
2.0
2.5
3.0
Combined Groups
1 (N)
2 (CM)
3 (T)
4 (HS)
5 (B)
6 (XS)
Stimulus Categories

Table 9

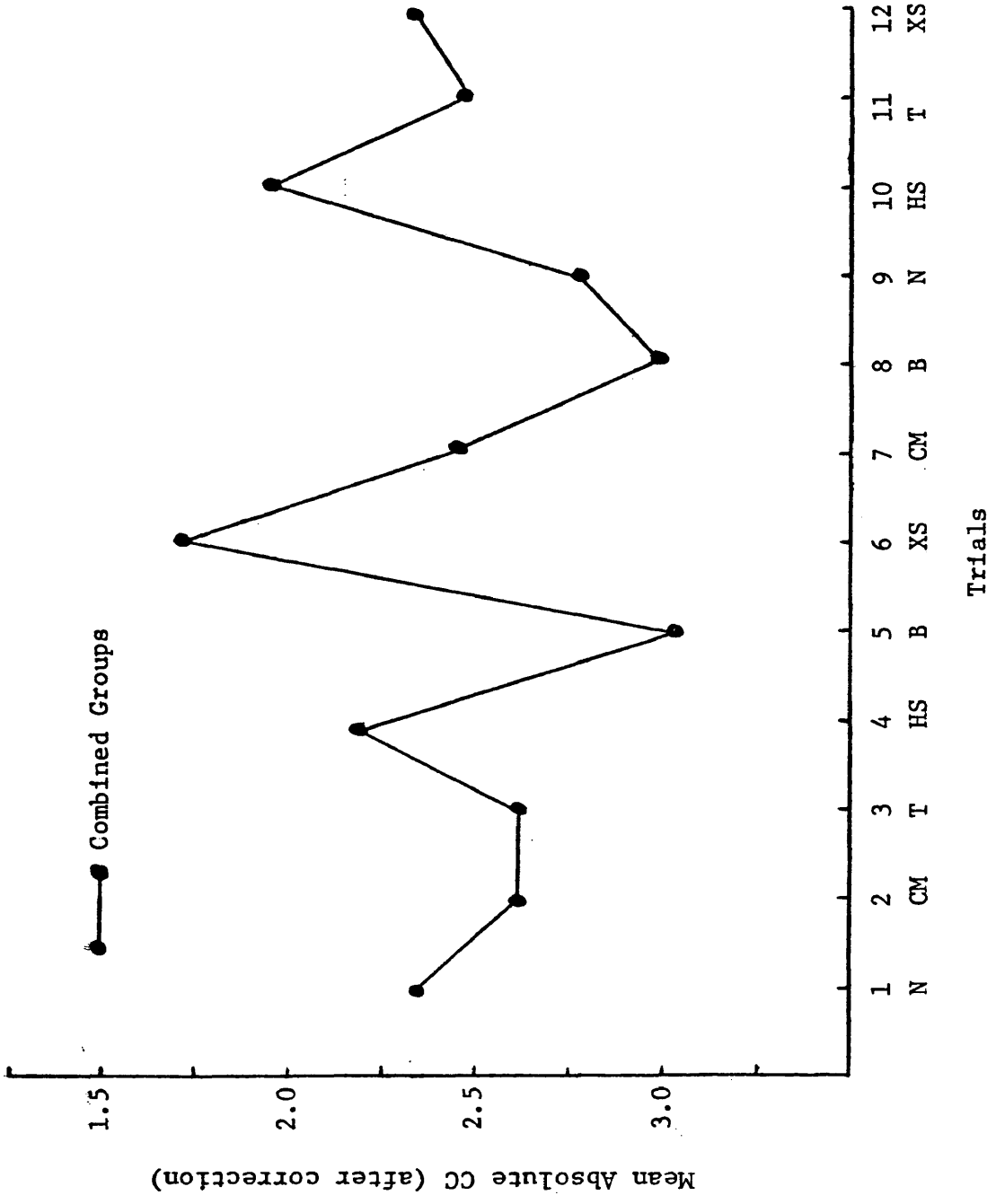
Newman-Keuls Multiple Comparisons Test:

Corrected Absolute CC Score (stimulus categories)

Category		B	N	T	CM	XS	HS
	Mean	3.04	2.56	2.54	2.52	2.02	2.01
B	3.04	—	.48	.50	.52	1.02**	1.03**
N	2.56		—	.02	.04	.46	.47
T	2.54			—	.02	.44	.45
CM	2.52				—	.50	.51
XS	2.02					—	.01
HS	2.01						—

**$p < .01$

Figure 10. Mean corrected absolute CC for combined groups as a function of trials.


Mean Absolute CC (after correction)
1.5
2.0
2.5
3.0
Combined Groups
1 N
2 CM
3 T
4 HS
5 B
6 XS
7 CM
8 B
9 N
10 HS
11 T
12 XS
Trials

Analysis of Variance of the total adjective CC score, after correction, (Table 10) indicated no significant differences. The stimulus Category X Repetitions interaction approached significance (F = 1.97, df = 5/105, $p < .10$), but all this could indicate was that the stimulus repetition of at least some stimulus category varied differently than the repetitions for the other categories. This gives some indication of lack of reliability of responses to both trials within a stimulus category.

Analysis of variance results of the total negative adjectives, after correction, are shown in Table 11. This analysis indicated significant differences in stimulus categories (F = 3.32, df = 5/105, $p < .01$) and trials (F = 1.87, df = 11/231, $p < .05$). Significant Group X Category (F = 2.01, df = 10/105, $p < .05$) and Group X Trials (F = 1.82, df = 22/231, $p < .05$) interaction effects were also present. Figure 11 shows that the T category resulted in the use of more negative adjectives than all other categories. Figure 12 illustrates the Group X Category interaction. Paranoid Ss were clearly the most discriminating using a large number of negative adjectives only in response to stimuli presenting transvestites. The results of Newman-Keuls multiple comparisons (Table 12) varify Figure 12.

Table 10

Analysis of Variance: Corrected Total Adjectives CC Score

Source	Degrees of freedom	Mean square	F ratio
Diagnostic Category (A)	2	5.64	N.S.
Error - Ss W. Gps.	21	36.71	
Stimulus Category (B)	5	3.32	N.S.
A x B	10	2.08	N.S.
Error - B x Ss W. Gps.	105	2.19	
Repetitions of Stimulus Category (C)	1	3.13	N.S.
A x C	2	6.85	N.S.
Error - C x Ss W. Gps.	21	5.02	
Trials (D)	11	3.59	N.S.
A x D	22	2.72	N.S.
Error - D x Ss W. Gps.	231	2.36	
B x C	5	3.96	1.97*
A x B x C	10	2.53	N.S.
Error - BC x Ss W. Gps.	105	2.01	

Note. Ss W. Gps. is Subjects within groups

*$p < .10$

Table 11

Analysis of Variance: Total Negative Adjectives (after correction)

Source	Degrees of freedom	Mean square	F ratio
Diagnostic Category (A)	2	18.50	N.S.
Erroe - Ss W. Gps.	21	8.78	
Stimulus Category (B)	5	7.92	3.32***
A x B	10	4.79	2.01**
Error - B x Ss W. Gps.	105	2.39	
Repetitions of Stimulus Category (C)	1	.50	N.S.
A x C	2	10.70	2.59*
Error - C x Ss W. Gps.	21	4.12	
Trials (D)	11	3.91	1.87**
A x D	22	3.80	1.82**
Error - D x Ss W. Gps.	231	2.09	
B x C	5	.57	N.S.
A x B x C	10	1.44	N.S.
Error - BC x Ss W. Gps.	105	1.38	

Note. Ss W. Gps. is Subjects within groups

*p< .10
**p< .05
***p< .01

Figure 11. Mean total negative adjectives for combined groups as a function of stimulus categories.

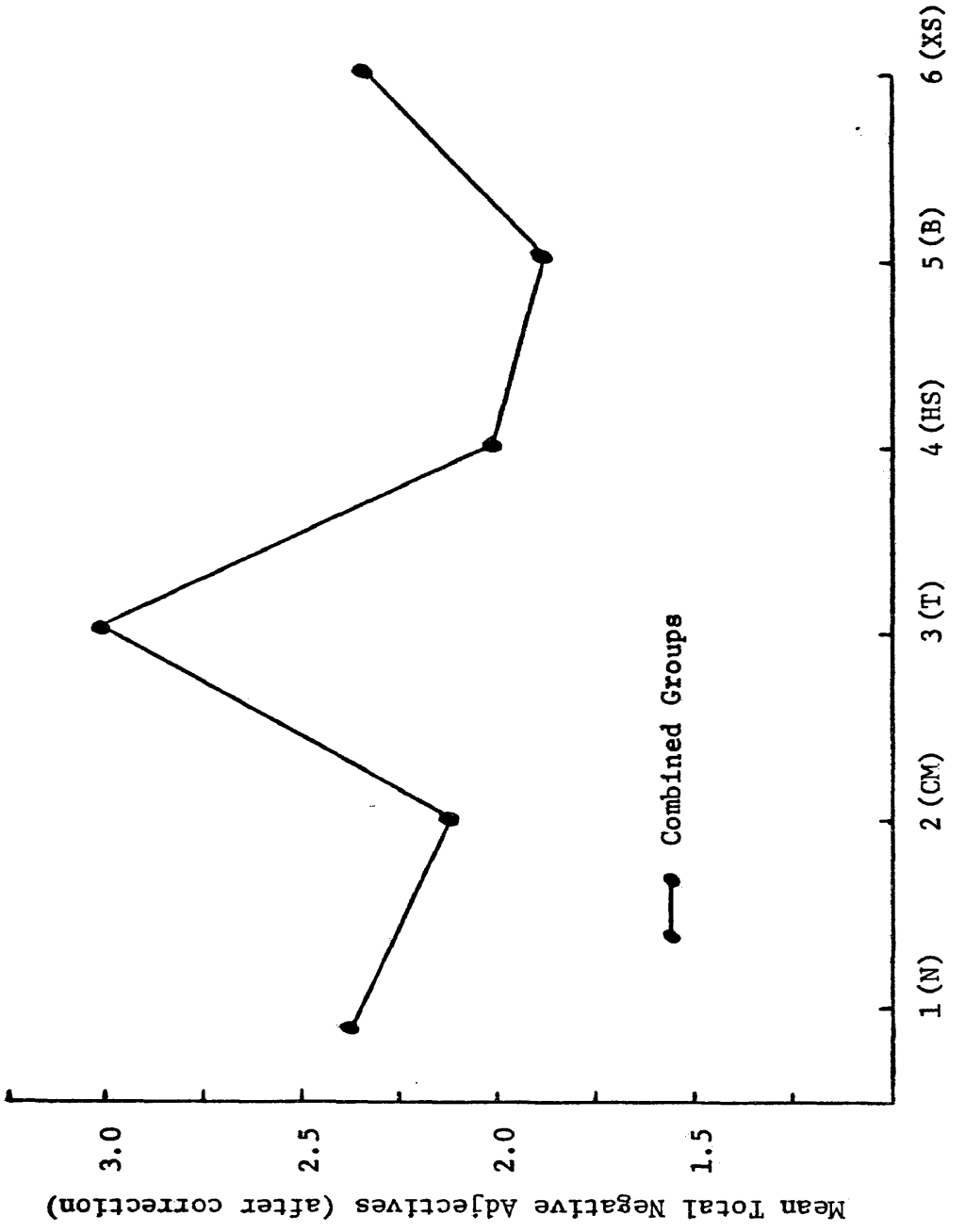

Mean Total Negative Adjectives (after correction)
3.0
2.5
2.0
1.5
Combined Groups
1 (N)
2 (CM)
3 (T)
4 (HS)
5 (B)
6 (XS)
Stimulus Categories

Figure 12. Mean total negative adjectives: Group X Category interaction.

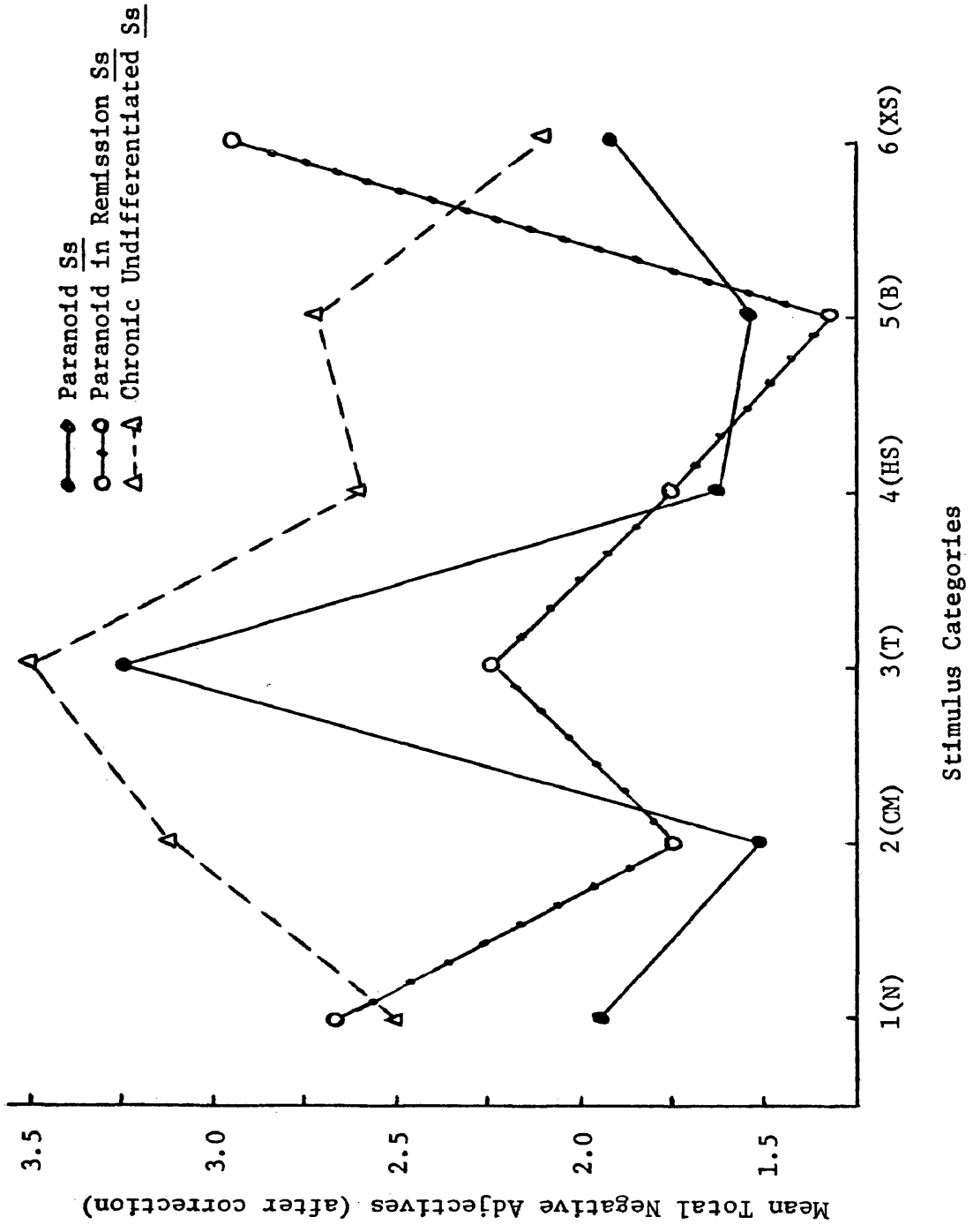


Table 12

Newman-Keuls Multiple Comparisons Test:

Total Negative Adjectives (Groups x Categories)

Paranoid Subjects

Category		T	N	XS	HS	B	CM
	Mean	3.25	1.94	1.81	1.63	1.56	1.50
T	3.25	—	1.31*	1.44*	1.62*	1.69*	1.75*
N	1.94		—	.13	.31	.38	.44
XS	1.81			—	.18	.25	.31
HS	1.63				—	.07	.13
B	1.56					—	.06
CM	1.50						—

*$p < .05$

Table 12 (continued)

Paranoid in Remission Subjects

Category		XS	N	T	CM	HS	B
	Mean	3.00	2.69	2.25	1.75	1.75	1.31
XS	3.00	—	.31	.75	1.25	1.25	1.69*
N	2.69		—	.44	.94	.94	1.38
T	2.25			—	.50	.50	.94
CM	1.75				—	—	.44
HS						—	.44
B	1.31						—

Chronic Undifferentiated Subjects

Category		T	CM	B	HS	N	XS
	Mean	3.56	3.13	2.75	2.63	2.50	2.13
T	3.56	—	.43	.81	.93	1.06	1.43
CM	3.13		—	.38	.50	.63	1.00
B	2.75			—	.12	.25	.62
HS	2.63				—	.13	.50
N	2.50					—	.37
XS	2.13						—

*$p < .05$

Paranoid Ss responses to stimuli in the T category resulted in the use of significantly ($p < .05$) more negative adjectives than responses to stimuli in any other category. In the other two groups the only response differences of significance were: paranoid in remission Ss used significantly more ($p < .05$) negative adjectives to stimuli in the XS category than to stimuli in the B category. Figure 13 shows that both trials (3 and 11) contributing to the T category resulted in more negative responses than any other trials. In Figure 14 differences in Group X Trial response trends are indicated. The chronic undifferentiated and paranoid in remission Ss exhibited a great deal of inter-trial variability with the nonparanoid Ss showing some decrease in the tendency to use negative words and the paranoid in remission Ss showing some increase in this tendency. Paranoid Ss, although showing a general increase in the use of negative words, used a significantly greater number on the trials contributing to the T category than on other trials. Comparison of means for the Group X Trial interaction was not done since there was no Category X Repetitions effect present.

An item by item comparison, between groups, was made on items from the SDQ. True responses were scored as

Figure 13. Mean total negative adjectives for combined groups as a function of trials.

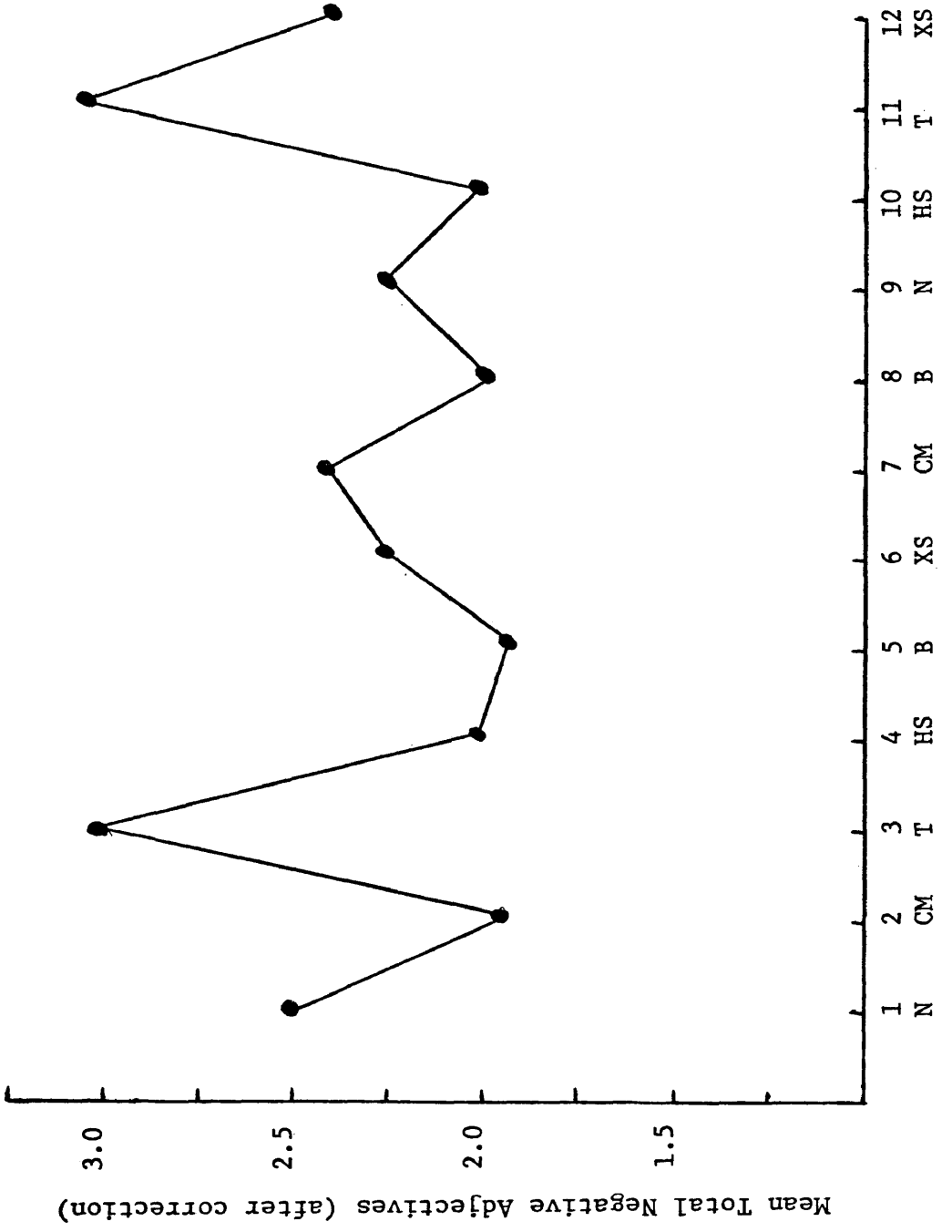
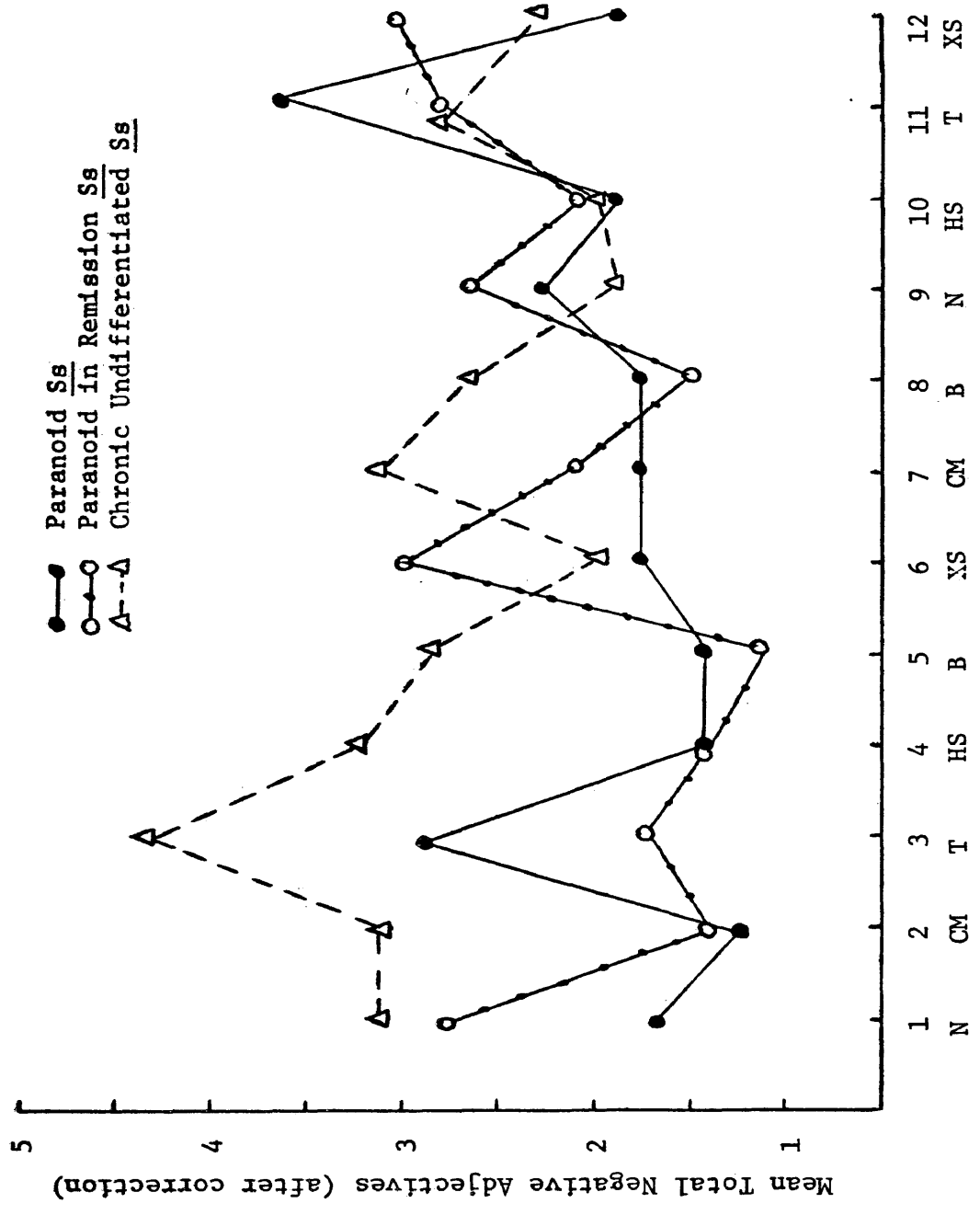

Mean Total Negative Adjectives (after correction)
3.0
2.5
2.0
1.5
1 2 3 4 5 6 7 8 9 10 11 12
N CM T HS B XS CM B N HS T XS
Trials

Figure 14. Mean total negative adjectives: Group X Trial interaction.


Paranoid Ss
Paranoid in Remission Ss
Chronic Undifferentiated Ss
Mean Total Negative Adjectives (after correction)
5
4
3
2
1
1 2 3 4 5 6 7 8 9 10 11 12
N CM T HS B XS CM B N HS T XS
Trials

one (1) and False responses as zero (0). After totaling responses for each group 16 of the 27 items were found to discriminate between groups in terms of a difference of two or more true responses. Of these 16 items seven were in the predicted direction, five in the opposite direction, and four reflected differences only between the paranoid in remission Ss and Ss in one of the other groups. These results are shown in Table 13.

Discussion

The hypothesis that CC measures would differentiate between paranoid and nonparanoid schizophrenics was not supported. Results indicate that the groups either did not differ, or the measures were invalid. Consistent with the original hypothesis HR-D data indicated that paranoid Ss responded with greater HR-D to the HS stimulus category. This response pattern is indicative of stress and reflects differential cognitive appraisal of these stimulus categories on the part of paranoid Ss. Such differential appraisal was not observed on CC measures.

Absolute CC and the total adjective CC group responses scored as most complex were those of the nonparanoid Ss. This difference was observed across trials on

Table 13

True Responses to the Self Description Questionaire on Items that Discriminated Between Groups

Item Number	Groups			Predicted for
	P	PR	C	Paranoid Ss
4	3*	6	6	False
5	3*	4	7	False
6	8a	2	5	False
8	3*	5	7	False
9	5*	5	2	True
10	7b	4	8	True
13	7*	4	4	True
15	3*	7	8	False
17	7b	3	7	True
18	3a	8	6	True
19	3*	6	6	False
20	2a	2	4	True
21	6a	6	4	False
22	8a	8	6	False
23	3b	6	3	No
26	2b	4	2	No

Table 13 (continued)

* Item discriminated between paranoid and nonparanoid Ss in predicted direction.

a Item discriminated between paranoid and nonparanoid Ss in opposite of predicted direction.

b Item discriminated between Ss in the paranoid in remission group and one of the other groups.

both measures but was significant ($p < .05$) only for the total adjective data. Cameron (1963) describes chronic undifferentiated schizophrenics as characterized by a global, total cognitive disorganization which interferes with their ability to differentiate between different aspects of their environment. Such descriptions, clearly suggest that this group should score at the low end of the continuum of measures of CC, for Bieri (1966) suggests that a cognitively complex individual has available a more versatile system for perceiving the behavior of others than does a less cognitively complex individual. Intuitively, Bieri's description of a cognitively complex individual seems more appropriate for describing the paranoid than it does the nonparanoid schizophrenic. Interviews with these two classifications of patients seem to clearly reveal that paranoid schizophrenics have available a more versatile, differentiating cognitive system for dealing with interpersonal behavior. This group difference is frequently clear even in the delusion content of the two groups as illustrated in the following interview transcripts obtained during subject selection.

Excerpt from paranoid schizophrenic interview.

"We were discussing the five major, shall we

say intelligences in the universe. The universe was created when blackness squared itself and then squared itself again. The five came out of the I, the I being that which squared itself and then squared itself again. I'm very sensitive, to thought. And I won't be insensitive to thought till I'm surrounded totally by people like you, and those others that are going on beyond. Because this world is full of human beings. I mean those people that were created by the force we created, the force that the five basic intelligences created so many eons ago."

Excerpt from nonparanoid schizophrenic interview. "I'd like to go back to school, but the language is so small, until I can't get nobody to believe me. My language is broke, broke. Somebody killed me about 10 years ago. ..... My body's like a book full of knowledge, future knowledge. It come from working long hours on creation. Now, I don't know where I get the knowledge from I can't find it, but it is the

biggest knowledge I have ever seen."

Both of these patients demonstrate delusional thought in the content of their interviews, but there appears to be a qualitative difference in complexity of structure involved, i.e., the integration of cognitive constructs. Paranoids appear to have more constructs available and to be able to integrate them more effectively than nonparanoids.

The observed negative correlation between scores on test of IQ and the total adjective CC scores gives further indication of the lack of validity of the CC measure used in this experiment. Furthermore, previous studies tend to show little or no correlation between IQ and CC (Mayo, 1959; Sechrest & Jackson, 1961; Rosenkrantz, 1961), and never a negative correlation.

Inspection of absolute CC data does reveal differential responding patterns to stimulus categories for combined groups. The T category stimuli elicited responses significantly different in balance of positive and negative adjectives employed than did the B and CM categories. This is not entirely inconsistent with the original hypothesis, but this trend did not differentiate between groups. However, considering the questionable validity of CC measures

it seems unlikely that these differences are reflective of differential CC.

There were differences observed between trials, for combined groups, on the total adjective CC data, but these differences were not present for stimulus categories. This indicates that, aside from the question of validity, the stimuli within categories did not elicit reliable response patterns.

It appeared that the adjective data as originally scored was not indicative of CC, but the HR-D data did suggest that stimulus categories were appraised differentially by paranoid Ss. On this premise attempts were made to eliminate the presence of a response bias in order to determine what effects this differential appraisal had upon CC responses. Reanalysis of the data in terms of the proposed CC measures gave little indication that the correction procedure had made any effect upon the validity of these measures.

Results of analysis of HR-D and total negative adjectives did give evidence in support of Zamansky's (1958) findings that paranoid Ss are characterized by defensive responses to homosexual content. The one trial that produced significant differences between groups in

the HR-D data was trial 10 which presented a stimulus of suggestive homosexual content. On this trial, as well as trials in the CM category and the other HS trial, paranoid Ss evidenced increased HR-D, indicative of stress.

If CC responses were influenced by perceived threat of the stimulus it was anticipated that this effect might be reflected in the use of negative words to stimuli. Although there were distinct category differences across groups on this measure, with the T category resulting in the most negative adjectives, subanalysis revealed that this effect was mainly determined by the paranoid Ss. It appeared that Ss in the paranoid in remission and nonparanoid groups randomly responded with negative adjectives to all stimulus categories. Paranoid Ss, on the other hand, consistently used less negative adjectives than Ss in the other two groups on all trials except those which presented scenes of a transvestite in the process of cross dressing. Stimuli in the T category elicited significantly more negative adjectives from paranoid Ss than all other stimulus categories. Such differences were not observed in the other groups. Although not entirely consistent with the HR-D results, analysis of the use of negative words further suggests that paranoids respond defensively to suggestive

homosexual content. Paranoid Ss also clearly used more negative adjectives in response to stimuli presenting transvestites.

The author anticipated difficulties in arriving at a procedure that would measure CC and yet would not be beyond the capabilities of the hospital population Ss. Actually measurement of CC in general has questionable validity. The results of Vannoy's study (1965) suggest that none of the instruments purported to measure relative CC show significant intercorrelations. He concluded that CC consists of several independent, distinct tendencies and that none of the current instruments measure all these tendencies. The concept of varying abilities in cognitive differentiation and integration of information seems self evident, but approaches at measurement of the construct CC have resulted in instruments of little convergent validity. Such results indicate the problems inherent in dealing with this construct. Magnifying any such problems are additional complications unique to Ss from hospitalized populations. Schizophrenic Ss often evidence a relatively brief span of attention, minimal motivation, and a difficulty in understanding abstract tasks.

Attempts were made, to facilitate handling of

the task, in the conception of the procedure proposed to measure CC for this study. It was originally felt that requiring Ss to verbally respond to words would reduce random responses that might occur on an adjective check list. One alternative approach to the study of CC with an inpatient population might be to let Ss freely provide descriptive terms for the stimuli, to be scored later in terms of valence. A procedure of this sort might also add more credence to using the number of adjectives obtained as a measure of CC.

Refinement of techniques for measuring CC in hospitalized Ss seems necessary for further investigation of the hypothesis proposed in this study. A method which allowed free response to stimuli, more in line with projective testing techniques might prove fruitful. It seems likely that stimuli of a more stressful nature are also necessary. The face validity of the construct CC encourages investigation of its relationship to the cognitive structures of hospitalized mental patients and hopefully refinement of measurement techniques will allow such investigations to proceed.

Interaction with schizophrenics reveals that the area of their malady is clearly in the realm of thought

processes. Paranoids appear to function at some intermediate level of disorganization which has not completely affected their cognitive processes. Investigation of the cognitive processes of these groups of patients should hopefully give some insights into the development of their thought processes. If measures can be associated with the particular conflict areas of patients, procedures such as desensitization or flooding might be applied to these areas, hopefully to change the patients level of anxiety to that particular content.

Appendix

Appendix A

Experiment Description and Subject Permission Form

This experiment involves several phases. First, you will be asked to fill out a questionaire. Someone will be there to help you with the questionaire if you need it. Then you will be asked to sit in a chair so that you can view some slides. Before you see the slides the experimenter will attach some equipment which will allow him to measure your heart rate. You will be shown several slides and while each slide is on you will hear a description of the person in the slide. This description will be played twice to make it easier for you to hear what was said. Be sure to listen carefully. After each slide the experimenter will call off some words to you. If you would use a word that he reads to describe the person in the slide that you have just seen and heard information about, tell the experimenter "yes". If you would not use a word that he reads tell him "no". After you have seen all the slides you will be asked a few more questions and asked to complete a brief questionaire. You will be paid $1.60 for your time.

Your name will not be used in reporting the results of this experiment, nor will your performance be reported to

the hospital treatment staff. In other words your name will not be used in any report on this study. You may stop the experiment at any point and the experimenter reserves the right to stop it if he thinks it is necessary. If you have any questions ask the experimenter.

I have read the above description and volunteer to participate in this experiment and give permission for the data obtained to be used by the experimenter.

Signature_____

Date _____

Appendix B

Interpersonal Discrimination Test (IDT)

This is a survey of the various ways people can describe one another. It is not a test, and so there are no "right" or "wrong" answers. We are going to ask you to describe some people you know. As you do this, please write legibly and express yourself as clearly as possible.

On the first three lines below write the names of three persons you know and generally <u>like</u>. On the next three lines write the names of three persons you know and generally <u>dislike</u>, or like least. Do not use relatives. List six <u>different</u> persons.

(1)

(2)

(3)

(4)

(5)

(6)

This list of names is for your convenience only. Throughout the rest of the questionnaire each person will be referred to by number only, that is, Person (1), Person (2),

and so on. You may want to tear off this page in order to refer to it more easily as you complete the rest of the questionnaire. When you have finished you may keep or destroy this page, as you wish.

PERSON M

Now, think about yourself. We shall call you Person M. In the left hand column below write three qualities or characteristics you have which you like.

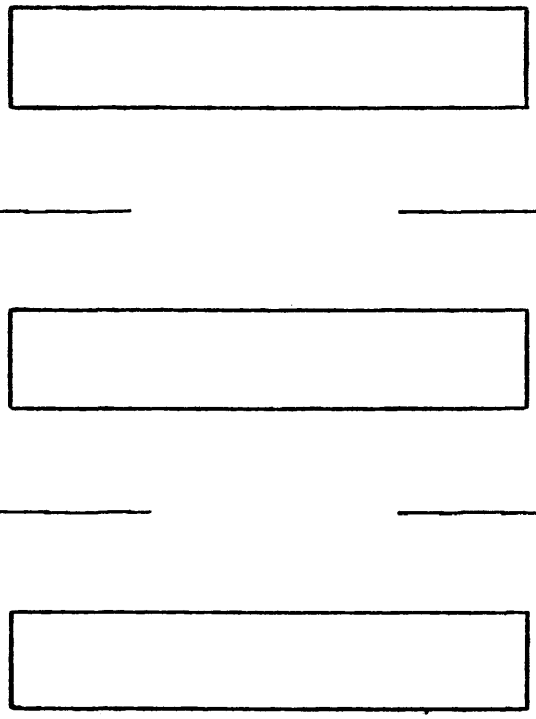
Next, write their opposites in the right hand column.

QUALITY	OPPOSITE
1. _____	_____
2. _____	_____
3. _____	_____

PERSON M

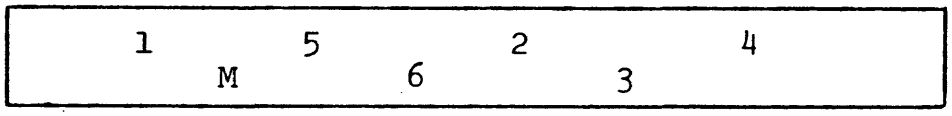
Now, we want you to think of three qualities or characteristics you have which you do not like, or like least, and write them in the left hand column below. Again, write their opposites in the right hand column.

QUALITY	OPPOSITE
1. _____	_____
2. _____	_____
3. _____	_____

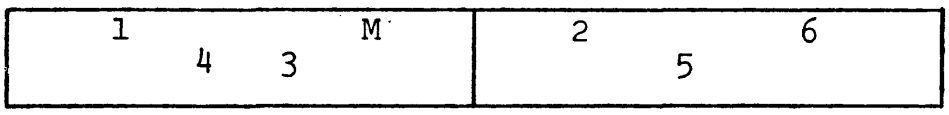


Now, turn back to Page 3 in this booklet and look at the first quality you listed for yourself. How would you compare the six people you have named and yourself on this first quality? We want you to show what people are alike on this quality, if there are any alike, and what people are different, if there are any that are different. In addition, if any are different, we want you to show how they are different.

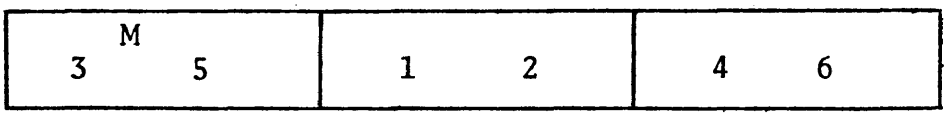
For example, let us say that "honesty" is the quality in question. Now, if you thought that there was really no difference between everyone, that yourself and the six others were equally "honest," then you would have one group and would represent this by merely putting everyone's number in one box:



Or let us say that you thought Persons 1, 3, 4, and M (yourself) were "honest" or more "honest," and that Persons 2, 5, and 6 were not "honest" or less "honest." Then you would have two groups and would represent this by dividing the rectangle into two boxes:



Or what if you thought that Persons 3, 5, and M (yourself) were very "honest," Persons 1 and 2 were less "honest," and that Persons 4 and 6 were least "honest." Then you would have three groups and would represent this by dividing the rectangle into three boxes:



In the same way, you could also use four, five, six, or even seven boxes, if you like, to compare everyone. As a last example, let us say that none of the six others and yourself were alike, that you were all different, that Person 2 was most "honest," Person 1 next most "honest," Person 5 next, then Person M (yourself), then Person 3, then Person 4, and finally Person 6 the least "honest" of all. You would then use seven boxes to represent this:

In other words, you can divide this group of seven people in any way you like by using one, two, three, four, five, six, or seven boxes. The idea is that if people are alike, then they should be in the same box, and if they are different, they should be in different boxes. Each box should represent <u>less</u> of the quality and more of its opposite as you

move from left to right.

Now, go back and compare everyone, the six others and yourself, on each of the six qualities you used to describe yourself (Pages 3 and 4).

Appendix C

Ullman-Giovannoni Scale

		Reactive
1.	Are you married now?	True
2.	Have you fathered any children?	True
3.	Have you been married?	True
4.	Did you leave the home you were raised in before you were 17 and never go back except for visits?	True
5.	When you leave the hospital, will you live with one or both your parents?	False
6.	Other than being in the armed forces, have you worked steadily at one job or for one employer for over two years?	True
7.	Have you finished at least one year of school after high school - trade school, apprenticeship, business school, college, etc.	True
8.	If you add up all the money you have earned in the last three years, does it come to less than $700, before deductions?	False
9.	When you were a teenager, were you a member of a group of friends that did things together?	True

10. Would you say that you hardly ever went over to another kid's house after school or on weekends? . . . . . False

11. Would you say that gym class was not something that you liked when you were in school? . . . . False

12. Has alcohol or drinking got anything to do with your difficulties? . . . . . False

13. Have you made regular payments to buy a house?. True

14. In the last year, have you stayed on after some group meeting more than once to talk with some of the other members about something that went on? . . . . . True

15. Shortly before you came into the hospital, was there some major change in your life - such as marriage, birth of a baby, death, injury, loss of a job, etc. . . . . True

16. Have you ever been deeply in love with someone and told them about it? . . . . . True

17. In the kind of work that you do, is it expected that a person will stay on the job for at least a year? . . . . . True

18. In the last five years, was your top wage less than $1.65 per hour? . . . . . False

19. Have you earned your living for longer than a year in a fulltime job (civilian)? . . . . . True

20. Have you ever had to stay in a mental hospital for more than one year at a time? . . . . . False

21. In the last five years, have you spent more than half of the time in a mental hospital? . . . . . False

22. When you were a teenager, were you a regular member of a club or organization that had a grown-up who came to the meetings (Scouts, school club, 4-H, church group, etc.? . . . . . True

23. When you were a teenager, did you date more than one girl more than twice? . . . . . True

24. When you leave the hospital, will you live with your wife? . . . . . True

Appendix D

Adjective List

1. Loving
2. Submissive
3. Gentle
4. Suspicious
5. Sensitive
6. Prejudiced
7. Warm
8. Impulsive
9. Sincere
10. Temperamental
11. Confident
12. Angry
13. Trusting
14. Bad

Appendix E

Taperecorded Stimulus Descriptions

Slide 1

This man always seemingly courteous and willing to offer help to tourist is inwardly repressing all his anger and resentment at all the demands and stupid questions asked of him.

Slide 2

This woman is scolding her child, but she is doing so out of a concern for him hoping to emphasize what he has done wrong and how he can correct it.

Slide 3

The man in these two scenes states that he is confident of his sexual identity, but nevertheless is willing to dress as a man on some occasions and a woman on others.

Slide 4

These two boys can feel the nakedness of their bodies, but become so involved in the physical experience of wrestling that they soon forget they are undressed.

Slide 5

The pain and discomfort of the birth process can

be seen as balanced out by the bringing forth of new life into the world.

Slide 6

This couple appear spent and relaxed after love-making, but is actually distant and frustrated from an unfulfilling experience.

Slide 7

This woman's concerned withdrawn look as she discusses her child's report card does not reveal how close their relationship usually is.

Slide 8

These scenes revealing the cold sterility of the delivery don't indicate the pleasantness and happiness experienced.

Slide 9

This woman asked to pose in her colonial costume appears uncomfortable, but actually enjoys having her picture taken.

Slide 10

This man who likes to pose and exhibit his body is actually quite self conscious and concerned about his physique.

Slide 11

This man is upset that he has been asked to dress

as a woman for a part in a play but agrees to do so.

Slide 12

This couple, able to engage in lovemaking, is nevertheless frustrated about their relationship.

Appendix F

Self Description Questionnaire

Discriminating Paranoids from Nonparanoids

		Paranoid
1.	I like mixing with people.	False
2.	At times I feel like picking a fist fight. .	True
3.	I often feel "fed up".	True
4.	I think people should concern themselves more with feelings than with ideas.	False
5.	I suffer from "nerves".	False
6.	My judgment is better than it ever was . . .	False
7.	If a neighbor cheats me over small things, I would rather humor him than show him up. . .	False
8.	I think most witnesses tell the truth even if it becomes embarrassing.	False
9.	I can look anyone in the eye and tell a lie with a straight face (if for a right end). .	True
10.	I suspect that people who act friendly to me can be disloyal behind my back	True
11.	I have always preferred to have a very few close friends rather than a large circle of friends.	True
12.	I sometimes brood a lot.	True

13. All in all, I think that I am able to think more critically than most people. . . . . True

14. I tend to control my tender emotions around people. . . . . True

15. I try to please people. . . . . False

16. I sometimes take a cynical view of others . . True

17. Sometimes I feel angry and resentful about the way I've been treated. . . . . True

18. There aren't many people you can trust. . . . True

19. I enjoy light, humorous conversations more than serious intellectual ones. . . . . False

20. I feel angry a lot. . . . . True

21. I am an emotionally expressive person . . . False

22. I enjoy musicals more than tragedies. . . . False

23. When you feel anxious, do you have any difficulty talking? . . . . . No

24. When you feel anxious, do you experience accelerated heart beat? . . . . . Yes

25. When you feel anxious, does the intensity of your heart beat increase? . . . . . Yes

26. When you feel anxious, are you bothered by your bodily reactions? . . . . . No

27. When you feel anxious do you perspire a lot? No

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