THE UNIVERSITY OF ALBERTA

PATTERNS OF STRUCTURE AND PROCESS IN LEARNING GROUPS

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1972

ABSTRACT

The research project, the systematic coding and statistical analysis of two Self Analytic and two Direct Communications groups using Mann's Member-Leader Scoring System, was concerned with (1) determining the "psychological structure" of the two treatments, using factor analysis as the statistical technique, and (2) describing "group process" and "phase movement" of each group separately, and comparing the groups within a particular treatment, using analysis of variance as the statistical technique. Although these statistical analyses formed the basis of the report, clinical impressions invariably became interlaced with the data--both in the interpretation of the factor-pattern matrix and in the description of phase movement.

Subjects were 48 teacher-trainees enrolled in a senior educational psychology course (Ed. Psych. 421) at The University of Alberta. Two forms of human relations training environments were employed: (1) a Self Analytic Treatment (SAT) and (2) a Direct Communications Treatment (DCT). The subjects were randomly assigned to two sections of each treatment. Each treatment consisted of 15 sessions (50 minutes in length) over a three month period.

The results of the factor analysis clearly illustrate that each treatment (SAT and DCT) has an unique "psychological structure". The analysis of variance clearly indicates the "group process" and "phase movement" are more "group-specific" than "treatment-specific", yet characteristic enough to allow interesting comparisons "between groups" within a particular treatment.

The educational implications of a knowledge of group "psychological structure" and "group development" are discussed.

TO LESLEY

ACKNOWLEDGEMENTS

I thank you, firstly, the originators of the research project Drs. John McLeish, James Park, and Wayne Matheson, the trainers of the two different treatments, Drs. John McLeish and Larry Eberlein, and the students who constituted the groups, all of whom made this project an exhilarating educational experience.

I thank you, Teresa Davis, for helping me attain competence in coding behaviour according to Mann's Member-Leader Scoring System, and for the many hours spent on the "pilot project".

I thank you, Dr. John McLeish who, as supervisor, recognized that this pilot project was a viable thesis project, encouraged me to "get on" with the task, helped me throughout the project, and gave a constructive commentary on the thesis.

I thank you, Dr. Ralph Hakstian, for your help on statistical procedures and your constructive commentary on the thesis.

I thank you, Dr. Ted Aoki who, as External Examiner, offered many appreciative remarks.

I thank you, Dr. Wayne Matheson, for your critical evaluation of the thesis, and for removing some of my "blind-spots".

I thank you, Don Seidle and Ernst Skakun of D.E.R.S., for help both in developing and running various computer programs.

I thank you, Nam Ng, for developing a computer program for the "plots" of the data.

I thank you, Jack Martin, for your discussions and support during the process of thesis writing and for your constructive commentary.

I thank you, Patricia Oliva, for your intellectual comments which were delivered in such a charming fashion.

I thank you, Mike O'Neil, for your discussions on the thesis and for raising various important points on the category system.

I thank you, millions of peoples, who are the most fascinating subject matter of any art or science, and intractable as you might appear, are the subject matter of the science of human behaviour.

Finally, I thank you, Dr. Lesley Willis who, more than anyone else, alerted me to a consideration of my own behaviour whilst trying to account for the behaviours of others, and I dedicate this work to you.

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CHAPTER I

Introduction

Usually, naive observers of group phenomena encompass the totality of group process in all-embracing terms like 'exciting', 'fascinating', 'interesting', 'engaging', 'involving', and suchlike, which normally indicate enthusiasm and enthrallment with group experience if not understanding of this complex phenomenon. Social scientists and researchers, in contrast, without denigrating the clinical intuitions of the uninitiated, realize the complexity of group formative process and look to Sigmund Freud for a theoretical basis of group psychology, and in turn, to Redl, Bion, Bennis and Shepard, Scheidlinger, who extended and clarified the theory; and to developers of coding systems like Bales (1950) (Interaction Process Analysis), Flanders (1960) (Interaction Analysis), Mills (1964)(Sign Process Analysis), Dunphy (1964) (Content Analysis), and Mann (1967) (Member-Leader Scoring System), to name but a few significant developments, for a technique of categorizing and analyzing human behavior.

Freud's work (1922) Group Psychology and the Analysis of the Ego was used as a theoretical basis of group psychology and the study of group formative process; and Mann's (1967, 1970) Member-Leader (M-L) observational system was used as a technique of categorizing and analyzing human behavior.

Upon attaining competency in the use of Mann's system of categorizing the on-going process of group interaction in relation to the trainer, it was hoped that the attempt to describe and interpret the 'on-going' or 'group formative processes' would be characterized by a

high degree of accuracy and a high level of reliability.

Purpose of the Present Study

The research project, the systematic coding and analysis of two self-analytic and two direct communications groups using Mann's Member-Leader Scoring System, was inspired partly as a result of receiving 100 hours of training in Bales' Interaction Process Analysis (IPA) in a senior graduate Educational Psychology (592) course at the University of Alberta; and partly as a result of working with a research team, engaged in a group dynamics project, which attempted to study group process using Bales' IPA, and learning outcomes using various instruments which measured personality and attitudinal variables; and other instruments which measured the discrimination and communication of empathic response; and still another, which measured understanding of group process. The present study is modelled on Matheson's (1971) IPA study of group process in that the same research design is used--two groups receiving a Self Analytic Treatment (SAT) and two groups receiving a Direct Communications Treatment (DCT). Whereas Bales' IPA system has theoretically "built-in" hypotheses of phase development, Mann's M-L Scoring System more readily lends itself to a descriptive account, for invariably the factor pattern extracted (Mann's basis for his account of phase development) from the codings of a particular treatment are specific to that treatment; and when, an analysis of variance is computed on the data across sessions, again, invariably, the patterns of the categories are not just "treatment-specific", but "group-specific" as well. The intention of this research is to produce a

descriptive analysis of the psychological structure of the two different treatments, using a factor analytic procedure, and a description of group development using an analysis of variance procedure. An attempt was made to interpret the various "Member-Leader" relationships and their function in enhancing or hindering the understanding of group process and the learning of empathic response.

Overview

Chapter 1 is an introductory chapter designed to give a general overview of the project. Chapter 2 contains a review of related literature which considers psychoanalytic theoretic concepts, especially of Freudian and Kleinian adherents; and group dynamics literature, (especially Bennis and Sheperd, and Bales) as related to Mann's M-L Scoring System. Chapter 3 outlines the design of the experiment and the preparation of the data for the various statistical analyses. Chapter 4 involves the interpretation of the "factor pattern" of each treatment; this procedure outlines the psychological structure of the treatments. Chapter 5 is a study of group development—the data indicated that each group be described separately. Finally Chapter 6 is a short summary and discussion of the project.

CHAPTER II

A REVIEW OF GROUP DYNAMIC LITERATURE

The following review makes no attempt to encompass the entire spectrum of group dynamic literature, but restricts itself to a selection of psychoanalytic contributions which form the theoretical base of Mann's Member-Leader (M-L) Scoring System. The investigator outlines Freud's theory of group psychology, and traces its 'development' in Redl's ten types of leader or "central person", in Bion's three "basic assumption groups" and his "work group", and in Scheidlinger's writings. Some basic notions of the Kleinian position ("in direct line of succession to Freud"?) which underlie Bion's theoretical outline and Mann's M-L Scoring System are considered; but no attempt is made to reconcile Freudians and Kleinians. In a similar vein, the influence of Bennis and Shepard (a theory of group development) and Bales (the developer of Interaction Process Analysis [IPA]) upon Mann is illustrated. For a more comprehensive review of group related literature, the reader is referred to Campbell and Dunnette (1966) and Gibb (1970).

Freudian Group Psychology as a Theoretical Rationale

The psychoanalytic contribution to the understanding of group formative process is found in the explication of the Oedipus complex. The emphasis of Freud's contribution is primarily upon unconscious processes, although, occasionally, the 'ego' is called upon to bear "anxiety", to do "work", to do the "deed".

The explication of the Oedipus complex envisions the child as establishing a tender affectionate relationship with its mother; then,

at the genital phase of development, the child becomes aware (affectionately) of both parents. The emotional and sexual attachment toward the parent of the opposite sex leads to feelings of jealousy toward the parent of the same sex, and thus develops emotional ambivalence which is characteristic of the Oedipus conflict. Physiological and psychological developments continue and in normal development the undesirable feelings are repressed, and identification with the same sex parent is made. Residuals of the unsuccessfully resolved Oedipus conflicts remain dormant during the latency period, but invariably emerge during pubescence.

It is the unresolved residuals of the Oedipus complex which cause distortions in the perceptual system, which, in turn, produce obstacles to valid interpersonal communication, and prevent insight into the underlying dynamics of the group formative processes. These distortions and complications in the perceptual system, which cause rigidity of interpretation and response in the 'here-and-now' situation, are carried over from anxious experiences with particular authority and love figures of the past. Hence, the importance of examining group formative process in terms of the 'Member-Leader' relationship.

Viewing underlying unconscious dynamics in terms of the Freudian model leads one to conclude that through transference phenomena everything in the group is about the hidden agenda--the relation of the participants to the Trainer (Leader) as an authority or love figure. The Trainer becomes the 'blank screen' onto which the participants project or explode any residual conflicts toward authority or love figures of the past. So people in groups, when faced by an authority

figure in the person of the Trainer, are challenged to explore and resolve the residuals of the Oedipus conflicts; and the strategies and inadequate ploys employed by group members are the 'stuff' of the group formative processes, and a possible explanation of variability of phase movements in groups.

In Group Psychology and the Analysis of the Ego, the Oedipus complex is veiled under Freud's concept of 'libidinal ties with the leader'. He noted that "each member is bound by libidinal ties on the one hand to the leader...and on the other hand to the other members of the group". (p. 45). Freud agreed in part with LeBon's description of the group wherein unconscious forces take control of the individual with a concomitant intensification of affect and inhibition of the will; yet, prefers to explain the phenomena in terms of the group allowing an individual to throw off 'the repressions of his unconscious instinctual impulses'. (p.9)

Acknowledging the regression to earlier mental states in the formation of the group, Freud proceeds to explain the phenomenon of group formative process in terms of libidinal ties with the leader. For Freud, the leader is the key figure in group psychology; and the key problem of equipping the group with rational, scientific thought (the ability to 'work' cf. Bion's 'work group') is paradoxically resolved in a 'dependence upon' and an 'identification with' which occasionally reaches an 'independence of' the standards of the leader.

In recognizing the importance of the concept of 'libido' in explaining group psychology, all other relevant concepts (for instance: 'suggestion', 'identification') and analogies (such as: 'persons in

love', 'persons under hypnosis') are presented in terms of it.

Freud's purpose in presenting two artificial groups--the Church and the Army--is not to explain the certain external force employed to prevent them from disintegrating , but to explain the importance of the leader as an internal force in the formation of the group--the libidinal tie which unites the individual with the leader and with other members of the group. The bond is sustained by the perception of the leader's equal love for all, and any contrary perception would lead to disintegration. The group member with libidinal ties to the leader and concomitant libidinal ties to fellow-members of the group will have his loyalities questioned, his commitments challenged, and thereby offer a possible explanation for his lack of freedom in a group, and his intellectual inhibition.

For a proof that libidinal ties are what characterize a group , Freud uses evidence from psychoanalysis--that intimate emotional relationships have accompanying aversions which are usually repressed. Freud explains the disappearance of ambivalence of feelings of group members for one another as a result a libidinal tie.

> So long as a group formation persists or so far as it extends, individuals in the group behave as though they were uniform, tolerate the peculiarities of its other members, equate themselves with them, and have no feelings of aversion toward them. Such a limitation on narcissism can ... only be produced by one factor, a libidinal tie with other people. (p.43)

Freud then examines various identification mechanisms associated with the oedipal scene, the phenomenon of being in love, and hypnosis for correspondences to the libidinal ties that exist in groups, and arrives at a definition of the libidinal constitution of groups:

> A primary group...is a number of individuals who have put one and the same object in the place of the ego ideal (conscience) and have consequently identified themselves with one another in their ego. p. 61.

Freud was somewhat dissatisfied with this definition and looked to various myths for possible explanation.

Freud discards the 'herd instinct' as a useful concept in the explanation of group formation for it disregards the leader. He prefers the 'primal horde' led by a chief, and justifies the use of this Darwinian myth with the rationale that it brings understanding of the 'primal scene' and derivatively of group formative processes. The leader of the group is the dreaded primal father. The way from group psychology to individual psychology was the invention of another myth, the heroic myth--the hero being the person who slays his father. In fact, it is the writer of the heroic epic, who breaks away from the group, uses rational thought, slays the mythical dragon. The other members proceed from group to individual psychology by an identification with the hero. It's the resolution of the Oedipus complex at the group level.

Freud has succeeded in illustrating, through presentation of mythical material, how the group attains the attributes of the individual. Do we number ourselves among the 'naive' or the 'scientific' when we choose to dismiss this 'fascinating concoction of an old wizard' as unverifiable? It is the task of the social scientist to explain how an actual face-to-face group breaks its libidinal ties with the leader and with fellow members, or at least,

places them in the service of scientific thought and constructive activity. It is the contention of certain psychologists, who study small groups, that the same group formative processes which Freud has expounded (through the use of mythological material) at the unconscious level are operative in every small group (especially in the classroom), and such processes are amenable to measurement with the proper observational instrument.

"Leader" in the Freudian sense is quite dissimilar to the popular notion of leadership wherein persons (of a high self-esteem, which is based upon a realistic evaluation of emotional and intellectual maturity and competency in a relevant field) usurp, or have foisted upon them, positions commensurate with their leadership abilities. The popular notion of "leader" (i.e., based on rational and realistic assessment) is in contrast to the Freudian "leader" who is irrationally perceived and unrealistically evaluated, for he is the concoction of unconscious mechanisms, the projection of distorted perceptions and chaotic affect, the object of sexual and aggressive impulses, and the object of positive and negative transference. In short, the "leader" is any "blank screen" upon which are projected distorted perceptions and chaotic affect, which are most likely caused by unresolved residuals of the Oedipus complex. It is this "blank screen" (leader) who can "help" each individual, intrapsychically, interpersonally, and integrally in the group: (1) to gain insight (via appropriate interpretations) into his defensive mechanisms, his inadequate interpersonal communications network, and his contribution to the defensive posture of the group; and (2) to "work",

i.e., to do the assigned task of the group while coping with his own irrational impulses (and those of other group members) which unduly inhibit scientific, rational procedures.

Redl (1942) attempts to explain group formation in terms of a "central person" around whom group formative processes take place. The "central person" could be the 'leader' in the Freudian sense, or another member of the group. Redl's position is that "group emotion" evolves on account of the members' relationship to the "central person". This is an interesting extension of Freud's concept of the leader as the key figure in group psychology and his explanation of the phenomenon of group formative process in terms of libidinal ties with the leader. Note Freud's clear statement:

> "each member is bound by libidinal ties on one hand with the leader...and on the other hand to the other members of the group. (p. 35)

Redl arrives at ten types of "central person" from observations of children and adolescents in schools and camp situations. The remarkable and interesting development is that the "central person" is sometimes a teacher (Types 1-5), and on other occasions a fellow student (Types 6-10). Again these are analogous to Freud's "leader" (the primal father) and the "epic hero", who slays the primal father. The first three types of central person: 1.) "The Patriarchal Sovereign", 2.) "The Leader", and 3.) "The Tyrant", are the familiar authority figures--objects of identification.

Types 4 and 5, the central person as "Love Object" and "Object

of Aggressive Drives", respectively, evoke "group emotion" in members who form these object ties to the central person. (Types 4 and 5 could be students as well as teachers). Redl's last five types of central person involve the extension of leadership to fellow members (variants of the "epic heroes") of a peer group. Types 6, 7, and 8, "The Organizer", "The Seducer", and "The Hero" involve the assumption of the "guilt-and-fear-assuaging effect of the initiatory act." The central person 'commits' the initiatory act, and this strengthens the ego of potential group members by dissolving conflict situations. Latent drives become manifest, and group emotions develop. In the type 7 situation, the initiatory act by "The Seducer" assuages guilt feelings aroused from the satisfaction of undesirable drives. In the type 8 situation, the initiatory act by "The Hero" assuages guilt feelings for it leads from a cowardly submission to an undesirable drive to a courageous act of moral value. This assumption--"guilt-and-fear assuaging effect of the initiatory act"--is found operative in small group behavior, especially in scape-goating activities, confrontation with the leader, as well as self-disclosive activities, and readiness to cooperate in the group task. Types 9 and 10, "the Bad Influence" and "the Good Example" are similar to types 7 and 8 in that the central person acts as ego support in providing a means of dissolving a conflict situation; yet, the underlying assumption is 'different'--the conflict is resolved by virtue of the "infectiousness of the unconflicted on the conflicted personality constellation". The situation in Type 9 involves "inappropriate drives", which cause inner conflict in the potential group members, the central person however is

"conflict-free" in the situation; he has an infectious influence on the conflicted; their latent drives become manifest; group emotions develop. The situation in Type 10, again, involves "inappropriate drives"; but here, the "Good Example", who is unconflicted in this area, infects the conflicted. The conflicted are enabled to avoid cowardly submission to the undesirable drive; they develop group emotion in their relationship with each other.

In his closing remarks Redl says:

> My theoretical problem would be simplied if there was but one basic auxiliary assumption, instead of two. It would explain Freud's assumption of a primary identification as well as my theory of infectiousness. (p.596)

In the investigator's opinion Redl's "theory of infectiousness" is an extrapolation of Freud's third type of identification, and an application of it to the field of interpersonal relations. Freud's three types of identification are as follows:

> First, identification is the original form of emotional tie with an object; secondly, in a regressive way it becomes a substitute for a libidinal object-tie,...; and thirdly, it may arise with any new perception of a common quality shared with some other person who is not an object of the sexual instinct. The more important this common quality is, the more successful may this partial identification become, and it may thus represent the beginning of a new tie...the mutual tie between members of a group is in the nature of an identification of this kind, based upon an important emotional common quality; and we may suspect that this common quality lies in the nature of the tie with the leader. (pp. 49-50)

Redl's two assumptions can be considered as a single assumption, derived from Freud's concept of "identification", and distinguished in terms of perceptual and behavioral dimensions. The assumption, "guilt-and-fear-assuaging effect of the initiatory act," which accounts for the centrality of types 7 and 8, the "Seducer" and the "Hero", explains the conflict solution in terms of a behavioral act initiated by a person who is perceived as conflict-free; the act is current, contemporaneous with the conflict situation. The assumption, "infectiousness of the unconflicted on the conflicted personality constellation," which accounts for the centrality of types 9 and 10, the "Bad Influence" and the "Good Example", explains the conflict solution in terms of a person who is perceived as one in whom the conflict solution is a fait accompli ; presumably, such a person is perceived as one who has 'committed' the "initiatory act" in the past. In the first situation, the central person is modelled (identified with) in his behavior; in the second, the central person is modelled (identified with) in how he is perceived. In both cases, the conflict solution is effected.

Redl's main contribution to group psychology is his explication of the leadership function (participated in by persons in authority and peer roles) and its influence on group emotion and group formation. His influence is recognized and acknowledged in the work of Bennis and Shepard (1956), Dunphy (1965), Bales (1970),and Mann (1966). His concept of "central person" and its function in "group formative processes" is remarkably similar to Bion's "basic assumption" leaders.

Bion (1961), a British psychoanalyst, more aligned with Klein than with Freud, has postulated theoretical constructs of group formation such as "basic assumption" and "work" groups. "Basic assumption" is an "as if" term; and individuals in groups behave as if such and such an assumption were operative. Each of the three basic assumptions represents an emotional state with a central theme and a corresponding type of leader, who will fulfil the aim of the relevant basic assumption. The "basic assumption dependency" aims at procuring a leader, who will sustain, feed, and protect. The "basic assumption pairing" aims at the procreation of a "messianic figure", who will cure all ills. The "basic assumption fight-flight" aims at producing a leader, who affords the group opportunity for flight or aggression. The "work group" is reality oriented with rational, scientific method. Its characteristics are similar to those attributed by Freud to the ego. The trainer (in a Tavistock group) is the "work group" leader. Bion (1961) outlines the characteristics of both "basic assumption" and "work" groups:

> Participation in basic-assumption activity requires no training, experience, or mental development. It is instantaneous, inevitable, and instinctive...
>
> In contrast with work group function basic-assumption activity makes no demands on the individual for a capacity to co-operate but depends on the individual's possession of what I call valency--...a capacity for instantaneous involuntary combination of one individual with another for sharing and acting on a basic assumption. Work-group function is always in evidence with one, and only one basic assumption. Though the work-group function remain unaltered, the contemporary basic assumption that pervades its activities can be changing frequently... (pp. 153-154)

Whereas Freud's discussion of the "Church" and "Army" was to illustrate the libidinal ties of each individual to the leader (Christ, or the Commander-in-Chief), Bion's discussion of the "Church" and "Army" is to demonstrate the functioning of "specialized work groups" with their corresponding basic assumption--the "Church" with "dependency" and the "Army" with "flight-fight" phenomena. These specialized work groups must "cope with the basic-assumption phenomena that are its province", and use the emotive force of these phenomena in fulfilling its specialized function.

Bion (1961) considers that the primitive mechanism "projective identification", which Klein (1955) has described as peculiar to the paranoid, schizoid, and depressive syndrones, is the source of the main emotional drive in the formation of the group. Freud's "primary identification" has for its subject matter "object relations"; whereas Klein's "projective identification" has for its subject matter "part-object relations"--cf. father and mother as objects in the Oedipal vortex vs. mother's "good" and/or "bad" breast in paranoid-schizoid anxieties. "Identification by projection implies a combination of splitting off parts of the self and projecting on to (or rather into) another person." (Klein, 1955, p. 311). Certain projective mechanisms are complementary to the introjective ones, and their interaction accounts for love and hatred "introjected from" and "projected onto" the 'good' and 'bad' mother.

Bion's basic (infantile) assumption leaders are seen as manipulated by groups who "project" images onto them. These projective images are designed to search out the various "basic assumption" leaders,

who will satisfy the infantile dependency, pairing, and flight-fight regressions. The "work" group function is designed to control these regressions, and direct their energies to scientific, rational tasks. In Freud's model, interpretations are designed to give insight into group tensions created by transference phenomenon and the maladaptive operation of defense mechanisms. In Bion's model, interpretations are designed to confront the group (and thereby offer opportunity for insight) for resorting to projective identification in their search for basic assumption leaders when their task is to develop the work group leader.

The Kleinian psychoanalyst, Jaques (1955) considers Freud's distinction between "identification of the ego with an object and replacement of the ego ideal by an object" (Freud, 1922, p.85) to be in harmony with Klein's notion that "introjection interacts with the process of projection".

> That is to say, identification of the ego with an object is identification by introjection' this is implicit in Freud. But replacement of the ego ideal by an external object seems to me implicitly to contain the conception of identification by projection. Thus, the soldiers who take their leader for their ego ideal are in effect projectively identifying with him, or putting part of themselves into him. It is this common or shared projective identification which enables the soldiers to identify with each other. (p.481)

Jaques uses both Freud's and Klein's concepts of identification (or is it that he "projects" Klein's notions onto Freud?) in his analysis of group process, and the formation of human institutions;

but his analysis is somewhat biased in favor of Klein's two-way play of projective and introjective identification. Individuals, who engage in the formation and utilization of institutions, make unconscious use of introjective and projective identification to reinforce defenses against and ward off anxiety and guilt.

In the Kleinian school the level of regression is one step beyond the regressions to the Oedipal scene; and thereby overlooks, or underplays, what is essential to Freudian group psychology--the central role of the leader. Bion's "basic assumption leaders" are one abstraction beyond Freud's "leader" and the "subject" of the identification becomes obscure as part-object relationships are in vogue. The essential difference between Freudians and Kleinians appears in their view of group psychology--for Kleinians, individuals enter into group psychology, form institutions, and use groups to ward off psychotic anxiety; here, independence from the group means risk of psychotic anxiety; whereas, for Freudians, individuals enter into, form, and use groups to ward off neurotic anxiety; but, here independence from the group is an entrance into individual psychology, into scientific and rational thought. Jaques, in fact, relates introjective identifications mechanisms to whole objects (person); whereas, in their most primitive features, as described by Klein, these mechanisms are related to "part-objects" as a defense against anxiety by means of "splitting" and a corresponding projection and introjection of both the good and bad objects and impulses.

Scheidlinger (1952, 1955, 1960, 1964), throughout the years, has provided extensive commentary on Freudian group psychology. Of

particular interest is his 1960 article which contains a critique of Bion's psychoanalytic group psychology, and his influence on group psychotherapy and on group dynamics literature. Of equal importance to his critique of Bion's theoretical outline are his own theoretical formulations, which deal with the interplay of individual and group psychologic processes. Scheidlinger explains:

> The interaction process in the group psychotherapy experience could be described in terms of two major levels: (a) a dynamic-contemporaneous level; and (b) a genetic regressive one. The former comprises the more readily observed momentary expressions of conscious needs and ego-adaptive patterns, the group roles, the network of attractions and repulsions, as well as the group structure. The behavior here is primarily reactive to realistic group situational factors bringing into play the more external aspects of personality. The genetic-regressive level pertains to unconscious and preconscious motivations, defensive patterns and conflicts --to such typical clinical phenomena as transference, countertransference, resistance, identification, or projection. (pp. 353-354.)

These two levels are interrelated, without the rigid boundaries of Bion's "secondary" ("work group") and "primary" ("basic assumption") process functioning. Scheidlinger indicates the necessity of "a comprehensive conceptual scheme", and states that, besides clarification of certain concepts of group behavior, a translation of such concepts "into operational terms for systematic observation and measurement" is required. (Mann's [1967] Member-Leader Observational System captures both of Scheidlinger's hypothesized levels of group interaction, and approximates the operational definition of certain concepts of group behavior.)

Scheidlinger's (1960) theoretical critique (from a Freudian perspective) of Bion's group psychology, Sherwood's (1964) critical evaluation from a philosophical perspective, and Rustin's (1971) comparison of Bion and Freud from a sociological perspective, all show the importance of Bion's work and the pervasiveness of his influence in the whole network of social science. Because of lack of clarity in the concepts of group behavior any critique of Bion ought to be left open to second thoughts.

These psychoanalytic concepts by adherents of Freudian and Kleinian schools are in dire need of a philosophical analysis à la Israel Scheffler (1960).

> Philosophical analysis, in substantially its current forms, got under way--interested fundamentally in the clarification of basic notions and modes of argument rather than in synthesizing available beliefs into some total outlook, in thoroughly appraising root ideas rather than in painting suggestive but vague portraits of the universe. (p. 7)

Nevertheless, in spite of their confusion, diversity, and bias, these concepts make sense and give insight into group process; whether they are related to Freud's "leader", Redl's "central persons" or Bion's "basic assumption leaders," or whether they are related to group dynamic concepts like "phase", "social role", and "sub-group" developments. Various individuals may be 'nominated', sanctioned' or 'required', to take onto themselves the projected objects and impulses of other members. The individuals with such 'assigned' roles may absorb (introject) the

objects and become the good or bad object with corresponding impulses, or they may deflect (project) the object and impulses onto a perceived ally or foe, who is then loved or attacked. The "logic of explanation" in group psychology, when faced with such theoretical diversity, in the interest of "clarification of basic notions", requires a tolerance for the various "psychologics of explanation" as put forward by various schools; and, whereas, however noble the commitment to a "party line", this tolerance should extend to group dynamic theorists who are somewhat eclectic in orientation as Mann, 1967, and Bennis & Shepard, 1956.

Group Dynamics Literature Related to Mann's M-L Observational System

This brief section considers the influence of Bennis & Shepard (1956), Bennis (1964), and Bales (1950, 1970) on Mann.

Basically, people in groups engage in face-to-face interaction, and gain some impression of one another, even though it may be a distorted impression due to a faulty perceptual system (Bales, 1950). The principal obstacle to valid interpersonal communication lie in the existence of autisms which distort and complicate all interaction unduly, and hinder any insight into the underlying dynamics of the group. These autisms, which cause rigidity of interpretation and response in the here-and-now situation, are carried over from anxious experiences with particular authority or love figures of the past. (Bennis, 1964).

Bennis and Shepard (1956) cite the major concerns of groups in terms of "authority" and "intimacy" dimensions. The group

psychologic task is to resolve the problem of "authority" during the "resolution" phase and the problem of "intimacy" during the "consensual validation" phase. Various sub-groupings of "conflicted" members are formed. Depending on the issue of concern, the subgroups take a "dependent" or "counterdependent" orientation, or an "overpersonal" or "counterpersonal" orientation. So people in groups, when faced by an authority figure in the person of the trainer, are challenged to explore and resolve any residual oedipal conflict. The "conflicted" person, whether "dependent" or "counterdependent", whether "over-personal" or "counterpersonal" is usually unaware of the transference phenomena that take place between him and the trainer, and frequently will misinterpret the helpful interventions of the trainer; but, eventually, as the group passes through phases, the conflicts will be more-or-less resolved, or at least, some insight into the conflict may occur.

The "conflicted" person is characterized by high impulsivity, uncertainty, ambiguity, and ambivalence and an inability to control anxiety and depression levels in the face of disappointed needs. The "unconflicted", in contrast, enjoy independence in the area of authority--no overt display of dependency or counterdependency needs, emotional maturity in their interpersonal relations, free from the frustration and restraints of desirable and undesirable drives. It is the "unconflicted" member who leads the group in their resolution of the authority and intimacy problems. Redl's (1942) influence is in evidence: "the influence of the unconflicted on the conflicted personality constellation."

The "conflicted" individuals and their corresponding subgroups are shown on a two dimensional continuum of authority and intimacy (cf. Figure 2:1, p.23). On the Authority Dimension are found the conflicted "overdependent" and "counterdependent"; and on the Intimacy Dimension are found the conflicted "overpersonal" and "counterpersonal". The "unconflicted" are found in the circled area.

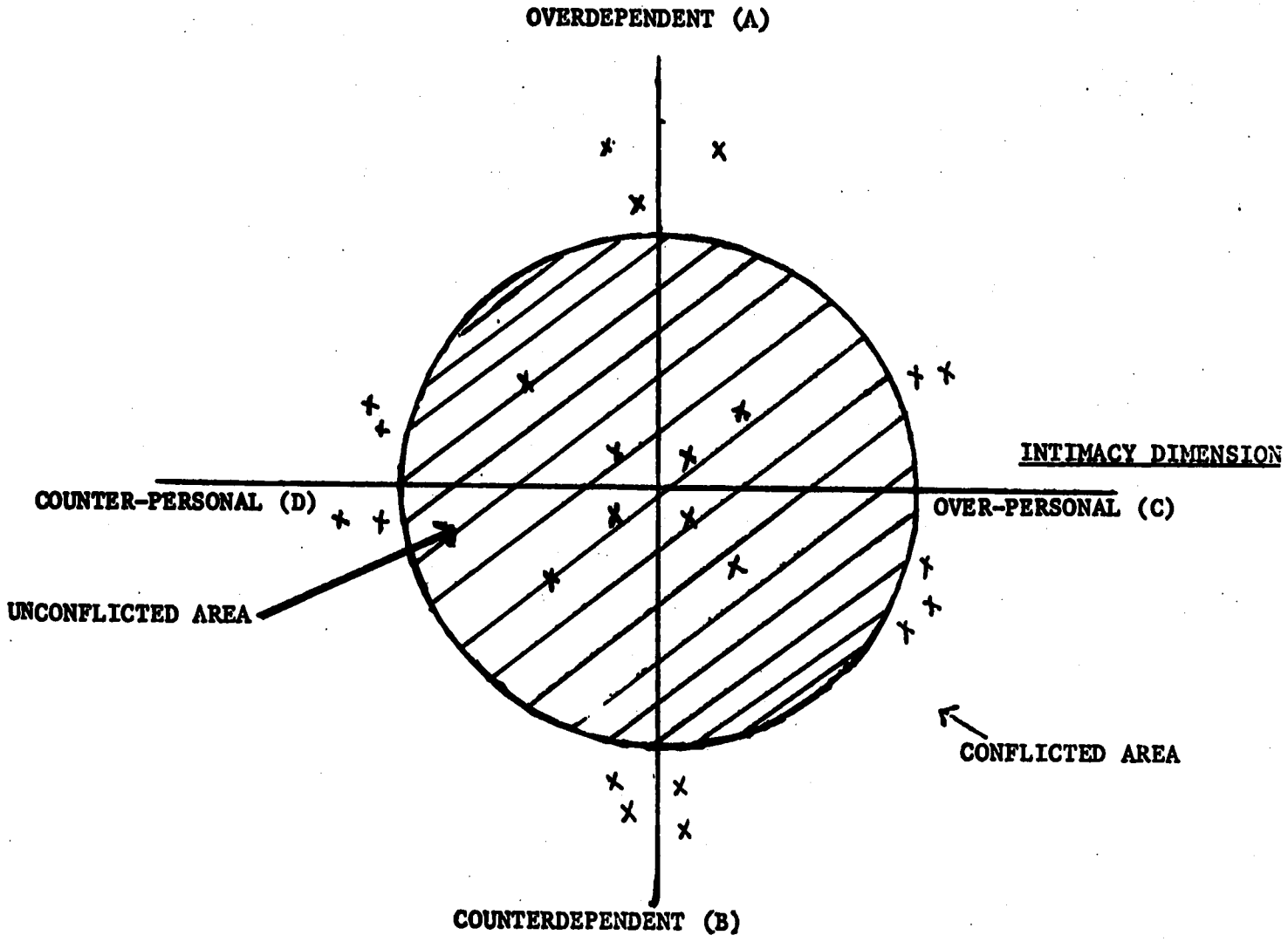
During the life of the group, subgroups form, clash with one another on problems of authority and intimacy, and resolve, with the help of the "unconflicted", the issue of concern. "In terms of their more elaborate treatment of group affiliations, Bennis and Shepard (1956) provide a very interesting extension of the principles stated earlier by Bion and Redl" (McLeish, Park, and Matheson, in press).

Bennis (1964) in a revised version of A Theory of Group Development has conceptualized group development in terms of two major areas of internal uncertainty: 1. Dependence --Authority Relations, and 2. Interdependence--Personal Relations. The reduction of internal uncertainties, or obstacles to valid communication, becomes the task of the group. The group in its strategy to reduce the uncertainty will use inadequate ploys with the Trainer and with themselves--like overdependence, counterdependence, overpersonal, counterpersonal behaviors, accompanied with various emotional modalities--flight, fight, pairing, and dependence.

In his Group Psychology and the Analysis of the Ego , Freud noted that "each member is bound by libidinal ties on one hand to the leader...and on the other hand to the other members of the group" (p.45).

Figure 2.1

BENNIS AND SHEPARD' MODEL OF GROUP DEVELOPMENT



The main task of the members of a self-analytic group is to solve their residual oedipal conflicts that orient around authority and personal relations. As the group develops, it passes through various subphases of the two major phases. In the Dependence Phase, the three subphases are identified with the group's preoccupation with submission (subphase 1), rebellion (subphase 2), and resolution of the dependence problem (subphase 3). In the Interdependence Phase, the three subphases are identified with the group's preoccupation with intermember identification (subphase 4), individual identity (subphase 5), and resolution of the interdependence problem (subphase 6) (Bennis, 1964). These phases and subphases are illustrated in Table 2.1, p.25.

Mann (1966) in commentary on Bennis and Shepard points to a distinction between the "unconflicted" and what he calls the "independent enactors";

> "Bennis and Shepard's discussion of group development notes the early split between dependent and counter-dependent members, with each dominating a sub-phase of the group. Similarly, the group later polarizes around the intimacy issue and the most conspicuous members in this phase are the "overpersonals" and "counterpersonals". Although the authors do not trace the subgroup affiliations of these members over time, it is clear that the central polarity in the group is between two "conflicted" subgroups who cannot tolerate one another's efforts to find a solution to the problem. It is the "unconflicted" members who emerge at each stage and encourage other members to forge a viable compromise between the two extreme positions. We have described the role of the "independent enactors" during the internalization phase as similar to that of the unconflicted members but we have found that their careers are far more varied than Bennis and Shepard have suggested." (p.260).

TABLE 2.1

BENNIS AND SHEPARD' OUTLINE OF GROUP DEVELOPMENT

PHASE I: DEPENDENCE--AUTHORITY RELATIONS

	Subphase 1 Dependence-Submission	Subphase 2 Counterdependence	Subphase 3 Resolution
Emotional Modality	Dependence-Flight	Counterdependence-Fight. among members Distrust of Trainer.	Pairing. Intense involvement with group task.
Content themes.			
....			

PHASE 11: INTERDEPENDENCE--PERSONAL RELATIONS

	Subphase 1 Enchantment--	Subphase 2 Disenchantment--	Subphase 3 Consensual Validation
Emotional modality	Pairing--Flight Group becomes a respected icon beyond further Analysis.	Fight--Flight. Anxiety reactions. Distrust and suspicion of various group members.	Pairing, understanding acceptance.
Content themes			
....			

Besides 'emotional modality', Bennis (1964) considered other aspects of group behavior like--'content themes','dominant roles', 'group structure'. 'group activity', and 'group movement'.

Observational Systems: An Introduction

The complexity of patterns in human interaction, the phenomenon of phase development, the assumption of various roles, and changes in relationship are not fully accessible to clinical description, no matter how astute the clinician. The need for a quantitative approach to measure social interaction processes is evident. Such a quantitative approach normally involves the construction of sets of interrelated categories which, when given adequate descriptive definition, can be used to encode communicative acts--verbal or non-verbal. The numerical data obtained can be summarized and analyzed in a variety of ways to elucidate 'structures' of 'treatments', 'phases' of groups, and 'roles' of individual group members.

> Interaction analysis is made up of skills such as observing, recording and analyzing behavior in such a way as to make sense out of what has happened. In most systems in use, it consists of taking very small "bits" of the action, identifying these in terms of a coding scheme, and recording them in these special categories. The categories are designed to incorporate all relevant types and forms of behavior--"relevance" being defined in terms of the purposes of the analysis. (McLeish, Matheson, and Park, in press).

Bales' Interaction Process Analysis (IPA) as an Observational System

Bales' IPA is a progenitor of other observational systems, especially evident in Mann's (1967) Member-Leader Observational System. An underlying and fundamental idea essential to IPA is that "everything said and done in a group is important" and should be recorded. This means that "everything said and done" is definable in terms of

one of the his twelve categories, which are both inclusive and continuous. The twelve categories are as follows:

1.	Seems Friendly	12.	Seems Negative
2.	Dramatizes	11.	Shows Tension
3.	Agrees	10.	Disagrees
4.	Gives Suggestion	9.	Asks for Suggestion
5.	Gives Opinion	8.	Asks for Opinion
6.	Gives Information	7.	Asks for Information

Bales' IPA is organized in such a way that the twelve categories constitute an interactive system, each category defining its structure in terms of its function in the interactive process. (cf. Figure 2.2, p. 29).

> ...the categories constitute a system such that as a whole they would constitute a context within which each component category gained its principal meaning by its particular position in the context. In other words, each category is meant to gain its central meaning from its position in the set of categories. The placing of a category in a particular position with regard to the other categories is the most important part of its definition (Bales, 1950, p. 63).

The first three categories constitute the Social-Emotional Area--Postive(A); (cf. Figure 2.2, p. 29) correspondingly, the last three categories constitute the Social-Emotional Area-Negative (D); The Task Area, neutral in terms of affect, has three categories (C) which relate to task questions, and another three (B) which relate to the corresponding answers to these task questions. There is a further division of the classification showing interrelatedness of pairs of

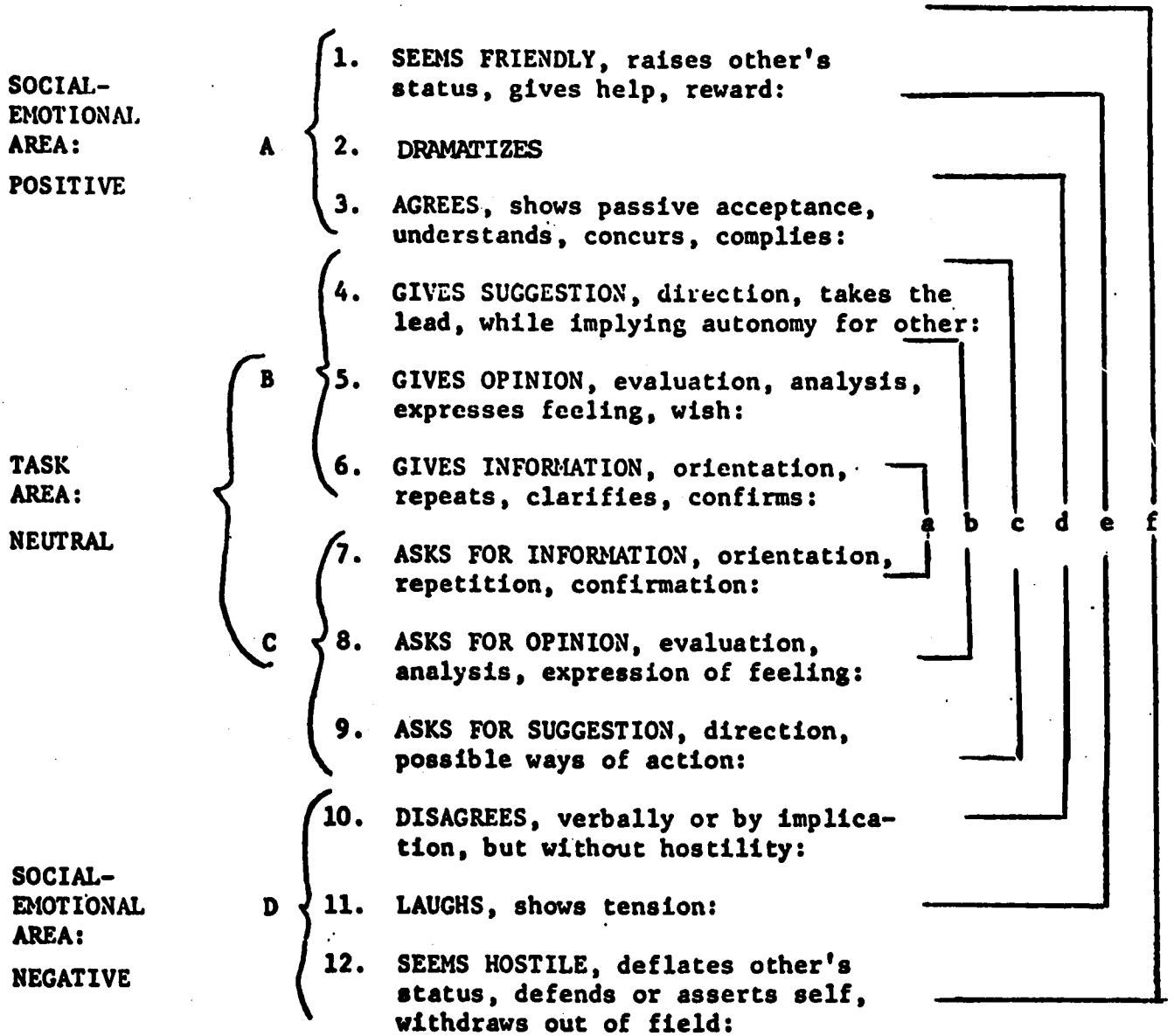
categories and their interaction during phases of problem solving. McLeish, et al. (in press) give a succinct summary:

> Categories 6, 7 focus on the problem of communication; 5, 8 focus on evaluation; 4, 9 focus on the issue of control; 3, 10 are concerned with decision making in the group; 2, 11 are concerned with tension reduction, and 1, 12 focus on the issue of reintegration. These pairs and their association with particular group problems or concerns are considered to be nested. A group on beginning, finds that it must concern itself with the problem of communicating the particular task to the various members. As a result, there tends to be a predominance of acts recorded in categories 6 and 7 during the initial phase of the group. Gradually the group moves out of this definition of the problem into an evaluation of the task. In this phase categories 5 and 8 predominante. In time the group moves through the whole series of problem areas, in a regular sequence. This is Bales' "nesting phase" hypothesis. Each set of category pairs takes a special prominence at various phases of group activity, in a predetermined order. The tendency is for the group to move from the center categories (6, 7) out to the extremities (1, 12). In other words, the group tends to move from an initial phase of communication to a final phase of reintegration where emotional concerns are dealt with. This is the normal sequence.

Bales (1970) has extended his IPA system to include a description of an individual's social role development. Based on the analysis of an individual's pattern of group interaction, his "social-psychological direction" (spd) can be determined. An individual's spd is a measure of his performance on a three-dimensional continuum. These three continua are: Upward--Downward--a dominant-submissive power dimension; Positive--Negative--arousing pleasant or unpleasant feelings in others; and Forward--Backward--accepting or rejecting group norms. Bales proceeds to give a clinical description of the possible

FIGURE 2.2

BALES' SYSTEM: INTERACTION PROCESS ANALYSIS (IPA)



A Positive Reactions

B Attempted Answers

C Questions

D Negative Reactions

Key

a Problems of communication

b Problems of evaluation

c Problems of control

d Problems of decision

e Problems of tension reduction

f Problems of reintegration

27 s.p.d. locations. (1970). But this takes us beyond our purpose of introducing Bales, that is, as the progenitor of Mann's Member-Leader Scoring System.

Mann's 'Member-Leader' Scoring System as an Observational System

Mann's 'Member-Leader' scoring system is the instrumentation used for coding the observable 'affective' behavior as manifested by the member toward the leader. His system is outlined as follows:

The rationale for the member-leader scoring system:
The 'Member-Leader' scoring system uses two insights to understand what another human being is saying. These are: (1) that a person may express his feelings symbolically as well as directly; (the basis for 'levels' in the scoring system), and (2) that the feelings expressed by a person will be understood or recognized within the particular conceptual framework of the listener; (the basis for 'categories' in the scoring system). The main operating assumption is that the 'member-leader' relationship is always influencing the member's feelings and behavior to some extent. A member's feelings about the leader never completely determine the member's manifest behavior; but they are always a component of the total set of determinants of an act in the group. (Mann, 1967).

The inferential and methodological procedures for encoding acts: First are the cues for scoring a symbolic act: (1) for some acts look for descriptions of the father-son, and hero-admirer relationships. Then the scorer reviews in his mind the other times this member has spoken, to see what kinds of relationships the member tends to use for expressing his feelings in a disguised form;

and (ii) for other acts, the first clues come from the feelings expressed, perhaps, anger or depression. These feelings should make sense in terms of the member's history up to that point. The act is not scored however, until both the symbolic equivalents for leader and member, on one hand, and the feelings being expressed on the other hand, are determined. If both the symbolic equivalents and the feelings make sense, given the member, the leader, and the context, both historically and at that moment, the act is scored. (Mann, 1967).

Second are the 'levels of inference' in the process of symbolization of which there are four in the 'Member-Leader' scoring system:

Level #1. Both member and leader referred to directly.

Level #2. Member referred to directly, but leader symbolized by equivalent within the group. The 'leader' is not clearly identified as the object of the member's interaction. Level #2 is scored either when the feeling is expressed without any mention of an object; or when the object mentioned is the group as a whole or some member who serves as a symbolic equivalent of the leader for that particular member. Feelings are displaced toward the leader via a 'symbolic equivalent' within the group. (Mann, 1967).

Level #3. Member referred to directly, but leader symbolized by equivalent outside the group. Here the member may refer to a figure in one of the assigned cases, or to a university or government official, or a movie, drama, or role-play situation, to express his feelings toward the leader. (Mann, 1967).

Level #4. Member symbolized by equivalent inside or outside the group, leader referred to either directly or symbolically. The level #4 acts involve mainly the dynamic mechanism of projection since the member expresses his feelings toward the leader by disowning them or treating them as if they belonged to some other agent, real or fictitious. For example: a member identifies himself with a figure in one of the cases or in a movie, drama or role-play situation. In highly symbolic discussions a member may symbolize both himself, via projection, and the leader, via displacement. (Mann, 1967).

Third is the unit of analysis--the act that is scored:

The scoring system attempts to infer the member's feelings from statements which range from the direct to the symbolic, and in many cases the scorer can only discern the latent, leader-relavant feelings by examining the recurrent shadings of many phrases and sentences. Mann (1970) defines an act as a single burst of sentences within which the expressed feelings are uniform. One of two events signals the end of an act; (1) the speaker is interrupted by another member or by the leader; or (2) the speaker shifts from expressing one set of feelings to expressing feelings which call for a different array of scored categories. The length of an act varies from a single word to a speech extending over almost a page of typescript. (Bales' IPA system scores approximately 1000 acts/hour; Mann's M-L system scores approximately 200 acts/hour).

Fourth is the procedure in scoring the member's feelings:

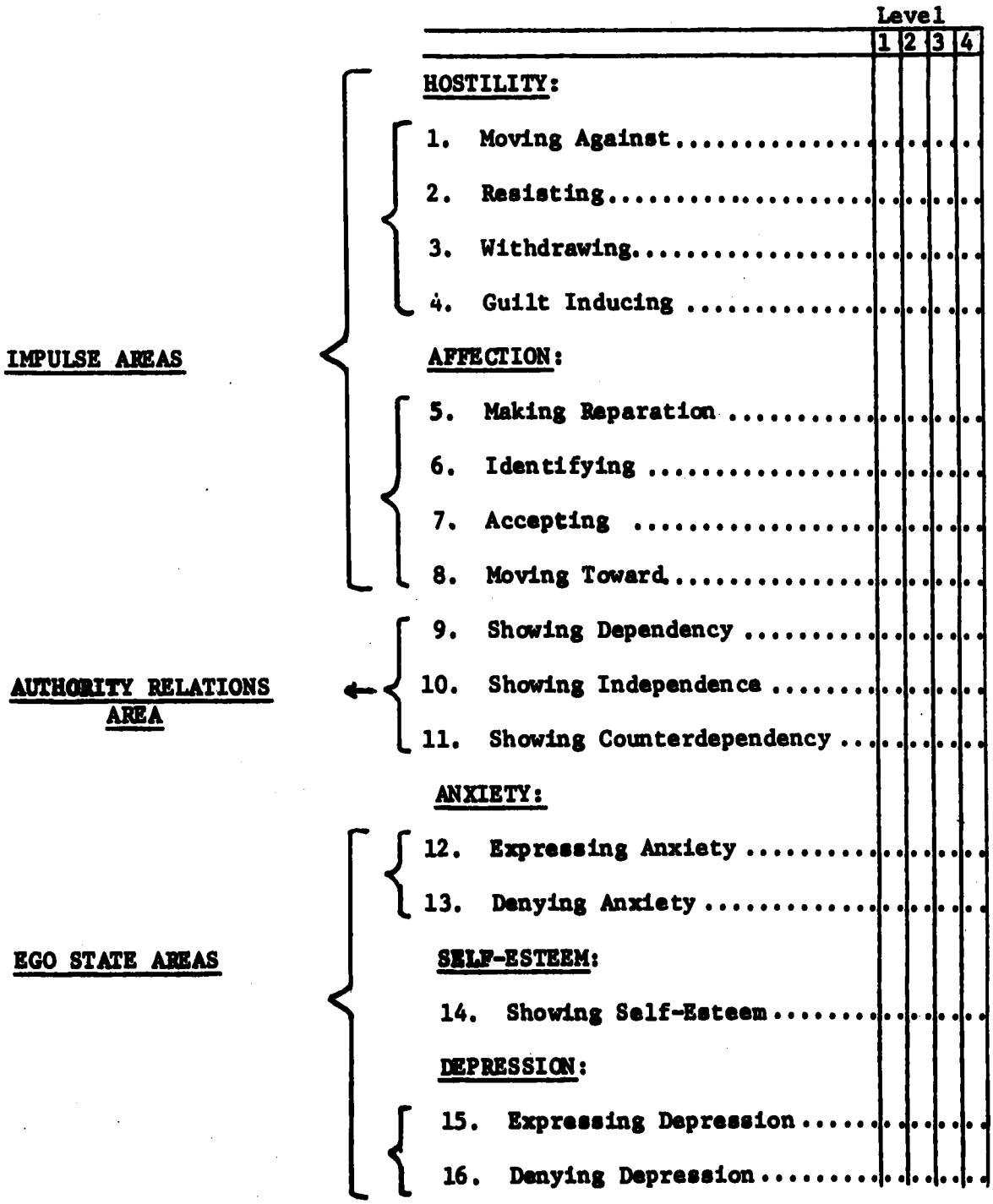
The content categories of the Member-Leader' scoring system, as shown

in Figure 2.3 (p. 34) can be looked at as three separate systems, here used simultaneously. Eight of the sixteen categories describe the affective response a member may have to a leader; three of the categories describe feelings which are activated by the leader's status in an 'apperceived' authority structure; and five of the categories describe how the member feel about himself in relation to the leader. These three approaches to the member's feelings are reflected in what we shall refer to as the three areas: (1) the impulse area; (2) the authority relations area; and (3) the ego state area. (Mann, 1967).

The impulse area is divided into two subareas--hostility and affection; and the ego state area is also divided into the two subareas of anxiety and depression. The authority relations area is considered one of the five subareas. The reason for spelling this out is that an important scoring convention rests on the division of the sixteen categories into five subareas; the convention is that an act may be scored in as many subareas as seems appropriate, but not more than one category within a subarea may be used. Since 'self-esteem' is never double-scored with an 'anxiety' or 'depression' category, 'self-esteem' is considered a category, but not a subarea within the ego state area (Mann, 1967). (cf. Figure 2.3, p. 34 for an outline of the content categories, and Appendix A, pp. 165-171 for a description of the same categories).

The immense amount of data outputted from coding with this observational instrument requires the assistance of a computer and

FIGURE 2.3 THE MEMBER-LEADER SCORING SYSTEM



some rather sophisticated computer programming, without which the most astute analytic mind would be readily overwhelmed. The experimental design and the preparation of the data for various statistical analyses are the subject matter of the following chapter.

CHAPTER III

The Research Design and Data Preparation

The present study is part of a comprehensive project (directed by Professor John McLeish in collaboration with James Park and Wayne Matheson) which investigated group processes and learning outcomes. To date, three doctoral students have produced dissertations on various aspects of this research project. The dissertations are: 1. "The Structure of Learning Groups", in which Matheson (1971) has investigated group process using Bales' Interaction Process Analysis; 2. "Effects of Direct and Vicarious Experience in Learning Groups", in which Park (1971) investigated the effects of group experience on learning; and 3. "A Comparison of Bales' Interaction Process Analysis and Flanders' Interaction Analysis" in which Anderson (1971) with two systems of interaction analysis examined two Direct Communications training groups.

The Research Design

The comprehensive design involved four training groups and four observer groups. Two of the training groups were given a Self-Analytic Treatment (SAT), based on the Tavistock model; and the other two were given a Direct Communications Treatment (DCT), modelled on Carkhuff's 'Core Conditions' in Interpersonal Processes. Two of the four observer groups were given training in Bales' IPA scoring, and the other two training in clinical observation; the four observer groups watched either the SAT or DCT groups.

The 98 Ed. Psy. 421 undergraduate students involved in this study, were randomly assigned to various 'training' or 'observing' groups as illustrated: (Note: three students withdrew from the course, two of them

because of graduation requirements.)

	PARTICIPANTS	BALES OBSERVERS	CLINICAL OBSERVERS
SAT	N=23	N=12	N=11
DCT	N=25	N=11	N=13

(each cell represents the totals of two sections)

The current study addresses itself to the SAT and DCT participant groups of which SAT1 $n=12$, SAT2 $n=11$, DCT1 $n=12$, DCT2 $n=13$. Some of the main interests are the elucidation of the apperceived "structures" of the two training environments, an analysis of group development, and the effect of the two different treatments on learning about group processes and the communication of empathic response.

An epitomic descriptive definition of the two training environments: (1) Self-Analytic Treatment (SAT): in a relatively unstructured, face-to-face small group, the trainer intervenes in a neutral manner with interpretations of group behavior. The trainer's role is best described as 'analytical', the interpretations concentrating on "latent" content. (2) Direct Communication Treatment (DCT): in a structured, face-to-face small group, the trainer employs didactic, modelling and experimental activities to encourage the development of specific communication skills, particularly the communication of empathic understanding. The trainer's role is best described as 'facilitative'.

The training was conducted over the first semester during which all subjects were required to attend four pre-testing and briefing sessions; 15 laboratory sessions -- each 50 minutes in length; and four post-

testing and course evaluation sessions.

Data Preparation

All sessions of both treatments were videotaped, and a typescript of one-half of the sessions (two SAT groups) was made. A scoring sheet (cf. Appendix B, p.172) was designed which permitted convenient scoring of the group behavior according to Mann's Member-Leader Scoring System. All 59 sessions (note: session 12 of DCT1 wasn't taped) were coded using the typescripts (where available) and the videotapes. These data were transcribed to IBM sheets, then key-punched on IBM cards for analysis.

A computer program* was designed to summarize the data in a statistically useful way. An outline of its contents follows. Provision is made for:

1. Frequency tables of acts by each person (over the 16 categories and 4 levels) in each session and overall sessions.

2. Tables of proportions of acts by each person (over the 16 categories separately and 4 levels separately) in each session and overall sessions.

3. The punching of the 'proportions data' on cards, which can be used for further analysis.

Three transformations of the frequency data were carried out:

1. the acts were scaled across the 16 categories so that they represented proportions summed to one; likewise the acts were scaled across levels. This

* The design of this program was outlined by the investigator, and programmed in Fortran by Mr. Don Seidle of DERS, U. of A. The program is available in the DERS library -- QZZE:MN.

procedure was designed to lessen the disparity between high and low participants.

2. the 'proportion data' were converted to a logit function, which, in effect, takes the proportions and roughly normalizes them. According to Dixon & Massey (1969) "... replacing each measurement by its logarithm will often result in the variances being more nearly equal. Actually it happens in many applications that the logarithmic transformation also tends to normalize the distribution" (p. 324). The procedure was designed to maximize the probability of attaining homogeneity of variance-covariance matrices between the SAT and DCT groups.

3. the 'logit-transformed data' were then re-standardized down the columns (persons) on each category separately to Z scores. This transformation was designed to place the data in a convenient form with mean = 0 and standard deviation = 1, giving each person a standardized score.

To test whether these data are from the same statistical population an attempt was made to test homogeneity of variance-covariance matrices of the SAT and DCT treatments. In this instance, the var-cov matrix is composed of 16 categories x 16 categories with the mean of the variances within each category placed in the diagonal and the mean of the covariances between the pairs of observations of any two cateogries placed in the 'off-diagonals'. This procedure was executed separately for the DCT and SAT treatments, under two conditions (i) the 16 categories, and (ii) the 16 categories plus four levels.

The Z score data were submitted to the Bartlett-Box homogeneity of variances-covariance matrices test. The hypothesis being tested was that there is no significant difference between the variance-covariance matrices

of the SAT and DCT treatments. This hypothesis was rejected. The data produced highly significant differences between the SAT and DCT treatments Thus, the data between treatments could not be pooled for further analysis because the subjects "between treatments" were not acting in a similar fashion. Although the data could not be pooled to carry out a factor analysis of the two treatments together the possibility still existed that each treatment separately might have an unique factor structure that could be extracted.

Homogeneity of var-covar matrices could not be tested between the two SAT groups (likewise between the two DCT groups) because the number of variables was greater than the number of persons. Since the students involved in this study were randomly assigned to treatments, homogeneity of var-covar matrices of the two SAT groups (likewise the two DCT groups) was assumed. This assumption is based on the following reasons: (i) The randomization procedure presumably justifies the assumption of homegeneity between two groups within a specific treatment. (ii) Individuals appear in the SAT/DCT groups typically; and (iii) intuition suggests that these groups (SAT and DCT groups separately) are from the same statistical population. Since the analysis warranted the examination of the factor structure of each treatment separately a decision was made to increase the sample size of the two treatments (originally: SAT n=23; DCT n=25) by obtaining "proportions data" from the frequency sums of the first five and last five sessions. It is analogous to taking pre- and post-measures on a person's characteristic usage of the categories (now: SAT n=46; DCT n=50). It was also thought that this procedure would minimize the risk of linear dependence in the data. Inherent in the coding of interaction between

people who meet on various occasions is an element of linear dependence, for any one person would tend to act characteristically, in relation to the categories upon which he was scored on previous occasions. The justification for doubling the data (with the risk of linear dependence) by using the first five and last five sessions as data points, is that the treatment will have an effect on each person, the first five sessions showing considerably less of the treatment effect and the last five sessions showing considerably more of the treatment effect, thus effecting minimization of risk of linear dependence in the data.

As was done previously, the "proportions data" of the first five and last five sessions were transformed by the "logit function" and converted to Z scores. The data were then subjected to various factor analytic procedures as explained in Chapter 4.

CHAPTER 4

A Factor Analytic Report on the Self Analytic and Direct Communications Treatments

To remint an old coin "a 'factor pattern' is worth a thousand words." Yet, speaking more accurately, this coinage is as counterfeit and as genuine as the Confucian original for everything depends on the quality of the 'picture' and the quality of the 'words'. It is hardly sufficient to present the "Primary-factor Pattern Matrix" and then make claim that this is the picture' of the SAT or the DCT. Yet it is a marvel of the digital computer, wherein, by some 'strange paradox', 32,245 codings of approximately 150,000 communications of 23 people over a 15 session-period can be converted into a 16 x 5 primary-factor pattern matrix. (cf. p.47). Obviously this 'picture' requires interpretation if it is to be understood. A creative dialogue of words and numbers, which pass through an array of complex symbolic coding systems, is required to gain insight into the obvious and not-so-obvious processes, to find the structure of the treatments, to make sense out of such a chaotic and overwhelming number of words and numbers. But before the interpretation, a note on how the factor pattern was abstracted is necessary.

The Factor Analytic Techniques used in search for a solution:

As was mentioned earlier the number of observations for both the SAT and DCT groups was doubled by summing the first 5 and last 5 sessions' frequency counts, (in the manner of pre- and post-measures) converting these to proportions, then to logit functions, then to Z scores.

The pre- and post-measures were combined to give a n=46, SAT data, and a n=50, DCT data. Two solutions for each treatment were sought-- i) a SAT 16 variable solution and a SAT 20 variable solution and ii) a DCT 16 variable solution and a DCT 20 variable solution.

An "Image Analysis" was done on the four sets of data to test the data for the 'possible existence of common factors'. Image Analysis is a multiple-correlation approach which doesn't have to contend with the problem of making suitable estimates of the communalities, for it considers directly 'the multiple regression of each variable on all the remaining n-1 variables.' (Guttman, 1953). The "Image Analysis" showed the existence of a number of common factors for each data set. The 'factor loading matrix' of each data set was then given a varimax rotation, which helped to clarify the factor structure and to estimate the number of factors. Image analysis is an adequate procedure in its own right; additionally, it may be used to provide a preliminary solution to a more involved common-factor solution.

A new factor analytic computer program has been developed by Joreskog (1967). The program allows for three methods of solution: 1. an unweighted least squares solution (ULS), which is equivalent to the iterated principal factor method; 2. a generalized least squares solution (GLS); and 3. a maximum likelihood solution (ML).

A test of 'goodness of fit', of how a given number of factors fit the data, is incorporated in the GLS and ML solutions. This 'likelihood ratio' technique evaluates the hypothesis that a given number of factors fit the data at a specified significance level. "If the hypothesis is rejected, the conclusion is that at least k + 1 com-

mon factors are required... A reasonable procedure, then, is to use some step by step procedure. One chooses a significance level and tests successive hypotheses on $\underline{k}$. As the estimate of the number of common factors one takes the smallest value of $\underline{k}$ which yields a nonsignificant value of the test criterion at the significance level α ." (Joreskog pp. 457-458, 1967).

Unfortunately, the GLS and ML solutions didn't compute the factor structures in all cases. Nevertheless these solutions gave some useful information in estimating the number of factors. The SAT 16 variable set (GLS solution) rejected the hypothesis that four factors adequately fit the data. The SAT 20 variable set (ML solution) rejected the hypothesis that four factors adequately fit the data.

The DCT 16 variable set (ML solution) accepted the hypothesis that six factors adequately fit the data ($p<.10$). The DCT 20 variable set (ML solution) rejected the hypothesis that five factors adequately fit the data; but accepted the hypothesis that seven factors adequately fit the data ($p<.297$).

As a result of the ULS, GLS, and ML solutions, the Image Analysis and Varimax rotation of its factor matrix, a reliable estimate of the number of factors was ascertained to be five in the SAT and DCT 16 variable sets, and six in the SAT and DCT 20 variable sets. Since the GLS and ML solutions didn't compute in all cases, a decision was made to proceed with the unweighted least squares solution which is equivalent to the iterated principal factor method.

In Principal Factor Analysis (PFA) analysis is made of the reduced correlation matrix (i.e. with communalities in place of the

ones in the principal diagonal). (Harman, p. 137, 1967). The iterative process estimates communalities and successively refines them until they converge to a stable value.

The four sets of unrotated factor solutions obtained by the PFA method were transformed using the Harris-Kaiser oblique transformation. It was this method which produced the "Primary-factor Pattern Matrices" which are considered the final factor analytic solutions for this research. Two solutions ('Independent Cluster' and A'A proportional to L) were obtained for each of the four data sets from the Harris-Kaiser program. Each factor pattern matrix was examined to ascertain the number of high coefficient values and the number of variables which were of complexity greater than one. A comparison was made (on each of the four data sets--SAT 16 var. set; SAT 20 var. set; DCT 16 var. set; DCT 20 var. set) of the two factor pattern matrices (i) Independent Cluster Solution, and (ii) A'A proportional to L solution; and selection was based on the following criteria: i) greater number of "hyperplane" (0 $\pm$ .10) coefficients, and ii) number of variables with complexity greater than 1. Using the above-mentioned criteria, the 'Independent Cluster Solution' was chosen for the SAT 16 variable set, and the DCT 16 variable set' and the A'A proportional to L solution' was chosen for the SAT 20 variable set and the DCT 20 variable set.

The "Primary-factor Pattern Matrices" are incorporated into the main body of this report (cf. pp.47, 65); whereas the "Correlation

Matrices", the "Principal Factor Solutions--unrotated factor loadings", and the "Intercorrelation Matrix of Factors"--i.e. of the "Primary-factor Pattern" are reported in Appendix C4. (cf. Tables C4.1-C4.8, pp. 175-182).

An Interpretation of the Primary-factor Pattern Matrix: Self-Analytic Treatment

First, a disclaimer: the following interpretative account of the 'Self-Analytic Treatment' based on the 'Tavistock model' makes no attempt to explicate the structures of self-analytic groups in general nor the specific structure of the 'Tavistock model'. In short, the obtained primary-factor pattern is specific to the observed SAT groups, based on the 'Tavistock model' as adapted by the Trainer of these groups.

The procedure involves the presentation of the two SAT solutions: (cf. Table 4.1, p. 47) (1) with five factors extracted from the 16 variable set; and (2) with six factors extracted from the 20 variable set (16 categories plus 4 levels). The factors are then considered one at a time. A decision was made to interpret six factors only, since five factors are the 'same', or, at least, not remarkably different, (with minor variations caused by the addition of the four levels and an additional rotation). Primary consideration will be given to the 16 category set solution, because the 20 variable set solution was computed in order to make a comparison with Mann's (1967) factor pattern matrix; and as this comparison showed greater dissimilarity than similarity, it was decided to restrict the analysis to the 16 variable set solution, and avoid the redundancy of interpreting the

TABLE 4.1

Primary-factor Pattern Matrix of the Self Analytic Treatment (16 var. set)

		1	2	3	4	5
1	Moving Against	.258	-.100	.049	**.906**	-.146
2	Resisting	**.827**	.081	.073	.025	.070
3	Withdrawing	**-.325**	**.879**	.017	.079	-.132
4	Guilt Inducing	**.463**	-.034	.019	-.086	.015
5	Reparation	**.670**	.072	.043	-.079	-.001
6	Identifying	**.531**	-.109	-.002	-.035	-.060
7	Accepting	**.685**	.086	-.219	.092	.146
8	Moving Toward	**.291**	.209	-.024	-.036	.265
9	Dependency	**.404**	**.587**	-.127	-.196	.055
10	Independence	**-.330**	.051	-.075	**.671**	.139
11	Counterdependency	**.892**	.014	-.107	.138	-.030
12	Expressing Anxiety	-.245	**-.636**	**-.423**	-.105	**-.312**
13	Denying Anxiety	.185	**-.378**	**.739**	-.109	-.009
14	Self-esteem	**-.458**	-.003	-.197	-.005	**.822**
15	Expressing Depression	-.242	**.402**	-.257	-.060	**-.508**
16	Denying Depression	-.284	.258	**.766**	.049	-.049

Primary-factor Pattern Matrix of the Self Analytic Treatment (20 var. set)

		1	2	3	4	5	6
1	Moving Against	.180	-.160	.064	**.890**	-.090	.067
2	Resisting	**.816**	-.073	.105	.063	.008	.048
3	Withdrawing	-.276	**.742**	**.461**	-.016	-.058	-.154
4	Guilt Inducing	**.462**	-.099	.006	-.088	-.032	.021
5	Reparation	**.664**	-.056	.097	-.110	-.080	.078
6	Identifying	**.504**	-.116	-.056	-.017	-.074	.016
7	Accepting	**.726**	.174	-.175	.241	**.303**	-.082
8	Moving Toward	**.356**	.054	.097	-.018	.214	-.019
9	Dependency	**.466**	**.453**	.212	-.271	.047	-.015
10	Independence	-.294	-.077	.108	**.461**	.116	.207
11	Counterdependency	**.861**	.045	-.123	.271	.049	-.076
12	Expressing Anxiety	**-.350**	-.084	**-.818**	.012	-.104	-.115
13	Denying Anxiety	.152	**-.655**	.290	.082	-.143	-.298
14	Self-esteem	-.295	-.150	-.072	-.022	**.793**	.106
15	Expressing Depres	**-.301**	**.687**	-.073	-.080	-.290	-.195
16	Denying Depression	-.275	-.091	**.617**	.155	-.143	-.289
17	Level 1	**.399**	.060	-.122	**.353**	-.121	**.539**
18	Level 2	-.084	.073	.006	-.066	-.080	**-.926**
19	Level 3	**.452**	.245	-.159	.268	.182	**.502**
20	Level 4	-.229	-.046	-.015	.016	-.006	**.817**

16 categories plus four levels solution.

The primary aim in describing the factors as extracted from the data (as coded by the M-L Scoring System) is to determine the structure of the self-analytic (SAT) and the direct communications treatments (DCT). One might object that the structure of a particular treatment is already determined by the "role presentation" of the group leader; but, the point is that the complete structure of a group depends not only upon the role of the leader, but also, upon the "self presentation" of each member of the group, their defensive reactions to the interpretations of the leader as well as other group members, and their reaction to their own performance in the unique situation of a self-analytic training environment or a direct communications training environment. Obviously, since the trainer of the SAT presents himself as an incommunicative, inactive, and analytical individual with a teaching program which puts the onus of learning totally upon the group members--"to observe and understand behavior as it happens..."-- the members will react considerably differently towards him than towards the DCT leader, who presents himself as intercommunicative, interactive, and facilitative, with a teaching program designed to allow the group members to learn experientially the discrimination and communication of Carkhuff's (1969) "core conditions"--empathic understanding, respect, genuineness, and self-disclosure--of interpersonal processes. Yet, surprisingly enough, the M-L Scoring System is sufficiently sensitive to suggest the operation of defensive mechanisms, transference phenomena, and projective identifications in the DCT; although, perhaps, more subtly expressed than in the SAT, even though one might expect "not

a single nasty word to be spoken in such a warm facilitative environment as the DCT". These structures are not so static and rigid as the columns of regression coefficients of the primary-factor pattern matrix might suggest, but are better described as dynamic, based on group formative processes, and are as flexible as the interpretative processes of the investigator permit. Hopefully, the interpretation of these factors will give some understanding into the structures and processes of groups and the types of structures and processes of groups that differ (as well as the types of structures and processes that remain the same) as the type of treatment varies.

FACTOR I

(+) AMBIVALENCE (Conflicted) vs. SELF-ASSURANCE (Unconflicted).*

	(16 vars)	(20 vars)		(16 vars)	(20 vars)
Counterdependency	.892	.861	Self-Esteem	-.458	-.295
Resisting	.827	.816	Independence	-.330	-.294
Accepting	.685	.726	Withdrawing	-.325	-.276
Reparation	.670	.664	Depression		-.301
Identifying	.531	.504	Anxiety		-.350
Guilt Inducing	.463	.462			
Dependency	.404	.466			
Level 3		.452			
Level 1		.399			
Moving Toward		.356			

Phenomena of group behavior, which are as baffling to analyze as they are interesting to observe, are more complicated than most people are willing to allow. The coefficients of Factor I, AMBIVALENCE vs. SELF-ASSURANCE account for more variance than antici-

* Variables with coefficients less than .300 do not constitute factors.

pated, and its 'picture' of the Self Analytic Treatment, while comprehensive is somewhat indiscriminate in that some of the variables have complexity greater than one, i.e., occur with high loadings on more than one factor.

The AMBIVALENCE pole of Factor I clearly illustrates the utility of a factor analytic procedure in analyzing the data generated by the M-L Scoring System, for it bridges the gulf between the logical conceptual components of Mann's M-L Scoring System and what are perceived as the empirical facts which are 'counted' in the categories. The positive pole of Factor I also alerts one to the necessity of a 'psychologic' explanation of factors whose patterns are not always logically consistent.

The AMBIVALENCE pole of Factor I is heavily loaded with conceptually polar opposite categories (variables)--in the Impulse Area, #2 Resisting vs. #7 Accepting, and #4 Guilt Inducing vs. #5 Reparation, and, in the Authority Relations area #9 Dependency vs. #11 Counterdependency (directly opposite categories by definition, cf. Appendix A (p. 165). This clear statement of conflict contrasts well with the SELF-ASSURANCE pole of the same factor. Persons with high scores on both Resisting and Accepting manifest the fact that they are conflicted in their interpersonal relationship with the Trainer. This conflict takes the form of ambivalence in emotional expression which is most likely caused by ambiguity or distorted perceptions of the "role" of the trainer, which suggest the operation of projective identifications of both negative and positive affect. The ambivalence is not restricted to the Impulse area, but pervades the Authority Relations area as well. High scores on both Dependency and Counterdependency

manifest conflict in relationship to the Trainer as an authority figure--an issue of power or control. In the dependency stance the fears and insecurities of opposing the authority of the Trainer, outweighs the security of submission; whereas in the counterdependency stance, the risk involved in arousing the wrath of the authority figure outweighs the servility of submission. Again, distorted perceptions are operative concerning how the Trainer manages to maintain control over the group. Ambivalence can be so great that the "conflicted" member when adopting a dependency stance will sometimes dramatically move from his dependent posture to an extreme counter-dependent position. "Conflicted" in this context means that the behavior is characterized by a high degree of compulsiveness. Level 1, which is a "direct" reference to the Trainer, coupled with Level 3, which is a "symbolic" reference to the Trainer "outside the group", show ambivalence in the levels of symbolization. In general, the composition of the AMBIVALENCE pole of Factor I clearly illustrates the ambivalence that is characteristic of residual oedipal conflicts that orient around authority and interpersonal relations.

The negative pole of Factor I is named SELF-ASSURANCE and is heavily loaded with ego-enhancing variables--#14 Self-esteem, and #10 Independence, even #3 Withdrawing is ego-enhancing in the context of Self-esteem and Independence, and in contrast with Identifying (Withdrawing's polar opposite) of the positive pole. Identifying, in the context of the AMBIVALENCE pole, suggests a security arrangement for the chaotic state of emotional instability in relation to

the Trainer; whereas Withdrawing, in the context of the SELF-ASSURANCE pole, suggests a cool detachment of the emotionally stable in relation to the Trainer. Persons with high scores on the variables which compose the SELF-ASSURANCE pole of Factor I are 'unconflicted' in the Authority Relations and Ego State areas. The category Withdrawing, while numbered among the hostile affect categories, in the context of Self-esteem and Independence, is best regarded as the appropriate strategy of the calm, emotionally mature individual engaged in reality-testing without the hindrances of distorted perceptions of, and disruptive affects toward, the Trainer. These categories, in the context of one another, manifest the autonomy of persons, unconflicted in their intrapsychic life--the "self-esteem" of the "self-assured ego", unconflicted in their relationship to authority figures--the "independence" which reduces rigidity of interpretation and response in the here-and-now situation, and unconflicted in their interpersonal relations--the "withdrawal" which is a pause for reflection on what is happening, and for developing new strategies to cope with the ever changing realities of group life, and not the "withdrawal" from the task and the M-L relationship which is characteristic of the ambivalence stance. These three categories, which form an unique interrelationship to make up the negative pole of Factor I, AMBIVALENCE vs. SELF-ASSURANCE are dispersed (with higher loadings) over three other factors (2, 4, and 5). Diversity of context give rise to subtle change of meaning as categories combine in intriguing ways. In general, the composition of the SELF-ASSURANCE pole of Factor I, clearly illustrates the processes involved in the disentanglement of

distorted perceptions concerning the Trainer; and the sometimes concomitant, if not necessary outcome, neutralization of disruptive, and chaotic affect.

FACTOR II

(+) DEPENDENCE-FLIGHT	(16 vars)	(20 vars)	(-) APPREHENSION	(16 vars)	(20 vars)
Withdrawal	.879	.742	Expressing Anxiety	-.636	
Dependency	.587	.453	Denying Anxiety	-.378	-.655
Depression	.402	.687			

Factor II, DEPENDENCE-FLIGHT vs. APPREHENSION measures an important intrapsychic and interpersonal reaction to the "role presentation" of the trainer. The Tavistock type of self-analytic group, oriented to the 'here-and-now', manifests unique member-leader relationships. The trainer, who adamantly refuses to engage in open dialogue with group members, elevates the anxiety level of some participants and causes a depressive reaction in others.

The Trainer outlines the task of the group: "We are here to observe behavior as it happens, and to understand it, and I am here to help you." The participants, who make various dependency pleas and adopt various ploys and strategies to 'seduce' the Trainer, will frequently misinterpret the helpful interventions of the Trainer, 'withdraw' from interpersonal communication with the Trainer, and manifest a depressive reaction in their intrapsychic life because of their 'helplessness' in the presence of the Trainer. Members, who have high scores on variables which compose the DEPENDENCE-FLIGHT pole of Factor II, become incapable of making a proper

evaluation of the Trainer's (or any member's) contribution intended to help them understand human behavior by his interpretations of his own and of the group's activity. The 'depressive reaction', 'flight', and 'dependency' distort and complicate all interaction unduly--it is the 'cop-out' which blocks insight into the on-going processes, and, (as will be shown later) prevents the communication of empathic response. This unique constellation of categories is possibly better explained in terms of Depression. Depression, which signifies helplessness, when coupled with Dependency, indicates an individual's total concern for the preservation of the Trainer; and leads to Withdrawing from anything that is disruptive, even the M-L relationship itself. Depression in this context contrasts well with Anxiety of the APPREHENSION pole, for the Anxiety reaction is concerned with self-preservation in the face of a 'dangerous' Trainer.

The APPREHENSION pole of Factor II shows the anxious reaction that may take place in certain members as they attempt to cope with the apperceived 'dangerous' situation. Anxiety as expressed and denied indicates a mobilization of internal responses to contend with an external danger. This type of apprehension is more a readiness to 'fight' rather than a prelude to 'flight'. Expressing Anxiety brings to awareness the dangerousness of the situation, whereas Denying Anxiety gives the respite required to reflect on new strategies to cope with the situation. The anxious reaction which emphasizes mobilization of inner resources contrasts well with the depressive reaction which manifests inability to control intrapsychic forces.

Two statements at the end of Session One clearly show the existence of this factor. The DEPENDENCE-FLIGHT reaction:

G: "He's (the trainer) supposed to be the big leader (Dependence), and he was going to lead us out of the desert (Withdrawal) and we were going to know what to do (Depression)."

The APPREHENSION reaction:

B: "No, (Denying Anxiety)but this is just the way I feel, I feel much happier when, you know, not (Denying Anxiety)when somebody (the Trainer) tells us what to talk about."

FACTOR III

(+)CONCEALMENT OF INNER DISTRESS vs (-)MANIFESTATION OF INNER DISTRESS

	(16vars)	(20vars)		(16vars)	(20vars)
Denying Depression	.766	.617	**Expressing** Anxiety	-.423	-.818
Denying Anxiety	.739	.291			
Withdrawal		.461			

Factor III, CONCEALMENT OF INNER DISTRESS vs. MANIFESTATION OF INNER DISTRESS, concerns the manners of dealing with inner tension; whether to adopt a strategy which conceals tensions from consciousness or from awareness of the group (either is done in vain); or to manifest the tension, admit the distressing impulses aroused by the threatening environment (but, to what avail?).

The CONCEALMENT OF INNER DISTRESS pole of Factor III arises from the commonly used defense mechanism--denial. "Denial" is sometimes coupled with "withdrawal"--another common mode of defense. The tensions, which arise from the group experience, although causing discomfort, are considered to be more easily handled through 'conceal-

ment', than admittance to consciousness or to the group. Concealment takes on many disguises--laughing off anxiety, denying reasons for depression, false expressions of confidence, shifts in 'dangerous' topics of conversation, and ignoring the interpretations of the Trainer. Possibly, the Tavistock training brings to consciousness many emotions of negative affect, the gloomier side of human beings, and in place of an adequate and appropriate response (a constructive analysis of the situation) the overwhelmed participants resort to denial-avoidance mechanisms.

The feelings are suppressed, and whereas the intention may be to avoid what is damaging to positive self-regard, the effect is blockage in positive or negative self-evaluation, and, in turn, evaluation of the group experience.

The MANIFESTATION OF INNER DISTRESS pole of Factor III has a single variable 'Expressing Anxiety'--this detracts from the symmetry of contrast with CONCEALMENT but shows the contrast nonetheless. Expressing Anxiety in this context reveals a readiness to admit the distressing elements of the situation--a prerequisite to their examination and evaluation. (Anxiety pervaded the participants throughout the entire life of the group, and appears to be a variable which enhances interpretation of the group experience; unfortunately, it also pervades the primary-factor pattern matrix it has a high complexity occuring with high loadings on three of five factors and, consequently, it doesn't enhance interpretation of the factor pattern matrix

FACTOR IV

CHALLENGE-FIGHT

	(16 var)	(20 var)
Moving Against	.906	.890
Independence	.671	.461
Level 1		.353

Factor IV, CHALLENGE -FIGHT is the only unipolar factor in the SAT Primary-factor pattern matrix and has an unique combination of categories-- Moving Against and Independence. It might be expected that Moving Against would combine with Counterdependency. Yet, in spite of the fact that both of these variables (Moving Against and Counterdependency) are of complexity one, they do not load on the same factor. Factor IV is probably better understood when interpreted in reference to Factor I. The Counterdependence in Factor I was directed against the 'role' adopted by the Trainer, which led to ambiguous perceptions; whereas, in Factor IV, the Moving Against is directed against the 'person' of the Trainer. Similarly the Independence in Factor I was characterized by a 'non-involvement' in the ambivalence expressed by some members; whereas, the Independence in Factor IV, although indicating freedom from the need of countering dependency-- a 'no-conflict' situation in regard to the Trainer in the Authority Relations area--doesn't indicate a conflict-free situation in regard to the 'person' of the Trainer in their interpersonal communications. Independence by definition indicates a conflict-free situation in relation to the Trainer as authority figure. Yet, in Factor IV this Independence does not preclude confrontation against the person of

the Trainer, whereas in Factor I Independence did preclude confrontation as indicated by the accompanying Withdrawing variable. Presumably, in the vortex of conflicts in which people may become enveloped, a person could be "unconflicted" in the Submissive--Dominance (Dependent--Counterdependent) dimension, and be "conflicted" in the dimension of Positive--Negative affect (Overpersonal--Counterpersonal) dimension; the issues at hand are quite different--in the former "control" and "power" are in vogue, in the latter "intimacy".

FACTOR V

(+) ENCOURAGEMENT	(16 var)	(20 var)	vs.	(-) DISCOURAGEMENT	(16 var)	(20 var)
Self-esteem	.822	793		Depression	-.508	-.290
Accepting		.303		Anxiety	-.312	

The ENCOURAGEMENT pole of Factor V conveys the Self-esteem of the unconflicted in their intrapsychic life in realtion to the Trainer; they have a good self-image. However, an analysis of the factor scores (cf. p. 60 ff.) indicates that a curvilinear relationship exists between scores on this factor and scores on a group dynamics test. The curvilinear relationship suggests that the good "self-image" of certain individuals is not based on a realistic appraisal of their performance. The DISCOURAGEMENT pole of Factor V indicates that some members become overwhelmed and discouraged; they have a poor self-image. In brief, high scores on this factor indicate moderate learnings on the group process analysis test, medium scores indicate high learnings, and low scores indicate low learnings. In general, high learners of group process are characterized by moderation on Factor V, ENCOURAGEMENT vs. DISCOURAGEMENT.

FACTOR VI

(+) EXPANSIVE SYMBOLIZATION vs.		(-) RESTRICTED SYMBOLIZATION	
	(20 var)		(20 var)
Level 4	.817	Level 2	-.926
Level 1	.539		
Level 3	.502		

Factor VI, EXPANSIVE SYMBOLIZATION vs. RESTRICTED SYMBOLIZATION, occurs only in the 20 variable solution. The "levels" Factor has unearthed a remarkable discovery upon examination of the frequency counts and proportions data on the levels. It is the perfect distinguisher between 'high' and 'low' interactors in small groups. In all cases of low interactors, the usage of Level 2 (symbolic reference to Trainer within the group) was significantly higher than that of high interactors. High interactors also use Level 2; but they balance their usage of symbolization across the four levels--Level 1, direct reference to the Trainer; Level 2, symbolic reference to the Trainer within the group; Level 3, symbolic reference to the Trainer outside the group; and Level 4, symbolic reference to oneself, trainer referred to directly or symbolically. This is 'remarkable', not in itself, but in the context of the various tests that were made on high and low interactors. A comparison of high and low interactors on four different tests showed no significant differences on any dependent variable. (cf. Park, 1971). The finding that 'expansive' vs 'restricted' symbolization distinguishes high and low interactors may not be earth shattering, but, nonetheless, worthy of comment.

Learning Outcomes: the Member-Leader Relationship and its Effect on Learning

Park (1971), and McLeish, Matheson, & Park (1972), did extensive research on learning outcomes in small groups. Three instruments were developed by these researchers to measure (1) the "understanding of group process"--Group Process Analysis Test (GPAT), (2) the "communication of empathic response--Human Relations Videotape Test-Free Response (KRVT-FR), and (3) the "recognition of accurate empathic response"--Human Relations Videotape Test-Multiple Choice (HRVT-MC). The present report makes use of these criteria to examine the effect of the "Member-Leader" relationship on learning. Identification of the low, medium, and high learners was made from the scores of SAT participants on the GPAT, HRVT-FR, and HRVT-MC.

In order to explore the effect of the Member-Leader relationship on certain learning objectives of the self-analytic treatment factor scores were obtained from the SAT factor structure matrix. A one-way analysis of variance of the factor scores for subjects in the low, medium, and high learner groups on the GPAT, HRVT-FR, and HRVT-MC was employed to examine differences observed between these three groups on various factors.

The analyses turned up several interesting differences between the three kinds of learners. Table 4.3 (p.62) presents a summary of those variables (factors) which showed significant F ratios. (Note: because the factors under consideration were reflected in the primary-factor pattern matrix and the factor structure matrix, from which the factor scores were produced, was not reflected, the factor poles are to be reversed in interpreting these tables.)

The results presented in Table 4.3 depict a curvilinear relationship for the GPAT learner group on Factor 5, ENCOURAGEMENT vs. DISCOURAGEMENT. Sheffe contrasts show that significant differences were found between low and medium learner groups ($p < .010$ for the 16 variable set, and $p < .015$ for the 20 variable set) and between medium and high learner groups ($p < .030$ for the 16 variable set, and $p < .049$ for the 20 variable set). The medium learner group is characterized by higher factor scores (i.e. high on DISCOURAGEMENT) than either the high or low learner group. The low learner group has low factor scores (i.e. high on ENCOURAGEMENT) and the high learner group has slightly higher factor scores (i.e. moderate on DISCOURAGEMENT-ENCOURAGEMENT) than the low learner group.

The results presented in the table also depict a curvilinear relationship for the HRVT-FR learner group on Factor 2, DEPENDENCE-FLIGHT vs. APPREHENSION. Sheffe contrasts show that significant differences were found between the low and medium learner groups ($p < .009$). The medium learner group is characterized by higher factor scores (i.e. high on APPREHENSION) than either the high or low learner group. The low learner group has low factor scores (i.e. high on DEPENDENCE-FLIGHT) and the high learner group has moderate factor scores (i.e. moderate on DEPENDENCE-FLIGHT vs. APPREHENSION)

The results presented in Table 4.3 again depict a curvilinear relationship for the HRVT-MC learner group on Factor 2, DEPENDENCE-FLIGHT vs. APPREHENSION). Sheffe contrasts show that significant differences were found between low and medium learner groups ($p < .0002$ for the 16 variable set) and between low and high learner groups ($p < .014$ for the 16 variable set). The medium group is characterized by higher

TABLE 4.3

Summary of Analysis of Variance Comparing Scores for Three Types of Learners on the GPAT on **Factor 5, ENCOURAGEMENT vs. DISCOURAGEMENT

GPAT Learner Group

Variable	Low $\bar{X}_L$	Medium $\bar{X}_M$	High $\bar{X}_H$	MS_w	df	F*	P
Factor 5 (16 var. set)	45.91	60.51	47.04	55.55	2	6.03	.008
Factor 5 (20 var. set)	45.82	59.32	47.24	52.98	2	5.33	.013

Summary of Analysis of Variance Comparing Scores for Three Types of Learners on the HRVT-FR on **Factor 2, DEPENDENCE-FLIGHT vs. APPREHENSION

HRVT-FR Learner Group

Variable	Low $\bar{X}_L$	Medium $\bar{X}_M$	High $\bar{X}_H$	MS_w	df	F	P
Factor 2 (16 var. set)	46.00	53.74	49.17	18.68	2	6.02	.008

Summary of Analysis of Variance Comparing Scores for Three Types of Learners on the HRVT-MC on **Factor 2, DEPENDENCE-FLIGHT vs. APPREHENSION

HRVT-MC Learner Group

Variable	Low $\bar{X}_L$	Medium $\bar{X}_M$	High $\bar{X}_H$	MS_w	df	F	P
Factor 2 (16 var. set)	44.59	54.62	50.05	13.14	2	12.78	.0002
Factor 2 (20 var. set)	46.97	55.12	55.02	34.79	2	5.39	.013

* MS for effects reproducible by $MS_w \times F$.
**In interpreting these tables reverse the factor poles.

factor scores (i.e. high on APPREHENSION) that either the high or low learner group. The low learner group has lower factor scores (i.e. higher on DEPENDENCE-FLIGHT) than either the medium or high learner groups. However, on the 20 variable set, Sheffe contrasts show a linear relationship. A significant difference is found between the low and high learner groups. The low learner group has lower factor scores (i.e. higher on DEPENDENCE-FLIGHT) than the high learner group, which is high on APPREHENSION.

In general, the factor scores indicated that, whether for learning group process (GPAT) or preforming and recognizing empathic response (HRVT-FR and HRVT-MC), high learners are characterized by moderation on Factor 5, ENCOURAGEMENT vs. DISCOURAGEMENT, and Factor 2, DEPENDENCE-FLIGHT vs. APPREHENSION. This aside contributes a morsel to our understanding of the characteristics of learners and ties in well with the finding of McLeish et al that high learners are "better adjusted, emotionally stable, less suspicious, more self-confident, and less frustrated than low learners. The results also show the utility of Mann's Member-Leader observational system in identifying and characterizing learners in small learning groups.

A very short summary: observational techniques as developed by Bales, Flanders, and Mann can offer immense assistance in understanding groups and in identifying learners in groups; their great value lie in bringing to attention certain relationships that would surely go unnoticed without the systematic codings and the

primary-factor pattern matrix that these codings produce. This summary isn't meant to cause closure or bring this research to conclusion, but conversely to open upon new avenues of approach to this complex phenomenon.

An Interpreation of the Primary-factor Pattern Matrix: Direct Communications Treatment

First, a disclaimer: the following interpretative account of the Direct Communications Treatment (DCT) based on the Carkhuff's model of "core conditions" in interpersonal processes, makes no attempt to explicate the structures of direct communications learning groups in general, nor the specific structure of the 'Carkhuff model'. In short, the obtained primary-factor pattern is specific to the observed DCT groups, based on the 'Carkhuff model' as adapted by the Leader of these groups.

The procedure involves the presentation of the two DCT solutions: (cf. Table 4.2, p. 65) (1) with five factors extracted from the 16 variable set; and (2) with six factors extracted from the 20 variable set (16 categories plus four levels). The factors are then considered one at a time. A decision was made to interpret five factors only (of the 16 variable set); since the main intention in computing the 20 variable set was not realized, i.e., a comparison with Mann's (1967) factor pattern matrix. The obtained primary-factor pattern matrix showed greater dissimilarity than similarity, when compared with Mann's factor pattern matrix.

TABLE 4.2

Primary-factor Pattern Matrix of the Direct Communications Treatment
(16 variable set)

		1	2	3	4	5
1	Moving Against	.322	.133	.037	.369	.229
2	Resisting	.242	-.205	-.033	-.881	.115
3	Withdrawing	-.106	.885	-.083	-.002	-.002
4	Guilt Inducing	.570	.265	.134	.002	-.075
5	Reparation	.088	.295	.201	.053	.421
6	Identifying	-.336	-.172	.019	.041	.975
7	Accepting	.087	-.198	.953	.022	.026
8	Moving Toward	.306	-.047	-.144	.358	.403
9	Dependency	-.362	.162	.716	-.062	.018
10	Independence	.115	-.247	.001	.094	.741
11	Counterdependency	.075	.212	-.056	-.141	.484
12	Expressing Anxiety	-.372	-.591	-.310	.383	-.215
13	Denying Anxiety	-.616	.170	.170	.144	.030
14	Self-esteem	.563	-.028	-.088	.077	.130
15	Expressing Depression	.083	.806	-.002	.234	-.127
16	Denying Depression	.441	-.448	.371	.307	-.299

Primary-factor Pattern Matrix of the Direct Communications Treatment
(20 variable set)

		1	2	3	4	5	6
1	Moving Against	.513	.170	-.038	.210	.339	-.055
2	Resisting	.013	-.201	-.059	-.859	-.079	-.042
3	Withdrawing	-.042	.839	-.056	.145	-.050	.002
4	Guilt Inducing	.454	.266	.056	-.090	.059	.054
5	Reparation	.326	.309	.139	-.028	.428	-.268
6	Identifying	-.095	-.047	.071	-.020	.743	.022
7	Accepting	.162	-.190	.916	.011	.119	.117
8	Moving Toward	.270	.052	-.142	.202	.522	.203
9	Dependency	-.034	.097	.665	.055	-.056	-.147
10	Independence	.080	-.134	.026	-.032	.787	.146
11	Counterdependency	.173	.247	-.098	-.213	.462	-.257
12	Expressing Anxiety	-.214	-.671	-.323	.391	-.157	-.223
13	Denying Anxiety	-.386	.114	.222	.309	-.035	-.119
14	Self-esteem	-.224	.122	-.076	-.043	.205	.862
15	Expressing Depression	.246	.771	-.037	.295	-.103	-.036
16	Denying Depression	.644	-.527	.262	.193	-.166	.064
17	Level 1	.511	.009	.020	.156	.417	-.074
18	Level 2	-.856	-.042	-.002	.030	-.063	.016
19	Level 3	.557	-.116	.017	-.006	-.026	.184
20	Level 4	.471	.196	.017	-.129	.100	-.011

FACTOR I

(+) AMBIVALENCE REACTION vs. (-) ANXIOUS DEPENDENCE REACTION

	(16vars)	(20vars)		(16vars)	(20vars)
Guilt Inducing	.570	.454	Denying Anxiety	-.616	-.386
Self-esteem	.563		Anxiety	-.372	
Denying Depression	.441	.644	Dependency	-.362	
Moving Against	.322	.513	Identifying	-.336	
Moving Toward	.306		Level 2		-.856
Level 3		.557			
Level 1		.511			
Level 4		.471			
Reparation		.326			

Carkhuff's "core conditions" of interpersonal process--empathic understanding, respect, genuineness, and self-disclosure--which are as baffling to communicate as they are enhancing to possess, are the formidable content, (the difficulty of which most people are reluctant to concede,) and unenvious task of the DCT leader to convey to the group. A teaching program designed to allow group members to learn experientially the discrimination and communication of Carkhuff's "core conditions" demands of the leader, not only ordinary facilitative skills, but also, a modelling of these "core conditions", which performance evidences the possession of high levels on each of these continua. (Each of the "core conditions" can be expressed as a continuum with five, progressively more facilitative, levels.) Each group member arrives on scene with his unique "level" on each of these continua, and they expect the leader to possess high "levels" on these same continua. The leader in his "role presentation" conveys the impression that he is a model of the "core conditions"; (he does in fact have impressive credentials, academically and personally;)

yet, his "role presentation" for some members appears incongruent with his "presentation of self" and consequently he is perceived ambiguously. Some members, detecting incongruent behaviors, perceive the leader as a controlling, manipulative figure rather than as a model of the "core conditions"; others, denying the threat of the leader, in their need for security, identify with him. Factor I, AMBIVALENCE REACTION vs. ANXIOUS DEPENDENCE REACTION, measures these important intrapsychic and interpersonal reactions to the "role presentation" and "presentation of self" of the leader.

The AMBIVALENCE REACTION pole of Factor I has no high loadings from Authority Relations categories, which clearly suggest that issues of control, power, or task are not relevant here. In the Impulse area, Guilt Inducing activities are directed against the perceived inconsistencies of the leader's presentation of self. He's not the paragon of "core conditions" that he is supposed to communicate. Guilt Inducing is expected to associate with Moving Against the "person" of the leader, who is sometimes perceived as "cool and aloof, detached and critical"; but both of these variables when associated positively with Moving Toward the leader, who is now perceived as "ready to cooperate, likes to participate, is warmhearted and outgoing," indicate the existence of ambivalent feelings in the Impulse area. In the Ego State area, Self-esteem is not in its pure state--not "the self-esteem of the self-assured ego", but tarnished by its association with Denying Depression. Yet, admittedly, a function of decreasing depression through mechanisms of denial is an attempt to enhance self-esteem. Whereas,

Self-esteem and Denying Depression are not an unexpected association in the Ego State area, they do indicate "ambivalence reaction" between members' intrapsychic reactions (self-assurance in relation to the leader) and their interpersonal reactions, especially their hostilities towards the leader as expressed in Guilt Inducing and Moving Against behaviors. The disequilibrium is obvious when members display warmth and regard (expressed by Self-Esteem, Denying Depression, and Moving Toward behaviors) to the leader, in a fashion somehow hopelessly entwined in the context of cold and punitive Guilt Inducing activities, and disrespectful, scornful, and sarcastic Moving Against behaviors. These members are saying to the leader: "See, we already possess these "core conditions"; so don't try to tell us how to be warmhearted; or else we'll show you how really nasty we are." Yet, in spite of all their ambivalence, these members show their commitment to the M-L relationship, which is of vital importance to their participation in the exercise.

The ANXIOUS DEPENDENCE REACTION pole of Factor I contrasts well with the AMBIVALENCE REACTION pole, especially in the Ego State area, and in its reverberations in the Impulse and Authority Relations areas. The high loadings of Denying Anxiety and Anxiety on the (-) pole of this factor indicate the intrapsychic concerns of certain members about the threatening position of the leader, and manifest their strategy of denying the danger, (which is perceived as an issue of power and control) by a Dependency submission, which, when coupled with Identifying, suggests that these members perceive the

leader as the possessor of the "core conditions" that he is trying to teach, or, at least, that he rather than some other member of the group is the person to lean upon. These members are saying to the leader: "See, we can 'parrot' the magical words that indicate the possession of the 'core conditions', and we can identify with and lean upon your expertise, but you mustn't threaten us with a situation which demands the genuine communication of these 'core conditions'".

The main contrast in the two opposite poles of this factor is the reaction in the Ego State area to the training environment and its reverberations in other areas. Members with high scores on the categories which compose the AMBIVALENCE REACTION pole perceive their helplessness in the situation, then deny it, develop or enhance their self-esteem, and react to the leader on a "person" issue, by friendly and unfriendly overtures; whereas, members with high scores on the categories which compose the ANXIOUS DEPENDENCE REACTION pole, perceive the threatening aspect of the exercise, then deny it, enhance their position by identifying superficially with the leader, and react to him on a "control" issue, by submitting to him.

FACTOR II

(+) DEFEATIST APPRAISAL	(16vars)	(20vars)
Withdrawal	.885	.839
Depression	.806	.771
Reparation		.309

vs.

(-) HOPEFUL EXPECTATION	(16vars)	(20vars)
Anxiety	-.591	-.671
Denying Depression	-.448	-.527

Factor II, DEFEATIST APPRAISAL vs. HOPEFUL EXPECTATION, measures an important attitudinal dimension of the M-L relationship. It gives a two-fold answer to the question: "How do you feel when faced with a controlling powerful leader"? Members who score high on the variables that compose the DEFEATIST APPRAISAL pole answer that the leader is an overpowering, overwhelming influence on group events; those who score high on the variables that compose the HOPEFUL EXPECTATION pole reply that they perceive the danger of the situation, but deny its overwhelming influence; they hope to overcome the stressful situation.

The DEFEATIST APPRAISAL pole of Factor II suggests an unbecoming strategy for certain group members. These members perceiving the powerful controlling influence of the leader, withdraw from interpersonal communication with him, and manifest a depressive reaction in their intrapsychic life, because of their "helplessness" in the presence of the leader. These members, having appraised the situation, become overwhelmed and discouraged, as manifested by their high scores on Depression, and as a result put little into and gain little from the group experience. It is not surprising to find the intrapsychic variable, Depression, associate with its complement in the interpersonal relations area--Withdrawing. Group members who have high scores on variables which compose the DEFEATIST APPRAISAL pole of Factor II become incapable of overcoming the emotional barriers they have erected in their relationship with the leader. These emotional blocks to learning prevent them from effectively engaging in what otherwise might have been

a profitable experience. The defeatist attitude, characterized by Withdrawing and Depression, is at odds with the successful operation of the group exercise; it distorts reality; it complicates all interaction unduly; it is the "cop-out" which blocks fruitful participation in the experiment, i.e., hinders the discrimination and communication of empathic response. The defeatist attitude also suggests that certain members are evasive of responsibilities, and tend to give up easily; they are likely to have low ego-strength; they keep the relationship with the leader from becoming too intense; they appear uncommitted, indifferent, and uninterested in learning the course content--direct communication skills, which they dearly need. This attitude is very difficult for the leader to contend with for he is hard put to reach those whom he has overwhelmed and put to flight.

The HOPEFUL EXPECTATION pole of Factor II suggests an optimistic strategy for certain group members. These members perceive the powerful, controlling influence of the leader, acknowledge its threatening aspects, but deny its overwhelming influence by their optimistic outlook. As was indicated in another context, denial mechanisms which decrease depression enhance self-esteem. Group members who have high scores on variables which compose the HOPEFUL EXPECTATION pole of Factor II are not easily discouraged; they put a lot into and gain a lot from the group experience. They are characterized by high ego-strength, and are capable of denying depressing emotional reactions which unduly disrupt intrapsychic calm. They, thereby, make an optimistic assessment of the realities of the group situation; and perservere in the group task in spite of its threatening character. In a word, these members

are high on group morale. This "hopeful expectation" attitude does a lot for the leader, who at more trying moments needs the confident reaction of these members, i.e., he needs people that he can "work" with.

FACTOR III

(+) LOYALTY			vs.	(-) LACK OF COMMITMENT		
	(16vars)	(20vars)			(16vars)	(20vars)
Accepting	.953	.916		Anxiety	-.310	-.323
Dependency	.716	.665				
Deny Depression	.371	.262				

Factor III, LOYALTY vs. LACK OF COMMITMENT, isolates two divergent reactions (which are not, however, diametrically opposed) to the leader in his capacity as authority figure. Categories signifying "rebellion" (vs. "loyalty") might give a better conceptual and polar contrast, but the data suggests (i.e., the single variable Anxiety) that LACK OF COMMITMENT is the more appropriate label for the (-) pole of this factor.

The LOYALTY pole of Factor III, suggests the not unusual strategy and somewhat typical reaction of a 'dependent' student when faced with an authority figure. Group members, who score high on Denying Depression, i.e., deny the helplessness of their situation, lean upon the trustworthy leader, accept his "role presentation", cooperate in the various role-playing exercises that he initiates, and, in a word, give him their loyalty. These members are characterized by their readiness to cooperate in the group task, and give initial support

to the leader's program of teaching "communication skills". Denying helplessness may take a little from a complete and total dependence, and is somewhat of a compromise solution which takes away the servility of the submission. High scores on Accepting clearly show member's acceptance of the leader's "role presentation" and their corresponding willingness to "work" within the confines that he delineates which, in fact, require submission to the procedures and course activities as he outlines them. Group members on the opposite pole of Factor III are not willing to concede to this apperceived servility.

The LACK OF COMMITMENT pole of Factor III, emphasizes the dangerousness of the situation--the oppressive, manipulative, and controlling features of the leader's role, but the strategy employed isn't characterized by rebellion against the leader's authority or resisting his "role presentation". It is simply a noncommitment to the loyalty reaction. Group members who score high on Anxiety indicate that the authority issue, although a source of external danger and internal stress, isn't worth the servile submission of the "dependents" nor the risk-taking of the "counterdependents", so they simply play the middle ground of noncommitment.

The control issue is central--members on the (+) pole know "Who the boss is" and grant their allegiance to him; members on the (-) pole also know "Who the boss is" but withhold their allegiance. Members on the (+) pole cannot bear rejection and find security in group task-oriented (dependent) behavior, whereas members on the (-) pole reject submission and in their desire for autonomy seek personal goals; yet, they lack the personal resources to attain these deviant

goals.

FACTOR IV

(+) AMBIVALENCE TO PERSON vs. (-) RESISTANCE TO ROLE

	(16vars)	(20vars)		(16vars)	(20vars)
Anxiety	.383	.391	Resisting	-.881	-.859
Moving Against	.369	.210			
Moving Toward	.358	.202			
Denying Depression	.307	.193			

Factor IV, AMBIVALENCE TO PERSON vs. RESISTANCE TO ROLE, isolates two divergent reactions which are based on two perceptions of the leader --the type of "person" he appears to be, and the "role" that he appears to assume. The distinction between "presentation of self" and "presentation of one's role" is difficult to operationalize and sometimes hopelessly confused, but, group members who cannot make, at least, an implicit descriptive distinction between "person"and "role" tend to be high on distorted perception of and ambivalent affect toward the leader.

Of the four variables which compose the AMBIVALENCE TO PERSON pole of Factor IV, two, Anxiety and Denying Depression, have associated to form the HOPEFUL EXPECTATION pole of Factor II; and the other two, Moving Against and Moving Toward have combined to form part of the AMBIVALENCE REACTION pole of Factor I. The association of the four variables on the AMBIVALENCE TO PERSON pole of Factor IV suggests that the "hopeful expectation" has been cast into doubt by the "ambivalence reaction" to the "person" of the leader.

The ambivalence towards the leader comes as no surprise, for he

presented himself in a manner which lends itself to distorted perceptions and ambivalence of affect. His dichotomous presentations of self and their inconsistencies with the learning objectives of the course are a ready explanation for the existence of ambivalence. How does a group member react to a leader who is perceived to be sometimes "cool and aloof, detached and critical," and othertimes, "ready to cooperate, likes to participate, is warmhearted and outgoing," in the context of a learning environment designed to teach experientially the communication of Carkhuff's "core conditions" of interpersonal processes? The leader expects affection and attention from the whole group, yet directs his affection toward selected members.

It is not surprising that Denying Depression (denying the "helplessness" of the situation) associates with Moving Toward; nor that Anxiety (inner distress and concern over a threatening situation) would associate with Moving Against the "person" of the leader. The surprise is that these four variables combine to form the positive pole of Factor IV. Although, conceptually considered, it is quite surprising to see these four variables combine, the "psychologic of explanation" which considers the operation of irrational and unconscious forces, especially projective identifications of positive and negative affect, illustrates the 'clarity' of the ambivalent reaction. Group members who have high scores on the variables Anxiety and Denying Depression which manifest intrapsychic hopeful expectations in relation to the leader, and who likewise have high scores on Moving Toward and Moving Against, which manifest the reality of an interpersonal quagmire in relation to the leader,

show that ambiguity and ambivalence operate between as well as within various areas of Mann's M-L Scoring System.

The RESISTANCE TO ROLE pole of Factor IV is composed of the single variable Resisting. The "role presentation" of the leader is clear--he is to teach direct communication skills in an experimental setting (small learning group context) through 'modelling' the "core conditions" and communicating them in various "role-playing" exercises. The "role presentation" of the leader doesn't meet the "role expectations" of the group members. The leader tries to create a warm, facilitative and relaxed environment opportune to the learning of the "core conditions", but rides roughshod over the members by his overwhelming influence, and his desire to maintain power and status in the group, which invariably places him at odds with the group members and the noble intention of the exercise. This autocratic control of a leader, who dominates the conversation, and directs in detail the unfolding of the various exercises, is met with resentment and rejection as evidenced by members who score high on Resisting.

FACTOR V

(+) MATURE OUTLOOK

	(16 vars)	(20 vars)
Identifying	.975	.787
Independence	.741	.743
Counterdependency	.484	.522
Reparation	.421	.462
Moving Toward	.403	.428
Level 1		.417
Moving Against		.339

Factor V, the MATURE OUTLOOK, is a unipolar factor, which highlights independent thought and positive affect. Group members with high scores on Identifying, Reparation, and Moving Toward have successfully disentangled their distorted perceptions of and neutralized their disruptive affect towards the leader. The Independence of these members is, however, an insecure possession, still struggling to maintain and sustain itself by Counterdependency activities.

The absence of Accepting suggests that the "role presentation" is not of concern; whereas the presence of the other three affection categories (Reparation, Identifying, and Moving Toward) suggest that the group is task-oriented and ready to satisfy the emotional output requirements which are necessary to learn the communications skills.

Making Reparation is clearly the disentanglement variable for it is the process of undoing the hostile impulse expressions that have been directed towards the leader. It is the complement in the Impulse area, of the "denying" variables (Denying Anxiety, and Denying Depression) in the Ego State area.

Identifying suggests that the group members take on part of the attitudinal dispositions, interpersonal style, and value orientations of the leader, which indicate an openness to learn the content of the direct communications learning environment. In general, the members want to emphasize their similarities with the leader.

Moving Toward suggests that the group members want to exhibit positive affection toward the "person" of the leader, without the cumbersome ambivalence that was present in Factors I and IV.

These three affection variables (Identifying, Reparation, and Moving Toward) which highly associate without their corresponding negative counterparts, clearly indicate the effect of disentanglement and neutralization in the Impulse area.

The Authority Relations area is also stabilized as evidenced by the prominence of Independence activities, but a slight conflict still remains, since Independence is sustained by Counterdependency activities. Group members who score high on Independence free themselves from the leader's overwhelming influence and power; and when Independence associates with the affection variables (Identifying, Reparation, and Moving Toward) then this is the "ideal ground" for the fruition of the "core conditions of interpersonal processes". The existence of Counterdependency and its occurrence on Factor V, the MATURE OUTLOOK, is based on two reactions of the leader: (1) the leader usually reacted to hostility with hostility; thus he didn't succeed well in neutralizing the hostility directed towards him; and (2) the leader, when challenged by group members reacting against the task (by lack of cooperation in role-playing activities and other leader initiated activities) was never overwhelmed by the challenge. Thus, the acts of Counterdependency, when associated with the Independence stance, are reality-based and aimed more at the <u>denial</u> of, rather than the destruction, of the existing authority structure.

The MATURE OUTLOOK is similar to Mann's ENACTMENT wherein persons scoring high on Identifying and Independence are said to "enact the leader's role". In the direct communications treatment, these group

members assess the leader's contribution; and although not enthralled, they attempt to carry out the discrimination and communication of the "core conditions", especially empathic understanding--the designated task of the DCT. These members are outstanding (in comparison to their group peers) in their cooperation in the group task, and are generally found to be warmhearted and outgoing, and genuinely attempt to practice the communications skills. The high scoring members on Independence increase their competence in interpersonal relationships; yet, not without using the leader as a model as evidenced in the high Identifying, Reparation, and Moving Toward activities.

A Concluding Remark on the Factor Analytic Interpretations

The intention in the interpretations of the factor structure of these treatments (SAT and DCT) was not to outline the structure of the SAT and DCT as determined by the experimental design, or as conceptualized and interpreted by the leaders before they entered the learning labs; but to outline the psychological, group dynamic structure of these treatments. The interpretation of the factor structure, then, had to account for the "role presentations" and "presentations of self" of each leader, with their specific training program, all of which were reacted to by group members, who had their own "roles" to develop, "selves" to present, the outcome of which may be at odds with the intended learning outcomes of the experiment. The upshot of all this is that the factor analytic interpretation is specific to a "treatment", which is highly influenced by the group members whom it is supposed to affect.

CHAPTER 5

A Study of Group Development

Introduction

In the previous chapter the psychological structures of the self-analytic and direct communications treatments were interpreted from two separately derived factor pattern matrices. In the present chapter the same four groups which were subjected to the above-mentioned treatments are studied individually (SAT1 & SAT2; DCT1 & DCT2) and in comparison within a treatment in an attempt to understand the phenomena called group development.

The data for the four groups were tested by a one-way analysis of variance (ANOVA) repeated measures design, and by various tests for trends. The one-way ANOVA isolated the statistically significant variables (across thirteen time intervals) of Mann's Member-Leader Observational System. The test for trends indicated the statistically significant trends which were used to estimate the number of phases which occured over the life of the four groups, and also the entry and duration of each phase across certain time intervals. These estimations were facilitated by plots of the variables across thirteen time intervals.

The two SAT groups, as well as the two DCT groups separately, showed a remarkable similarity in terms of time intervals and phases; however, an equally remarkable dissimilarity is shown in the trends of the categories across the phases.

Before the group development is outlined the investigator presents his position vis-a-vis an impressionistic or a descriptive report and opts for the latter. However, in spite of the emphasis on

a statistically based descriptive report, it is soon realized that clinical impressions invariably become wedded with the data, and has the happy effect of enhancing the report.

Then an account of the four groups is given: first, the two SAT groups separately and in comparison, and then, the two DCT groups separately and in comparison.

A most astonishing feature of the Member-Leader (M-L) scoring system is that it can illustrate and demonstrate the existence of group processes and phase movements. This relationship, although isolated from other important roles and interactions assimilates a large proportion of the momentum of the group because it is coded by "symbolic" as well as "direct" referents to the leader in highly relevant Impulse, Authority Relations, and Ego State areas. The constant flux of group phenomena is reflected in the M-L relationship as the leader is perceived as (or, through the mechanism of projective identification, is concocted to be) an object of love and hate, of power or impotence. The affective domain, dominated by the presence of the leader, is group formative and group cohesive, not with a constant progression or inevitable chronology, but within a state of continuous change brought about by fluctuations in disintegrative and group anomic forces. The M-L relationship, as observed in this study, changes over time and offers impelling evidence for the existence of the phenomenon called "group development".

The data for this study of phase movement were generated (using Mann's sixteen category system of the M-L relationship) by coding each of four groups across fifteen fifty-minute sessions. Two of the training groups were given a Self Analytic Treatment

(SAT) and the other two were given a Direct Communications Treatment (DCT). The forty-eight students involved in this study were randomly assigned to various treatments as illustrated:

GROUP/ TREATMENT	PARTICIPANTS	SESSIONS
SAT1	n=12	1 -- 15
SAT2	n=11	1 -- 15
DCT1	n=12	1 -- 15
DCT2	n=13	1 -- 15

The frequency data obtained from coding these groups with the M-L scoring system were standardized across the sixteen categories to 1, i.e. proportionalized. The base number was the total number of acts scored by each member in a particular session.

In order to avoid the effects of erratic fluctuations in the data, and to overcome the problem of 'missing persons' during a particular session, a system of three-session "moving averages" was utilized. This flexible device is commonly used in econometrics for describing growth or decline in a time series. It is particularly effective if the trend of a series is very irregular. Averages are normally computed for an odd number of time periods and are plotted in the center of the time span each represents. By averaging out the highs and the lows a smoothing of the data results (Clark & schkade, 1969). The computation consisted in averaging the frequency counts on each of the sixteen variables for sessions one, two, and three to form the first data point; then averaging sessions two, three, and four to form the second data point, and so on. The number of moving averages for this study was thirteen--two less than the number of sessions. These

frequency data were scaled across the sixteen categories so that they represented proportions summed to one.

The exploratory nature of this study of phase development phenomena urged the generation of a variety of experimental variations of the over-all experimental design. A one-way Analysis of Variance (ANOVA) with thirteen repeated measures (the "time sequence" is a "fixed" independent variable, and the subjects are randomly assigned) was computed on each of the four groups separately; a two-way ANOVA with thirteen repeated measures (factors A and B are "fixed", and the subjects are randomly assigned) was computed on the two SAT groups combined, as well as the two DCT groups combined; and finally, a two-way ANOVA with thirteen repeated measures was computed on the four groups (two SAT and two DCT) combined.

Table 5.1, p.184 summarizes the one-way ANOVA computations for variable #12 "Expressing Anxiety"--data are from SAT1. The table also gives the "Coefficients in Tests for Trend" as adapted from Fisher & Yates (1953) and the "Summary of Analysis of Variance of Trends". The error mean square in the ANOVA summary is pooled; whereas, the error term in the ANOVA of Trends is partitioned. These notions will be more carefully explicated upon examining Table 5.2, p.185. (Both of these tables are for explanatory and illustrative purposes only; the data for the study will be presented in more highly summarized formats.)

Table 5.2 summarizes the two-way ANOVA computations for variable #12 "Expressing Anxiety"--data are from SAT1 & 2. The table also presents the "Coefficients in Tests for Trend" and the

"Summary of the Analysis of Variance of Trends". In the ANOVA summary, the error mean square "Subjects within groups" is based on the pooled "sum of squares between subjects" tested with the same group. The second error mean square "B x subjects within groups" is based on the pooled "subject x time sequence sum of squares". This error mean square is appropriate for testing the significance of the B effect, i.e., the time sequence effect, and the AB interaction, i.e., groups x time sequence mean squares. Our primary interest is in the B effect and the AB interaction. The significance or lack of significance of the AB interaction tells us whether or not the trend of the time sequence means is of the same form for the various levels of A. (Edwards, 1968).

In this study of phase movement, an ANOVA of Trend was done to examine the 'trend' of a series of means of Mann's M-L category system across thirteen time intervals. The primary objective is to examine the trend over time. The composition of a particular group is constant--the same group members and the same trainer over the fifteen sessions--and any difference found among the series of means would be a manifestation of group process or phase movement. The trend may be either upward or downward with a steep or gradual gradient, and/or may have a certain degree of curvature with a sharp or gradual bend. The ANOVA of Trend indicates whether the 'trend' occurs as a result of random variation or whether it meets the requirements of statistical significance. The method of trend analysis as described in this study is not primarily concerned with "fitting"

a polynomial equation to the data but with determining whether certain characteristics of the trend of the means are a statistically significant or a random variation.

The technique of trend analysis used in this study consists in partitioning the sums of squares (SS) and degrees of freedom (DF) of the over-all ANOVA for "within subjects" variation into its various trend components--for instance, "within subjects linear, quadratic, cubic, and quartic", and derivatively "B linear [quadratic, cubic, and quartic]", "AB linear [quadratic, cubic, and quartic]", and "B x subjects within groups linear [quadratic, cubic, and quartic]". The SS and DF are additive for corresponding components and will be numerically equal to the corresponding over-all variation. Table 5.2, p.185 clearly illustrates this technique. The effect of this technique is to give more "power" to the test, especially if there are any serious questions concerning the homogeneity of these components. This method of partitioning the interaction is particularly appropriate in attempting to interpret differences in shapes of profiles. If there is a linear [quadratic, cubic, or quartic] interaction, then this value indicates that the linear [quadratic, cubic, or quartic] components of the trends for the two groups (SAT1 & 2, for instance) differ significantly. A number of tables show the variation due to linear, quadratic, cubic, and quartic trends for the B main effect and the AB interaction, as well as the over-all ANOVA, and their corresponding significance levels. The profiles of means for these data are plotted.

Two important questions come to mind: 1. What does a trend analysis do? and 2. Why do a trend analysis on a time sequence study? Through the use of polynominals of varying degree a stable base is established upon which the irregularities of experimental data may be described. A study of differences in patterns (of a series of time sequences) which are made manifest by AB interactions, make it necessary "to define dimensions in terms of which relatively irregular, experimentally determined profiles may be described" (Winer, 1962, p. 353). Although a multiple individual comparison of means may also be an appropriate way to analyse over-all variation, a trend analysis was selected to indicate the direction and curvature of change over time. The ANOVA of Trend in this study served two main purposes: (1) selection of particular variables for contrasts and similarities; and (2) estimation of the number of phase movements which most adequately fit the data. Although this may be accomplished at a specified significance level for a single variable (category), for all variables, taken together, of the sixteen category system the estimated number of phase movements required a rational assessment of the data. But, before this, a short discussion of the homogeneity assumptions (specifically, constant correlation between pairs of observations) required for valid F ratio tests on repeated measures designs is necessary.

The ordinary F ratio test assumes homogeneity of variance-covariance matrices and has a positive bias if these assumptions are not satisfied; i.e., too many significant decisions will be made.

The conservative test errs on the side of making the critical value larger than should be the case, and is negatively biased; i.e., too few significant decisions will be made (Winer, 1962).

Attempts were made to carry out tests of homogeneity of variance-covariance matrices; but, unfortunately, the available program didn't compute the test. This occurrence (or more properly, non-occurrence) was probably due to a smaller number of subjects than variables (the repeated measures factor in this instance); or, more likely, because the scale of measurement was in terms of proportions, which, according to Winer, generally does not provide homogeneity of variance.

The advantage of the conservative test is that it avoids assumptions about equal covariances in the pooled variance-covariance matrix. If, in using the conservative test, rejection of the null hypothesis is indicated, then this result can be adopted, since the ordinary test will yield the same result. Upon finding contradictory results, i.e. a non-significant conservative test and a significant ordinary test, the homogeneity of variance-covariance should be tested to determine which set of degrees of freedom is really appropriate. (Dayton, 1970). If the data satisfy the condition of homogeneity of variance-covariance the ordinary testing procedure is indicated; if not, the conservative testing procedure is indicated. The critical values for significant F-ratios underlying the ordinary and conservative tests for the data of this study are presented in Table 5.3, p. 186; and the data are summarized in Tables 5.4-5.10, pp. 188-194.

The state of ambiguity, (created by a non-significant conservative test and significant ordinary test) which couldn't be resolved by

a test of homogeneity of variance-covariance matrices, placed the investigator in a dilemma-whether to 'go' with the conservative test risking loss of significant findings; or, to 'go' with the ordinary test risking statements of "confidence" about random variation. The investigator decided to disentangle the situation by accepting the results of the "ordinary test" as well as the concomitant risk of making type I errors on certain variables. This decision was based on Winer's (1962) suggestion concerning tests for trends and generalized to repeated measures designs (admittedly, a possible distortion of Winer's thought; but, more justifyingly, in keeping with his open attitude toward reporting all research findings):

> However, one should not hesitate to present a complete description of experimental findings, even though some of the tests on parts of nonsignificant over-all variation may be unduly subject to type I error. (p.367)

Mutatis mutandis, even though the "ordinary test" in repeated measures designs may be unduly subject to type I error, a complete report of the experimental findings of this study is made.

ANOVA of Trend and Estimation of Number of Phases

The complexity of group interaction with its unique history, as well as the complexity of group treatment with its unique effects, appear too overwhelming to be adequately described. The description of group process and phase movement using the instrumentation of Mann's M-L Scoring System raises almost insurmountable difficulties of summary, selection, and omission of available data. However, by setting up various criteria, where the parameters are considerably less than the dimensions of group phenomena, a reasonably coherent

account of what has transpired can be accomplished.

The criteria used in the estimation of the number of phases are the following:

1. a significant F ratio of the over-all ANOVA;

and 2. a significant F ratio of the ANOVA of linear [quadratic, cubic, quartic] trend.

The rationale for using the first criterion is obvious--to base the estimate on statistically significant variation. (The over-all ANOVA F ratios are presented in the Tables 5.4-5.10, pp. 188-194, for all the variables in Mann's M-L Scoring System). The rationale for using the second criterion is also to base the estimate on statistically significant variation; and, specifically, ANOVA of Trend is used to demonstrate and illustrate phase movement--like in the various polynominal equations used in the tests for trends, a change in sign indicates a higher degree, so likewise, in the data of this study, a change in sign (direction and curvature) indicates a change of phase. For instance, variables showing a significant F ratio for linear trend (one change of sign) indicates that one phase could adequately describe the data; variables showing significant F ratios for quadratic trend indicates that two (cubic ... three, and quartic ... four) phases could adequately describe the data. Whenever more than one solution was available the quartic solution was selected.

This study, in contrast to Mann's (1967) procedure of using a single factor as criterion: Factor 1, ENACTMENT vs. DEPENDENT COMPLAINING as criterion or descriptor of the six phases and Dunphy's (1968) procedure of arbritarily deciding on a certain time interval as a phase,

lets all the significant variables contribute to the determination of the number of phases.

The use of the aforementioned criteria is insufficent by itself in estimating the number of phases for it measures one vector (variable) at a time. A rational assessment of the matrix of significant variables of Mann's M-L Scoring System was required to determine the number of phases. This "rational assessment" involved an examination of the tests for trends of the 16 variable matrix of the various experimental designs (cf. p. 83) for a composite picture of phase movement. This study does not concern itself with presenting a composite picture of group development for the categories didn't show up so characteristically as to warrant the formulation of a theory of group development, or even the embryo of a theory of group development. Rather the concern is an appropriate estimate of the number of phases which most adequately describes the phase movements in these groups. This procedure ignores individual variation of persons and uniquenesses of groups; and, although the evidence is not too cogent, an evaluation is possible. This estimate enjoys considerably greater probability of accuracy than a clinical assessment without a statistical base. (The nature of this research project urges the reader to engage in a creative interaction with the total report—the verbal report coupled with the numerous tables and figures as suggested by the Index and Cross References table [cf. Table 5.11 p. 187].)

Examination of the Analysis of Trends F ratios on Mann's M-L Category System shows that:

for SAT1 (cf. Table 5.12, p.195) of the twelve statistically

significant categories eight manifest statistically significant linear trends (four ... quadratic trends, seven ... cubic trends, and four ... quartic trends). The profiles of means for these data are found in Figs. 5.1-5.4, pp. 204-207.

for SAT2 (cf. Table 5.13, p.196) of the twelve statistically significant categories eight mainfest statistically significant linear trends (six ... quadratic, six ... cubic, and eight ... quartic trends). The profiles of means for these data are found in Figs. 5.5-5.8, pp. 214-217.

for SAT1 & 2 (cf. Table 5,14, p. 197) of the twelve statistically significant categories eight manifest statistically significant linear trends (one ... quadratic, three ... cubic, and three ... quartic trends). in the B main effect; and eight manifest statistically significant linear trends (seven ... quardatic, eight ... cubic, and six ... quartic trends) in the AB interaction effect. The profiles of means for these data are found in Appendix D5.1-D5.4, pp. 247-250.

for DCT1 (cf. Table 5.15, p. 198) of the nine statistically significant categories five manifest statistically significant linear trends (four ... quadratic, five ... cubic, and two ... quartic trends). The profiles of means for these data are found in Figs. 5.9-5.12, pp. 230-233.

for DCT2 (cf. Table 5.16, p. 199) of the eight statistically significant categories five manifest statistically significant linear trends (four ... quadratic, three ... cubic, and four ... quartic trends). The profiles of means for these data are found in Figs. 5.13-5.16, pp. 238-241.

for DCT1 & 2 (cf. Table 5.17, p. 200) of the seven statistically significant categories six manifest statistically significant linear trends (six ... quadratic, five ... cubic, and three ... quartic trends) in the B main effect; and three manifest statistically significant linear trends (one ... quadratic, three ... cubic, and five ... quartic trends) in the AB interaction effect. The profiles of means for these data are found in Appendix D5.5-D5.8, pp. 251-254.

for SAT1 & 2 and DCT1 & 2 (cf. Table 5.18, p. 201) of the ten statistically significant categories seven manifest statistically significant linear trends (five ... quadratic, seven ... cubic, and four ... quartic trends) in the B main effect; and seven manifest statistically significant linear trends (eight ... quadratic, eight ... cubic, and eight ... quartic trends) in the AB interaction effect. The profiles of means for these data are found in Appendix D5.9-D5.12, pp. 255-258.

An important feature of trend analysis is that the linear, quadratic, cubic, and quartic tests for trends are statistically independent of one another; and, whereas, a statistically significant linear indicates a one phase hypothesis as adequate for a description of the data, a statistically significant quadratic (cubic or quartic) trend adds predictability to the linear (quadratic, or cubic) trend and indicates a two (three or five) phase movement hypothesis as adequate for a description of the data. Whenever more than one solution is available the quartic solution is selected. A problem arises in restricting analysis to linear, quadratic,cubic, and quartic trends. It is this: if phases are differentiated and

determined by trend then how does one know whether greater degrees of polynominals than quartic are "more adequate still" to determine the number of phases? Dayton (1970) says:

> It is rarely of interest to investigate regression even up to a quintic, since the form of the relationship becomes exceedingly complex. (p. 52).

In general, most of the statistically significant variation is accounted for by the first four tests for trends. Winer (1962) indicates that a good procedure is to "pool" the data of higher degree polynominals to check for significance of over-all curvature of higher order trends; but this procedure is of no value in a study of phase development. Other researchers of group development like Bennis and Shepard (1964) developed a theoretical model of six sub-phases; Dunphy (1968) arbitrarily decided on a six phase model; and Mann (1967) developed a six phase model (which he reduced to five in his clinical description) based on the factor pattern of his data.

From a consideration of the ANOVA of trends of the data of this study, and the models of other researchers on small group phenomena, a reasonable assessment of the data ugres the postulation of five phases as adequate descriptior of the phasic character of these groups. Whereas the quartic trend indicated a four phase hypothesis, in this study, the initial data point was regarded as an introductory phase, wherein the group members become oriented toward one another, and from which the remaining phases evolve as indicated by the trends.

Upon attaining a reasonable estimate of the number of phases which occurred over the life of the four groups, the next step is to determine the entry and duration of each phase across the thirteen time intervals. As is evidenced in a perusal of the "plots" of this

study, phase movements are not necessitated to follow some inevitable chronology. Whereas, the number of phases are common to all groups in this study, their entry and duration in the life of the various groups are not invariant but vary according to the uniqueness of the groups.

Examination of the plots of the means as coded on Mann's M-L Scoring System across thirteen time intervals show that:

for SAT1 (cf. Figs. 5.1-5.4 pp. 204-207) the best estimate of the start and duration of the five phases is based upon the statistically significant quartic trend of category numbers 2, 9, 12, and 15, which indicate that the corresponding phase and time intervals are as follows:

Phase	I	II	III	IV	V
Time Interval	1,2	3,4	5,6,7	8,9,10	11,12,13

For SAT2 (cf. Figs. 5.5-5.8, pp. 214-217) the best estimate of the start and duration of the five phases is based upon the statistically significant quartic trend of category numbers 2, 3, 7, 8, 9, 11, 12, and 15, which indicate that the corresponding phase and time intervals are as follows:

Phase	I	II	III	IV	V
Time Interval	1,	2,3,4	5,6,7	8,9,10,11	12,13

for DCT1 (cf. Figs. 5.9-5.12, pp. 230-233) the best estimate of the start and duration of the five phases is based upon the statistically significant quartic trend of category numbers 7, and 9, which indicate that the corresponding phase and time intervals are as follows:

Phase	I	II	III	IV	V
Time Interval	1	2,3,4,5	6,7,8	9,10	11,12,13.

For DCT2 (cf. Figs. 5.13-5.16, pp. 238-241) the best estimate of the start and duration of the five phases is based upon the statistically significant quartic trend of category numbers 2, 9, 11, and 15, which indicate that the corresponding phase and time intervals are as follows:

Phase	I	II	III	IV	V
Time Interval	1,2	3,4,5	6,7,8	9,10,11	12,13.

The following table depicting the four groups across the five phases illustrates a remarkable similarity, in terms of time intervals and phases, between the two groups within their respective treatments, and a fair similarity among the four groups--treatment differences notwithstanding.

Phase	I	II	III	IV	V
SAT1	1,2	3,4	5,6,7	8,9,10	11,12,13
SAT2	1	2,3,4	5,6,7	8,9,10,11	12,13
DCT1	1	2,3,4,5	6,7,8	9,10	11,12,13
DCT2	1,2	3,4,5	6,7,8	9,10,11	12,13

Up to this point, the analysis has shown the similarity in number of phases, and the similarity in their start and duration. One might ask: "Where has all the variation gone?" As the investigator was so likewise the reader may be astonished upon viewing the plots of two statistically significant trends of the same "degree" of curvature to find the categories represented move either in opposite direc-

tions, the one with a sharp and the other with a gradual bend. But, before undertaking a description of phase development, which primarily considers the disposition of the category system during the time interval of a particular phase, (i.e. views the categories vertically) a description of group process, which primarily considers the disposition of the category system across all the phases (i.e. views the categories horizontally) is done. This distinction between "phase development" and "group process" is made to bring both dimensions, within phases and across phases, under analysis; both concepts, and the realities they represent, are interactive and are synthesized in the one phenemenon--group development.

Selection of categories to illustrate group process:

The criteria used in the selection of categories, which produce relevant and meaningful contrasts and similarities, to illustrate the occurrence of group process, are the following:

(1) a significant F ratio of the over-all ANOVA;

(2) a significant F ratio of the ANOVA of linear [quadratic, cubic, or quartic] trend; and especially the AB interaction effect of linear [quadratic, cubic, or quartic] trend, which shows disparity in shapes of profiles of a particular category across the groups in the various experimental designs of this research project.

(3) a significant, or in select cases, a high positive or negative correlation between categories selected for detailed study. (The treatment means derived from the

analysis of variance across the thirteen time intervals were converted to Z scores and plotted.)

(4) an overlay of the profiles (plots) of the variables under comparison to see whether they were appropriate for the analysis of group process. This criterion is based more upon impressionistic and intuitive vision than rational thought; and allows for the emergence of certain unstated, latent criteria (or is this possibly another expression for researcher bias?) like--a certain desired symmetry, an aesthetically appealing contrast, or a conceptually appealing contrast; and avoids or omits certain contrasts which are disharmonious, and awkward to explain. This criterion is considered in relation to the other criteria, which minimizes the risk of researcher bias, and enhances the opportunity of creative interaction with the data.

In general, a significant F ratio (on the over-all ANOVA and the ANOVA of Trends) of categories, (measured across thirteen time intervals) whose means are converted to Z scores, which then are tested for significance of correlation and then illustrated through the use of plots, places the data in ideal form for comparison among categories within and between groups.

The investigator was faced with a choice--whether to proceed with an impressionistic report of group development, or a descriptive report--an analysis of the data as encapsulated by Mann's M-L Scoring System. Impressionistic reporting can produce lively accounts by

engaging in a chit-chat with the reader on the nature of groups in general, by going back to the content (videotapes, transcripts, and anecdotal materials) describing what was said, themes and fantasies which occured, personalities of the members and the roles they adopted, the unique situations and issues that evolved over time--such content is quite interesting, fascinating, and pleasurable, and is of particular interest in explaining social-role development, but doesn't seem to be the most efficient way to describe and report phase development and group process. In a word, impressionistic reporting is a mosaic of clinical intuitions which weaves the beautiful tapestry called group development. The main problem, is that impressionistic reports may use immense amounts of data and summarily dismiss or ignore them by returning to content, (possibly to try to make sense out of their significant findings) and risk entwining random variation into the "tapestry". Unless in the hands of a scientifically oriented researcher, impressionistic reporting invariably produces a "fabrication of" rather than the "fabric of" group development. To go back to transcripts and videotapes may produce some interesting materials, but the main message would be lost for the process is the message in a study of group development. This assessment is meant as no diatribe or denigration of impressionistic reporters who delineate group process in terms of social-role development or sub-group formations, for the investigator is aware that "social-role development" or "sub-group formations" and "phase movement" are the interactive concomitants

of person and process in group development; rather, the assessment is meant to set in contradistinction the option of the investigator--a descriptive report of the data.

A descriptive analysis of the data can utilize the clarity that the restrictive factorial designs emit. Even though "social-role development" is the reverse side of "phase movement" it cannot use ANOVA designs with repeated measures because an "error" term, (required to form the denominator for the "subjects within groups'" F ratio,) cannot be isolated; whereas in a study of group process or phase movement these designs may be utilized. The scientifically interesting occurrences in groups are not the erratic (random) behaviors of individuals; but the process--the phase movement, the dynamic that pervades the group setting. Even the scientific study of "social-role development" is not greatly concerned with the uniquenesses of individual persons, but with persons who are assessed as most suitable to carry the process, to move the group through the phases.

A descriptive analysis of the data using ANOVA designs can isolate phase movement or group process from social-role development. The point is that phase movements and group process can be described without reference to social-role development, and concomitantly without the risk of interpreting confounding sources of variation. In a word, descriptive reporting, in the present instance, is a fragmentary account of statistically significant variations, which await the rational inferences of the investigator to demonstrate the existence of group process and phase movement. "The process is the message"

(of all persons, on all categories, across all sessions) to redesign and recontexture McLuhan's dictum: "The medium is the message." The process is the message of the data across all sessions; and the content of this message is that there is such a phenomenon as phase movement or group development.

Verbalizations, in this study, are about the data, for if the process has been accurately and reliably encapsulated by Mann's M-L Scoring System, why return to the more general form of the data where the process is concealed. By returning to content, the message that has been extracted by a process analysis is reduced to the chaotic state of unisolated error; and the probability is increased that the investigator will "insightfully" focus upon "interesting details" of random variation.

What is required in explication of the data is the verbal analogue of the orthogonal polynomials used in the test for trends, or the verbal analogue of the profiles of categories across sessions. It is thought that the word "pattern" approximates verbally the algebraic form and structure of polynomial equations. Thus, profiles of linear [quadratic, cubic, quartic] trend, can be referred to as the linear [quadratic, cubic, quartic] pattern. The four groups exhibited different patterns of performances over the sessions.

Categories can be conceptualized as media with a specific qualitative emotional pattern. The emotional life of the group, expressed in word and gesture, is extracted from the group and encapsulated in a particular medium (category). That medium is coded quantitatively by the M-L Coding System; and, although one may

muse: "Where has all the feeling gone?" as he looks at tables of means of quantified emotion, if the "plots" are rightly considered, the intensity of the feeling, the time of its occurrence, its duration, and its relationship to other emotional patterns across the thirteen time intervals can be seen at a glance. Such a perception of emotional patterns of a group (or a number of groups) across time intervals would take a considerable perusal of transcripts and long hours of viewing videotapes to achieve.

The message of the quantified emotional life of the group (i.e. the data that are generated by Mann's M-L Coding System) is that the emotional life of the group changes over time in characteristic and not-too-characteristic manners; and that these changes can be recognized and described. The many fluctuations of emotional patterns, paradoxically, are held constant by certain parameters of group process which regulate the entry, duration, intensity and exit of a variety of emotions.

The unfolding of group process is affected not only by the personality constellation of the group members, but also by the nature of the group treatment, the social roles that are developed, the sub-groupings, and the issues of importance to the group. Group process is primarily affected by the single entity called "the group."

The criteria, as outlined on p.95, i.e., (1) significant F ratios of over-all ANOVA; (2) significant F ratios of ANOVA of Trends; (s) significant or high correlations; and, (4) an overlay of the plots, are applied to the data (as tabulated in Tables 5.4-5.18, and as plotted in Figs. 5.1-5.16) to produce a series of correlational tables,

and an additional series of figures, which visually portray the group process and phase development for the groups of this research project.

Although the curvature of the plots may not lead to ecstatic joy, they have an eloquence which speaks more subtly than the dialogues upon which they were based. These patterns of behavior are correlational, not causal; and, although they don't indicate the necessity of a particular behavioral sequence, they reduce the chaos of group phenomena to manageable dimensions, and validate retrospectively the insights of an observer of group phenomena in a "here-and-now" context. Occasionally apparent incongruities are found--group dynamics phenomena permit certain variables to cluster positively in one group, and (the same variables) to separate negatively in another group. Obviously, the variables are group specific, depending upon the unique constellation of persons, their group role performance and the issues of concern to the group.

Comparisons are not normally made between categories within the sub-area "hostility", and within the sub-area "affection", because of the multiple scoring convention of Mann's M-L Scoring System which allows only one category to be scored within a sub-area. The other sub-areas "Authority Relations", "Anxiety," and "Depression" whose categories are conceptually polar opposites make interesting comparisons, as do the polar opposite categories of the "Affection" and "Hostility" sub-areas. The "logic of explanation" of small group behavior using Mann's M-L Scoring System indicates that category numbers 1, 2, 3, & 4 and correspondingly, numbers 5, 6, 7, & 8, their polar opposites, should <u>not</u> manifest positive correlations; as

likewise numbers 9 and 11; numbers 12 and 13; and numbers 15 and 16. Positive correlations on polar opposite categories indicate the existence of ambiguity, ambivalence, and conflict within group members on the "Impulse," "Authority Relations," and "Ego State" areas. However, the "psychologic of explanation" considers these unexpected, irrational, and illogical features of group phenomena caused by distorted perceptions, chaotic emotions, and conflicted reactions to authority figures; and tries to "sort out", account for, and make coherent the apparently incoherent behavior. Besides comparisons between polar opposite categories, comparisons are also made between non-polar opposite categories of different sub-areas.

Rationale for the Procedure adopted in this report of Group Development

The investigator doesn't object to explications of group development through the use of "social role specialization," or "sub-group formations" even though these formats characterize impressionistic reports which usually end up reporting more about "roles" or "sub-groups" than about the single entity "the group" -- the stance taken in this report. Unconscious, dynamic forces of an emotional nature are the underlying group formative processes which cause the group members to cohere, to form "the group". It is only after "the group" has formed, that specialization can take place, in the form of "roles" and "sub-groups". To explain the constitution of groups in terms of social role or sub-group formation is to start on the periphery and work inwards; it seems more scientific to the investigator to start with the group as a single entity, and then examine the specializations that take place.

Of course, "the group" can be characterized by certain types of social role and sub-group formation; and when "the group" is said to be "moderate" on Dependency and "high" on Counterdependency it doesn't mean that every member of the group contributes to the "moderate" or "high" value on these categories; it merely means that the emotional tone of the group fluctuates on the Authority Relations area during that phase. Individuals may or may not be ambivalent about category numbers 9 and 11, Dependency and Counterdependency; and this is not the concern in phase development; the point is, ambivalence is characteristic of the group during this phase.

A composite account, which considers a single picture of the four groups is not attempted for it overrides significant variation within particular groups and between groups within a particular treatment; and, when done in impressionistic fashion, besides reducing significant variation within groups to oblivion, it increases the probability of random variation becoming "significant" for purposes of the model. The most compelling reason for the description of the four groups separately is the proliferation of AB interaction effects throughout the two-way ANOVA tests, (cf. Tables 5.14 p. 197, 5.17, p. 200, and 5.18 p. 201) wherein all but one category (#10 Independence in Table 5.17) that has a significant B effect has also an AB interaction effect. Winer (1962), concerning the presence of interaction effects states:

> When the AB interaction is significant, one is generally interested only in the simple main effects. Hence test on the over-all main effects in the presence of significant interaction seldom are made in practice. (p. 208).

> Should the interaction term in the analysis of variance prove to be statistically significant it is generally necessary to analyze the simple main effects rather than the over-all main effects. (p. 232).

A significant interaction indicates that a Self Analytic Treatment, for instance, has different effects for SAT1 from what it has for SAT2. The analysis of the simple main effects is statistically equivalent to considering the over-all effects of experiments of lower dimension. In this study, the analysis of phase development is based on the data tested by the one-way ANOVA designs on the four groups separately. Significant variation within groups is accounted for as well as between groups within a particular treatment.

In the service of parsimony the following description of group process and phase movement is done in highly schematic or outline form; a detailed verbal account would obfuscate clarity of exposition, and is beyond the intended scope of this report. Yet, in fact, a detailed figural descriptive account is found in the various figures and appendices. An integrated account of group process and phase movement is done when considering each group separately. In "between groups" comparisons process is the primary concern, for the phasic character is somewhat obscure when different variables are in vogue, which have different direction and curvature in trends.

An Analysis of Phase Movement and Group Process in SAT1

The Member-Leader (M-L) relationship is highly influenced by the assumed role of the leader. In the SAT groups the intention is that the trainer adopt an unilateral, non-interactive, non-inter-

communicative, analytic role. The Self Analytic Treatment is opportune ground for the operation of defense mechanisms, the occurrence of transference phenomena, and emission of projective identifications onto the inactive trainer; and seems eminently suited for the M-L Scoring System, which is concerned with "direct" and "symbolic" referents to the leader.

For an adequate understanding of the descriptive account of SAT1 a rapid perusal of Tables 5.4, p.188, 5.12, p.195, 5.19, p.202 is suggested, accompanied by a close scruting of Figs. 5.1-5:4, pp. 204-207 and Figs. 5.17-5.20, pp. 208-211. These figures, plus Table 5.20, p.203, depict the phasic character of SAT1 and, ideally, are used in creative interaction with the verbal report; yet, hopefully, the verbal report can be understood independently of tables and figures; but, assuredly, not without understanding of the structure of Mann's M-L Scoring System.

SAT1

Phase	I	II	III	IV	V
Time Intervals	1,2	3,4	5,6,7	8,9,10	11,12,13

During Phase I (time intervals 1, and 2) the group scores high+ (Z scores values have high, moderate, or slight deviations from the mean in a positive or negative direction), on Accepting, Counterdependency, and Anxiety, moderate+ on Moving Against and Guilt Inducing, and slight+ on Resisting. Correspondingly, the group scores high- on Independence and Denying Depression, moderate- on Withdrawal, Denying Anxiety, and Expressing Depression, and slight- on Dependency. These

scores portray the initial reactions to the Trainer who opened the session with the following statement: "We are here to observe behavior as it happens, and to understand it; and I am here to help you." and then remained silent for a long duration. The group, which expects the Trainer to adopt a role at least somewhat similar to that of a professor at class, experiences a mild form of "expectancy shock," (Matheson, 1971) which startles the group but not beyond recuperation. The group appears to have understood the opening remark and immediately accepts the "role" of the Trainer as indicated by high+ scores on Accepting; slight ambivalence is shown by a slight+ score Resisting; in the Hostility sub-area, the group scores moderately+ on Moving Against (against the "person" of the Trainer) and Guilt Inducing. In the Authority Relations area, the group scores slight- on Dependency, high- on Independence and high+ on Counterdependency. Initially, the group feels that Counterdependency is the best way to resolve the problem of an inactive Trainer. (Although the relationship between categories is correlational, it is helpful to conceptualize the categories in terms of an "as if" causal relationship in the direction of Authority-Relations area causing reverberations in the Impulse and Ego State areas; and not vice versa.) Corresponding to a high+ Counterdependency is a high+ Anxiety reaction on the Ego State area. The remaining categories in the Ego State area are scored moderate and high-, indicating infrequent use of these emotions to contend with the issue that confounds the group--the incommunicative Trainer.

Phase 2 immediately brings to mind the idea that whatever the disposition of the category structure within a phase, a better perspective is had in the context of the immediately preceding phase, for each group has an unique history which continually influences and forms part of the present. During Phase 2 (time intervals 3 and 4) the group scores high+ on Guilt Inducing, moderate+ on Accepting, Counterdependency, and Denying Anxiety. Correspondingly, the group scores slight- on Dependency, Independence, Moving Against, Expressing Depression, and Denying Depression. Withdrawal remains moderate-. Viewed in context of Phase 1, Phase 2 shows a considerable drop in Moving Against, which indicates an insight by the group that the problem is not the "person" of the Trainer; yet, the group is still unable to make the fine discrimination that the "role" of the leader is the disconcerting element; so, they increase their rate of Guilt Inducing activity, which usually indicates dissatisfaction with the terse and restrictive bounds within which the Trainer encloses himself. Although the group is moderate+ in Accepting the "role" of the Trainer, in Phase 2 this is a drop from the high+ of Phase 1. Counterdependency is moderate+, and also shows a drop from the high+ in Phase 1. This drop in Counterdependency is reverberated in the Ego State Area which shows a considerable drop in Anxiety (from high+ to slight+) and a correspondingly considerable rise in Denying Anxiety (from moderate- to moderate+). A most probable explanation of the change in the sub-area Anxiety, is that the group required some confidence to muster up their resources to contend with the Trainer;

and, whereas, few members express high scores on Esteem (a statistically non-significant category) the majority, the group as a whole, can Deny Anxiety, and increase Guilt Inducing activities against the Trainer. Most of this was done on a "symbolic" level as the group engaged in scapegoating activities during this phase. It is interesting to note in passing, that Independence rises continually in the early phases and peaks in Phase 4.

During Phase 3 (time intervals 5, 6, and 7) the group scores high+ on Resisting, Accepting and Dependency, moderate+ on Anxiety, slight+ on Independence, and Counterdependency. Correspondingly, the group scores high- on Expressing Depression, and slight- on Moving Against, Withdrawal, Guilt Inducing, Denying Anxiety, and Denying Depression. The most phenomenal events during this phase occur in the Impulse and Authority Relations areas, the Ego State area shows slight change. The prominent feature during this phase is the rapid rise in Resisting (from slight+ to high+) coupled with a rise in the polar opposite category Accepting. These two polar opposite categories Resisting and Accepting manifest the ambivalence and ambiguity which surrounds the "role" of the Trainer. The group has given up its Counterdependency and Guilt Inducing as viable forms of confrontation, and gives way to an astonishing increase in Dependency (from slight- to high+) which is hoped to be the desired alternate for the salvation of the group. With an increase in Dependency, there is no need for Denying Anxiety so this category changes to slight-; Anxiety rises to a moderate+. Phase 3 has shown the group's capacity for tolerance of ambiguity and ambivalence which is especially manifest in high+

scores in conceptually opposite categories such as: Resisting and Accepting Resisting and Dependency; and within the Authority Relations area— Dependency and Counterdependency; and Dependence and Independence. It is important to note that whereas Independence and Counterdependency are both slight+, Independence shows a continual increase over the first three phases, and conversely Counterdependency shows a continual decrease over the first three phases.

During phase 4, (time intervals 8, 9, and 10) which is a neutralization phase, the group, SAT1, scores high+ on Moving Against Independence, Expressing Depression, and Denying Depression, moderate+ on Withdrawal, and low+ on Guilt Inducing. Correspondingly, the group scores high- on Accepting, Depending, and Anxiety, moderate- on Resisting and Counterdependency. The distinguishing feature of Phase 4 is the disentanglement of distortedly perceived affect, and neutralization of disruptively projected affect towards the Trainer (reference is made to the high+ on Resisting and Accepting in Phase 3). Every category reverses direction except for Independence which shows an increase in the positive direction (from slight+ to high+). Especially noteworthy in the complete reversal of the various categories from Phase 3 to Phase 4 are the following: Resisting (from high+ to moderate-) Accepting (from high+ to high-) and Dependency (from high+ to high-). The reversal of categories during this phase is most likely due to the surge in Independence (from slight+ in Phase 3 to high+ in Phase 4). In the Authority Relations area both Dependency and Counterdependency have been neutralized; in the Impulse Area, Resisting and

Accepting have been neutralized; but, whereas the group correctly evaluates the "role" of the Trainer, this is offset by a surge of hostility against the "person" of the Trainer; this is primarily done through symbolic referents to the Trainer. The disentanglement procedure is not totally successful--whereas the group gains sufficient Independence to evaluate the "role" of the Trainer, the hostility is displaced to the "person" of the Trainer; yet the hostility does lose its ambiguity in the Impulse area. A remarkable change in the Ego State area occurs in reference to the gain in Independence--whereas the gain in Independence neutralizes the threatening environment as evidenced by the remarkable decrease in Anxiety; the unconcealment of ambivalence and ambiguity is evidenced in the upsurge of Expressing and Denying Depression, thus revealing the hopelessness and helplessness of their new-found Independence. The "helplessness" is expressed in their inability to neutralize the Impulse area entirely.

During Phase 5 (time interval 11, 12, and 13) the group scores high+ on Withdrawal, moderate+ on Anxiety, and Denying Anxiety, and slight+ on Dependency, Expressing Depression, and Denying Depression. Correspondingly, the group scores high- on Moving Against, Guilt Inducing, and Counterdependency, moderate- on Resisting, Accepting, and Independence. At first glance it looks as though the group has neutralized all its ambiguity and ambivalence in the Impulse, Authority Relations, and Ego State Areas; and this is considered accurate to a remarkable extent for this group. However, the category Withdrawal which finally gains its fullest expression in this termination

phase, belies the evidence of the other categories. Much of the hostility of the Impulse area, which has not been successfully worked through, will be veiled in Withdrawal. While the group engaged in a role assessment of the various members, they also began myth construction activities--speaking of a warmer, more personal, and trusting climate in the group. Such fantasies obliterate control and power issues, so both Independence and Counterdependency decreased, whereas Dependency showed a slight+ increase.

Another view of phase movement of SAT1 and a convenient way of summarizing it is in terms of interlacing process and phase, which shows the interdependence of phases (cf. Figs. 5.17-5.20, pp. 208-211). The horizontal view of positively correlated polar opposite categories across phases, (cf. Fig. 5.17), category numbers 2 and 7, Resisting and Accepting, also #9 Dependency and #11 Counterdependency, and their positive correlation with #12 Anxiety, clearly illustrates the prevalence of ambiguity of perception and ambivalence of affection within SAT1. Fig. 5.18, p. 209, shows a high positive correlation among categories #1 Moving Toward, #10 Independence and #16 Denying Depression. Especially noticable is the exceptionally high correlation (.904) between #10 Independence and #16 Denying Depression; it clearly indicates that the next best thing to Self-esteem is the operation of a denial mechanism--in this instance, if the group cannot claim adequacy to the task at hand, they can at least deny helplessness, and adopt an independent stance. It's not unusual to expect #3 Withdrawal and #15 Expressing Depression to be positively correlated.

Fig. 5.19, p. 210, shows negative correlations between categories.

Categories #1 Moving Against and #12 Anxiety approximate an inverse relationship: as Anxiety decreases Moving Against increases, especially noticable in phase 4, and vice versa in phase 5. Categories #10 Independence and #12 Anxiety (Fig. 5.19) show more clearly the same inverse relationship; and categories #16 Denying Depression and #12 Anxiety (Fig. 5.20, p. 211) clearly show the same inverse relationship. As was shown in Fig. 5.18 categories #1, #10, and #16 are all positively correlated. A very disconcerting factor in this type of analysis is that causal relationships cannot be determined. However interesting it is to discover phase movements and describe them, they are like the stars: one wonders what causes the orderly progression. The power and control underlying the Authority Relations area appears to be the causal factor; but this is a gratuitous assumption, not a gift from the data. All the categories of Mann's M-L Scoring System are reactive to some stimulus; yet, correlations either in the positive or negative direction never demonstrate the existence of the nature of the causal influence. However, unavailability of causal explanation does not prevent rational inference. Across Phases 1, 2, and 3, category #12 Anxiety is higher than categories #1, #10, and #16, but during Phase 4 when the group generates enough Independence and Denies Depression sufficiently to Move Against the Trainer (incidentally, Denying Anxiety is also high on Phase 4) a drop in #12 Anxiety is not an unreasonable expectation. The point is that both positively and negatively correlated categories can be explained by the coding system within the group context. Likewise in Fig. 5.19,

p. 210, categories #2 and #15, it's not unreasonable to expect an inverse relationship between Resisting and Depression, as Resisting increases Depression decreases and conversely as Depression increases Resisting decreases. Likely the relationship between #9 Dependency and #10 Independence is no surprise. Fig. 5:20, p.211, shows inverse relationships between categories #11 Counterdependency and #16 Denying Depression, and between categories #12 Expressing Anxiety and #15 Expressing Depression; both of these patterns are difficult to explain in the context of SAT1.

Category numbers 1 & 9, 3 & 11, 7 & 15, 7 & 16, 11 & 15, and 9 & 16, also manifest this inverse relationship; but, because these relationships are common to both SAT groups, their explication is deferred until the section on SAT1 and SAT2 comparisons.

Reactions to the role presentation of the trainer account for change in emotional modality across phases in SAT1; some of the reactions are group specific, unique to the constellation of group members; others, are common across different groups; so an analysis of SAT2 should illustrate more clearly the unique and common features that constitute each group in relation to the role presentation by the same trainer; and a comparison of common features of both groups should clarify group process and phase movement to a remarkable degree.

An Analysis of Phase Movement and Group Process in SAT2

SAT2 is a second sample of randomly assigned subjects drawn from the same population pool as SAT1. They receive the 'same' Self Analytic Treatment by the 'same' Trainer as did SAT1. It is found that

the uniquenesses of these groups outweigh their similarities.

For an adequate understanding of the descriptive account of SAT2 a rapid perusal of Tables 5.5, p. 189, 5.13, p. 196, 5.21, p.212, is suggested, accompanied by a close scrutiny of Figs. 5.5-5.8, pp. 214-217, and Figs. 5.21-5.24, pp. 218-221. These figures, plus Table 5.22, p. 213, depict the phasic character of SAT2 and, ideally, are used in creative interaction with the verbal report.

SAT2

Phase	I	II	III	IV	V
Time Intervals	1	2,3,4	5,6,7	8,9,10,11	12,13

During Phase 1 (time interval 1) the group scores high+ on Accepting, moderate+ on Guilt Inducing, Dependency, and Anxiety, and slight+ on Resisting, Moving Toward, and Depression. Correspondingly, the group scores high- on Counterdependency, moderate- on Withdrawing, Denying Anxiety, and Denying Depression. Scores on these categories represent the group's initial reactions to the Trainer, who gave the task definition for the group in the following statement: "We are here to observe behavior as it happens, and to understand it; and I am here to help you." The group expects the Trainer to offer some of the "help" that he promised; but when he sits in silence, unmoved by dependency pleas, the group experiences a severe form of "expectancy shock" (Matheson, 1971) from which it hardly recovers. In SAT2 the group appears to have understood the opening remark and immediately accepted the "role" of the Trainer, indicated by high+ scores on Accepting; yet, a slight ambivalence is shown by the slight+ score on Resisting. (SAT2 is primarily distinguished from SAT1 in their

scores in the Authority Relations area--the trends in SAT2, as depicted by categories #9 Dependency and #11 Counterdependency are practically the reverse of those in SAT1.)

In the Impulse area the group is moderate+ on Guilt Inducing and slight+ on Resisting, but in general, the positive affect is more noticeable in high+ on Accepting (accepting the "role" of the Trainer) and slight+ on Moving Toward (toward the "person" of the Trainer). SAT2 also distinguishes itself from SAT1 in its failure to achieve statistical significance on #10 Independence. In the Authority Relations area, the group's moderate+ scores on Dependency, coupled with high+ on accepting, and slight+ on Moving Toward, indicates that the group feels that the best way to solve the problem of an inactive Trainer is the dependency stance. The group has a moderate+ Anxiety reaction, and a slight+ Depression score.

During Phase 2, (time intervals 3, 4, and 5), the group scores high+ on Withdrawal, and moderate+ on Resisting, Accepting, Dependency, and Depression. Correspondingly, the group scores high- on Guilt Inducing, moderate- on Moving Toward, Expressing Anxiety, Denying Anxiety, and Denying Depression, and low- on Counterdependency. In Phase 2 of SAT2 the distinguishing movements are found in the tremendous increase (from moderate- in Phase 1 to high+ in Phase 2) in Withdrawing strategies; and in the clear picture of ambiguity and ambivalence in the group's reaction to the "role" of the Trainer--the Trainer is reacted to in moderate+ scores on both Resisting and Accepting. The group continues in its dependency stance, and increases in expression

of Depression. Interestingly enough in the Impulse area the group cuts out its Guilt Inducing activities as well as its Moving Toward displays to the "person" of the Trainer. The "insight" of the group is that the "role" of the Trainer is the "bone of contention", but their reaction is completely different from SAT1 during this phase--whereas for SAT1 the recognition of "role" leads to Counterdependency, for SAT2 it leads to Withdrawal. In the Ego State areas the group changes from a moderate+ Anxiety reaction in Phase 1 to a Depression reaction in Phase 2. It's not unusual to find Depression accompanied with expressions of Withdrawing.

During Phase 3 (time intervals 5, 6, and 7) the group scores high+ on Anxiety, Moderate+ on Depression, and slight+ on Denying Anxiety, Denying Depression and Guilt Inducing. Correspondingly, the group scores high- on Resisting, and moderate- on Withdrawal, Accepting, Moving Toward, Dependency and Counterdependency. The inactivity of the group during this phase in the Impulse and Authority Relations areas is better characterized in terms of hibernation and somnambulation of the group rather than in terms of equilibration, i.e., disentanglement and neutralization of distortedly perceived and disruptively projected affect of the group. Rather than attempt to resolve the issues of concern in these areas the group appears to have completely ignored them. The majority of categories (cf. numbers 2, 3, 4, 7, 9, 12, 13, & 16) have reversed direction. This group, having taken inventory found that it has exhausted its repertoire of resources, and seems to have made the "mene, mene, tekel u-pharsin" assessment of itself; which leads to a "cop out" reaction rather than acceptance of the task

definition as a challenge. Another evidence that the emotion of the group is concealed rather than resolved is its inevitable manifestation in the Ego State area. Phase 3 shows a drastic rise in Anxiety reaction (from moderate- in Phase 2 to high+ in Phase 3) and the continuation of a moderate+ Depression reaction. There is also a slight+ in the denial of both of these emotions. So, the external "calm" in the interpersonal relationship to the Trainer, is correspondingly matched by an intrapsychic "storm". The decrease in or denial of Impulse and Authority Relations behaviors, bears heavily upon the intrapsychic life of the group; and whereas the dependency ploys of the first two phases are given up, the group begins to consider the merits of Counterdependency to offset their threatened and helpless ego.

During Phase 4 (time intervals 8, 9, and 10) the group scores high+ on Moving Toward, Denying Anxiety, and Denying Depression, moderate+ on Counterdependency, and slight+ on Resisting, and Dependency. Correspondingly, the group scores moderate- on Withdrawing, Guilt Inducing, Anxiety, and Depression, and slight- on Accepting. The purpose of Phase 4 is to bring the disruptive and disequilibrated Ego State--the intrapsychic relationship of group members to Trainer--to redintegration. To accomplish redintegration, the group, in the Impulse Area, drastically increases Resisting (from high- in Phase 3 to low+ in Phase 4), reduces expressions of Guilt Inducing, and elevates expressions of Moving Toward (i.e. favorable affect toward the "person" of the Trainer from moderate- in Phase 3 to high+ in Phase 4); in the Authority Relations area there is some ambiguity and ambivalence whether to revert to Dependency (which rises to a slight+) or to experiment with

Counterdependency, which rises above the mean for the first time (from moderate- in Phase 3 to a moderate+ in Phase 4.) Although the group probably realizes by this time that the Trainer remains unaffected by display of positive or negative affect, they do this to regain equilibrium in the Ego State area. In this purpose the group is relatively successful for the high+ Anxiety of Phase 3 decreases to a moderate- in Phase 4, and correspondingly the moderate+ Depression of Phase 3 decreases to a moderate- in Phase 4; yet, the redintegration is not achieved because the group is high in Self Esteem, but because of an increase in Denying Anxiety (from slight+ in Phase 3 to high+ in Phase 4,) and by an increase in Denying Depression (from slight+ in Phase 3 to a high+ in Phase 4.) It would seem that this group took 11 time intervals of group interaction to recover from the initial shock of an inactive, analytic Trainer; and this is accomplished more through coyness towards the Trainer and the operation of denial mechanisms than by "working" through the conflict.

During Phase 5 (time intervals 12 and 13) the group scores high+ on Guilt Inducing, Moving Toward and Counterdependency, and slight+ on Expressing Anxiety and Denying Anxiety. Correspondingly, the group scores high- on Withdrawing and Dependency, moderate- on Accepting and Expressing Depression, and low- on Resisting and Denying Depression. The group is faced with the reality of its termination; and up to this point the group has been relatively unsuccessful in fulfilling its task ("to observe, and understand behavior") as is shown by its refusal to grapple with issues of power, control, and affect--interpersonally and intrapsychically. Whereas

normally a role assessment is expected of the group members during this phase, the group instead, recognizing its failure, decides to blame the Trainer and elevates drastically its Guilt Inducing activities (from moderate- in Phase 4 to high+ in Phase 5). That the group is in a state of ambivalence in the Impulse Area is shown by high+ scores on a "hostility" category (Guilt Inducing) and, simultaneously, high+ scores on an "affection" category (Moving Toward). The source of the high scores are in "symbolic" referents to the Trainer. The extensiveness of the ambiguity and ambivalence is evidenced in the Authority Relations area with a increase to high+ in Counterdependency. This rise in Counterdependency is a rather late alternative to the Dependency pleas which faded out during Phase 3; and raises a conflict in the Authority Relations area which cannot be resolved because the group has run out of sessions. In general, the group, SAT2, has gone through the phases in "slow motion" -- the confrontation with the Trainer which occurs in the final phase, ideally, should have occured in an earlier phase. However, the time of the group has run out; the group terminates; and the "unfinished business" which has arisen in Phase 5-- confrontation with the Trainer-- remains in a state of irresolution. However, the group did in fact neutralize the Ego State area for in the final phase there is but slight+ scores on Expressing and Denying Anxiety, and slight- scores on Expressing and Denying Depression.

Another view of phase movement of SAT2, and again, a convenient way of summarizing it is in terms of the interrelationship of process and phase, the interdependence of phases. Fig. 5.21, p. 218, depects

a horizontal view of positively correlated categories. The high correlation (.795) between the polar opposite categories--Resisting and Accepting clearly illustrates the group's ambivalence of feeling toward, and ambiguity of perception about the nature of the "role" of the Trainer across the phases. Likewise the categories Resisting and Withdrawing also illustrate the group's ambiguity by their unexpected positive correlation with a Dependency stance. The "psychologic of explanation" accounts for the irrationality of this ambiguity and ambivalence by illustrating that these are inadequate ploys and strategies of the group's response repertory. The group seems to have exhausted its response repertory, without considering viable alternatives like a Counterdependency stance--or considers it in the dying moments of the group (cf. Fig. 5.22, p.219, category #11 Counterdependency during Phase 5). The group's expression of Anxiety and Depression (cf. Fig. 5.22) more or less parallel one another throughout the phases, and the denials of the threatening and disheartening situation operate somewhat systematically across the phases--this is evident in the high correlation (.976) between Denying Anxiety and Denying Depression and in the clear illustration of it in Fig. 5.21 p. 218.

Fig. 5.23, p. 220, illustrates the relationships of negative correlations between categories. Both categories, Resisting and Accepting, which show a high positive correlation (.795) and indicate the presence of ambiguity, in turn, show high negative correlations when compared with Expressing Anxiety. This inverse relationship is expressed as follows: as Anxiety increases Resisting decreases and vice versa as Resisting increases Anxiety decreases. Mutatis mutandis,

the same relationship holds true, when Accepting is substituted for Resisting. (cf. Fig. 5.23). Fig. 5.23 and 5.24, pp. 220-221, with negatively correlated categories, show the value of the horizontal approach to phase movement and bring to light group phenomena which would have been missed with a vertical approach alone. This remarkable occurrence takes place during Phase 3, where the crisscross of many negatively correlated variables takes place. Once this "crisscross" is made in Phase 3, the patterns maintain their disparities as in the first two phases, but in converse directions in Phases 4 and 5. Resisting crisscrosses Denying Anxiety in Phase 3 but this pattern is not illustrated in any of the figures. All in all, an inverse relationship is found between the variables Resisting, [Accepting, Dependency, Expressing Depression] and Denying Anxiety during Phase 3 as illustrated in Figs. 5.23 and 5.24, pp. 220-221. Mutatis mutandis, the same inverse relationship holds, when Denying Anxiety is substituted by Denying Depression; yet, this is illustrated in the single instance Expressing and Denying Depression (cf. Fig. 5.24). Possibly the most important crossover occurs between categories #9 Dependency and #11 Counterdependency in the Authority Relations area; this crossing represents the major reversal of strategy by the group--to give up Dependency pleas and engage in confrontation activities. This unstated intention of the group witnesses the complementary reversals in the Impulse and Ego State categories to align the affective domain with the group's new orientation in the Authority Relations area. However, the full impact of this new orientation is not arrived at until the

final, termination phase-- the group just didn't have the resources for confrontation, even though implicitly they knew that that was the required stratagem to resolve the issue of conflict with the Trainer. These crisscross phenomena demonstrate the utility of Mann's M-L Scoring System, which encodes small units of behavior, and the benefit of ANOVA with repeated measures procedures (with the plots of their output which clearly illustrate this remarkable occurrence--this is clearly beyond the capacity of even the most astute of clincial observers.

A Comparative Analysis of Group Process In SAT1 and SAT2

The purpose of the comparisons between the two SAT groups is not to make a composite assessment of the vertical phase movements that occur in Self Analytic Treatments; but to examine the patterns of processes, (horizontally across phases) of select pairs of categories [and of individual categories] which portray themselves in characteristic [and uncharacteristic] fashion between groups. Again the visual account of the "plots" is more comprehensive than the verbal summary.

For an adequate understanding of the SAT1 and SAT2 comparisons, a rapid perusal of Tables 5.6, 5.14, 5.19, 5.21, 5.23, pp. 190, 197, 202, 212, 222, respectively is suggested, accompanied by a close scrutiny of Figs. 5.25-5.29, pp. 223-227. (cf. Appendix D5.1-D5.4 pp. 247-250.

Fig. 5.25, p. 223, shows contrasts between category #s. 1 and 9, Moving Against and Dependency, which have high negative correlations (SAT1 -.680 and SAT2 -.577,) which indicate an inverse relationship:

as Moving Against increases Dependency decreases and vice versa. The process or relationship between the categories is the same in both groups; but the rate of fluctuation varies between the groups--the pairs of categories crisscross four times across the five SAT1 phases, and once across the SAT2 phases. An earlier thought comes to mind: the process is the same, but in SAT2 it occurs in "slow motion". Conceptually, it's not unreasonable to expect this inverse relationship; and the greater number of fluctuations is better assessed as SAT1's greater openness to a variety of emotional expressions and experiences, than as greater emotional stability in SAT2's Ego State. The contrasts between category numbers 3 and 11, Withdrawing and Counterdependency, (cf. Fig. 5.25) have a high negative correlation for SAT1 (-.704), but a rather low negative correlation for SAT2 (-.328). Ordinarily, a correlation as low as -.328 is not selected for comparison; but, in this case, there is an unexpected reversal of direction in the contrasts. It is the unexpected outcomes which highlight the comparisons of uniquenesses of groups. In both SAT1 and SAT2, the inverse relationship, as Counterdependency decreases Withdrawing increases and vice versa, is the conceptually expected outcome. The interesting comparison, the unexpected outcome, is that in SAT1 Counterdependency is high in the first three phases crisscrosses Withdrawing in the fourth and is low in the fifth phase; whereas, conversely, is SAT2 Counterdependency is low in the first two phases crisscrosses Withdrawing late in the third and is high in the last two phases. The gist is that SAT1 resolved its conflict with the Trainer early in the life of the group, and consequently withdraws

its attention from the Trainer and works on other issues; and SAT2 began to face its conflict with the Trainer late in the life of the group, and thus expressions of Withdrawing from the Trainer decrease throughout the phases.

Fig. 5.26, p. 224,illustrates the differences between SAT1 and SAT2 in the relationship between Accepting (the "role" of the Trainer) and Expressing and Denying Depression intrapsychically, in their relation with the trainer. The contrasts between Accepting and Expressing Depression have a high negative correlation for SAT1(-.907); but for SAT2 (+.131) an nonsignificant correlation; however, the patterns appear quite similar. The contrasts between Accepting and Denying Depression have high negative correlations for SAT1 (-.625), and for SAT2 (-.434). (cf. Fig. 5.26, p. 224) In SAT1 Accepting is kept high and Depression low until part way in Phase 4; then Depression increases and Accepting decreases below the mean; also the pattern of Accepting and Denying Depression is similar. In SAT2 Accepting decreases at mid-point in Phase 2 and remains below the mean in Phases 3, 4, and 5; meanwhile, Depression increases in Phase 2, peaks in Phase 3, and decreases below the mean in Phases 4 and 5. This is dissimilar to its corresponding contrast in SAT1. In SAT2 Accepting and Denying Depression crisscross in Phase 3; and this pattern of contrasts is similar to the SAT1 pattern (which crisscrosses in Phase 4) of corresponding contrasts. In gist these contrasts illustrate greater tolerance in SAT1 for Accepting the role of the Trainer; and better control over Expressing and Denying Depression than is the case in SAT2.

Fig. 5.27, p. 225, illustrates the differences between SAT1 and SAT2 in the contrast between category numbers 9 and 16, Dependency and Denying Depression, which have high negative correlations (SAT1 -.703 and SAT2 -.468,) which indicate an inverse relationship as follows: as Dependency decreases Denying Depressions increases and vice versa. The process or relationship between the two categories is the same in both groups; but the rate of fluctuations vary between groups--the pairs of categories crisscross five times across the five SAT1 phases, and only once across the five SAT2 phases. Again the judgment is assessed in SAT1's favor as "more open to a variety of emotional expression," than to the alternative, SAT2's "emotional stability". It appears as another evidence that processes, which are similar to both groups, occur in "slow motion" in SAT2. Conceptually, it's not unreasonable to expect this inverse relationship of Denying Depression and Dependency--denial of depression (helplessness) in relation to Trainer, decreases the need to depend on his help. Fig. 5.27 also illustrates the contrast between category numbers 11 and 15, Counterdependency and Expressing Depression, which have high negative correlations (SAT1 -.565 and SAT 2 -.468) which indicate an inverse relationship--as Counterdependency decreases Expressing Depression increases and vice versa. This is analogous to the relationship of the polar opposites of Counterdependency and Expressing Depression, which, as outlined above, are Dependency and Denying Depression. The rate of fluctuation is also analogous--in SAT1 the pairs of categories crisscross three times across the five phases, in SAT2, there is but one crisscross across the five phases. Mutatis mutandis the judgment

remains the same "more openness to a variety of emotional expression" in SAT1 than in SAT2. Another interesting comparison is that in SAT1 Counterdependency is high in the first three phases, crisscrosses with Depression in the fourth and is below the mean in the fifth phase; whereas in SAT2 the patterns are the converse of SAT1, Counterdependency is low in the first three phases, crisscross with Depression in the fourth and is high above the mean in the fifth. The contrast of SAT1 and SAT2 on Counterdependency was explained earlier (cf. p. 166). Conceptually, it's not unreasonable to expect this relationship-- expression of depression (helplessness) hardly prepares one for counterdependency (confrontation). Fig. 5:28, p. 164, illustrates the differences between SAT1 and SAT2 on individual categories; here a negative correlation indicates that the patterns portray the category in uncharacteristic fashion in the two different groups. The category Withdrawal correlates highly negatively (-.569) on SAT1 and SAT2. This contrast on Withdrawing was reviewed earlier in another context. SAT1 starts low on Withdrawing and ends high; the converse is true for SAT2. The category Guilt Inducing correlates highly negatively (-.531) on SAT1 and SAT2. SAT1 is generally higher in Guilt Inducing than SAT2, but apparently at more appropriate times, especially during Phase 2 and 3 when resolving their conflict with the Trainer; whereas SAT2 starts high on Guilt Inducing, and generally decreases below the mean across the next three phases, and terminates the group with a rapid rise in this self justification activity. The termination is usually a time for healing wounds rather than for agitation. This is another

evidence of SAT2's inability to cope with the Trainer in a realistic fashion.

(The category Independence didn't achieve statistical significance in the two-way ANOVA of SAT1 and 2 and is erroneously included in Fig. 5.28.) The category Counterdependency correlates highly negatively (-.655) on SAT1 and SAT2. Since this category was reviewed earlier in two different contexts (cf. pp. 123,125) commentary here is superfluous. Likewise, Expressing Depression (cf. pp. 124-126).

The category Denying Depression (cf. Fig. 5.29, p. 227) is the only variable which correlates highly positively (.755) on SAT1 and SAT2. This category was reviewed earlier in two different contexts (cf. pp. 124-126).

This concludes the account of phase movement and group process in each of the SAT groups separately, and certain select comparisons, of processes across phases, between the two SAT groups. A similar, (hopefully, briefer), account will be given of phase movement and group process on the DCT groups.

An Analysis of Phase Movement and Group Process in DCT1

The M-L relationship is highly influenced by the "assumed role" of the leader. In the SAT groups the intention is that the trainer adopt an unilateral, non-interactive, non-intercommunicative, analytic role; whereas, in the DCT groups, the intention is that the leader adopt a bilateral, interactive, intercommunicative, integralistic role; and, beyond this, he is expected to "model" the "core dimensions"--emphathic understanding, personal warmth, respect, genuineness, and

self-disclosure--that he is attempting to teach. The Self Analytic Treatment (SAT) seems more opportune for the operation of defense mechanisms, the occurrence of transference phenomena, and emission of projective identifications onto the inactive trainer, and seems like ideal ground for the M-L Scoring System. The Direct Communications Treatment (DCT), in spite of its intercommunicative environment does not prevent the operation of the same defense mechanisms, transferences, or projective identifications. Although, in DCT groups, their operation is more obscure and subtle, the defense mechanisms (or the behaviors representative of such abstractions) are operative in DCT groups, and can be detected in direct and symbolic form by an observer trained in the M-L Scoring System.

Each DCT group is considered separately for an integrated account of group process and phase movement; and in the between group comparisons group process is primarily considered; the phasic character of the group is somewhat obscure in the between group comparisions because different categories are in vogue in different groups.

For an adequate understanding of the descriptive account of DCT1, a rapid perusal of Tables 5.7, 5.15, 5.24, pp. 191, 198, 228, is suggested and a close scrutiny of Figs. 5.9-5.12, pp. 230-233, and Figs. 5.30, 5.31, pp. 234-235. The figures and Table 5.25, p. 229 are the immediate data upon which the process and phase analysis are depicted.

DCT1

Phase	I	II	III	IV	V
Time Interval	1	2,3,4,5	6,7,8	9,10	11,12,13

During Phase I (time interval 1) the group, DCT1, scores high+ on Withdrawing and Dependency, and slight+ on Anxiety and Depression. Correspondingly, the group scores high- on Resisting, Identifying, and Accepting, moderate- on Independency and Counterdependency. Neither of the denial categories, Denying Anxiety and Denying Depression have achieved statistical significance in DCT1; and of the nine significant categories, three of them, numbers 6, 10, and 12, Identifying, Independence, and Expressing Anxiety, do not have significant trends; but, as was explained earlier, the number and time intervals of phases were based on category numbers 7 and 9, Accepting and Dependency. In contrast to the "expectancy shock" (Matheson, 1971) as experienced by the SAT groups, in reaction to the role presentation of the Trainer, the members of DCT1 experienced an "unexpectant humdrum" in their reaction to the role presentation of the leader. The members, expecting fascinating encounters or sensitivity experiences, come into contact with the leader whose role presentation is much too similar to that of any professor in any classroom situation. (Incidentally, as outlined earlier, the task of the group is to learn communication skills--specifically the discrimination and communication of Carkhuff's (1969) "core conditions" of empathic understanding, respect, genuineness, and self-disclosure.) The immediate reaction in the Impulse area is a high+ score on Withdrawing from the M-L relationship. The message of the group to the leader is "enough of 'more of the same'". The high+ score on Dependency is expected as the more or less normal response to the presence of a professor on his first day in class. The group expresses slight+ scores in the Ego State area on both

Anxiety and Depression for the initial phase is not intrapsychically stressful.

During Phase 2 (time intervals 2, 3, 4, 5) the group scores high+ on Resisting and Accepting. Correspondingly, the group scores high- on Anxiety, moderate- on Counterdependency, Expressing Depression, and Independence, and slight- on Withdrawing and Identifying. The nature of the "supposed" role of the leader and the "actual" role as evaluated by the group conveys the group to a state of ambiguity regarding the leader's role. The message of the group to the leader appears to be: "Since you're the model of empathic understanding, communicate to us a single sample of a level 4 empathic response." The usual response of the leader was to engage in "role-playing" exercises with various; and consequently the group alternates in Accepting and Resisting the various "communication skills'" exercises of the leader. It is informative to note the change in the nature of hostility from Phase 1 to Phase 2--in Phase 1, the expression of hostility took the form of Withdrawing activites (this dwindled to slight- in Phase 2,) and was compensated for by a vast increase in Resisting (from high- in Phase 1 to high+ in Phase 2). This change in the nature of hostility is a more accurate placement, for it is against the perceived role of the leader. It is interesting to note that this ambiguity concerning the "role" of the leader (Impulse area activity) does not extend to the issues of power and control of the leader in this phase (Authority-Relations area); and it also, doesn't affect the intrapsychic tranquiltity (Ego State Area) of the

group in its relation to the leader. The state of ambiguity seems restricted (in this phase) to a cognitive level--of academic interest.

During Phase 3 (time intervals 6, 7, and 8) the group scores high+ on Identifying, moderate+ on Dependency, Counterdependency, and Anxiety, and slight+ on Independence. Correspondingly, the group scores high- on Withdrawing, moderate- on Accepting, and slight- on Resisting and Expressing Depression. The group has successfully managed to neutralize the Impulse area--this is evident in the reversals of Resisting and Accepting which are both high+ in Phase 2, to high- and moderate- respectively in Phase 3. The hostile affect is neutralized, and the positive affect is changed from concerns about the "role" (Accepting) to Identifying with the leader. The Identifying with the leader is evidently not met with approval by the total membership of the group; and the disentanglement of the Impulse Area is not without reverberations in the Authority Relations and Ego State areas. The group develops ambivalence and ambiguity in the Authority Relations area as seen by the concurrent moderate+ on both Dependency and Counterdependency. The moderate+ Dependency and the slight+ rise in Independence are somewhat congruent with Identifying, but the rise to moderate+ on Counterdependency and Expressing Anxiety are incongruent with Identifying which drops to baseline by the end of the phase. The conflict with the leader remains and comes to a head in Phase 4.

During Phase 4 (time intervals 9, 10) the group scores high+ on Counterdependency, and slight+ on Resisting, Independence, and Expressing Depression. Correspondingly, the group scores high- on Dependency, moderate- on Accepting, and slight- on Withdrawing, Identifying and

Anxiety. The confrontation aspects of Phase 3 were confounded with moderate+ scores on Dependency; but, in Phase 4, the confrontation comes in full focus with high+ scores on Counterdependency and with the radical decrease in Dependency from the highest to the lowest level in the group's history (from high+ in Phase 3 to high- in Phase 4). Counterdependency is no longer inhibited by Dependency; and the drop in Expressing Anxiety (from moderate+ in Phase 1 to slight- in Phase 2), the slight increase in Resisting, and the absence of positive affect toward the leader, all blend to make the confrontation with the leader the focal issue of this phase. The rise in Expressing Depression suggests that intrapsychically the group feels the inutility, inappropriateness, and incapacitation of confrontation in an environmental setting intended for the development of interpersonal communication skills. These feelings probably bring on the anomic state of the group in Phase 5.

During Phase 5 (time intervals 11, 12, and 13) the group scores high+ on Independence, Withdrawing and Expressing Depression. Correspondingly, the group scores moderate- on Counterdependency, Resisting, Identifying, and Anxiety, and slight- on Accepting and Dependency. Whereas, ordinarily, the high+ expression of Independence is considered a healthy sign in the Authority Relations area, when it is coupled with equally high+ expressions of Withdrawing and Depression, it suggests a breakdown in interpersonal communication and a disturbance in the intrapsychic life. The group has tried the Dependency stance in Phase 1, the Counterdependency stance in Phases 3 and 4, but to no avail; the remaining alternative, Independence, seems like a "last-ditch"

effort to "save face", and when this is not achieved the anomic character of the phase manifests itself in Withdrawing activities, in the total absence of positive affect, in the unconcern with the role presentation of the leader as well as with issues of power and control, and in high+ manifestations of Depression. It's a very unhappy ending, for a direct communications training envrionment, considering the noble intent of its initiation.

As in the analysis of the SAT groups, the horizontal view of phase movement (the analysis of group process across phases) is utilized as a convenient way of summarizing the phase movement in DCT1. Fig. 5.30, p. 234, portrays a horizontal view of positively correlated categories. The high correlation (.731) between polar opposite category numbers 2 and 7, Resisting and Accepting, clearly illustrates the group's ambiguity of perception about the "role" of the leader, especially in Phase 2, and the first half of Phase 3. Category numbers 3, 10, and 15, Withdrawing, Independence and Expressing Depression have high positive correlations (#3 and #10 .527; #3 and #15 .613; #10 and #15 .767) and more or less parallel one another throughout the phases. Both Withdrawing and Expressing Depression are highly relevant in Phase 1; are joined in the submerged existence by Independence in phases 2 and 3; ascend slightly above baseline in Phase 4; and become the three categories of focal interest in Phase 5. It is not surprising that Withdrawing in the Impulse area is positively correlated with Expressing Depression in the Ego State area; but, it is an unexpected outcome to see Independence positively correlated with either one or both of these categories. A probable explanation is the one given

earlier--the group having tried Dependency and Counterdependency strategies on control issues without success, adopt an Independence stance as a last-ditch effort to "save face", but even this is futile as the anomic character of the phase manifests itself in Withdrawing and Expressing Depression activities.

Fig. 5.31, p. 235, illustrates the patterns of negative correlations between categories. Both categories, Resisting and Accepting, which show a high positive correlation (.731) and indicate the presence of ambiguity, show high negative correlations when compared with Expressing Anxiety. (Resisting and Anxiety -.533; Accepting and Anxiety -.546--the latter relationship is not plotted in Fig. 5.31). The correlations of these categories in DCT1 are remarkably similar to the correlations obtained of the same categories in SAT2 (cf. pp. 120-121). This inverse relationship is expressed as follows: as Anxiety increases Resisting decreases, and vice versa, as Resisting increases Anxiety decreases. Mutatis mutandis, the same relationship holds true when Accepting is substituted for Resisting.

(Category numbers 2 and 16, are mistakenly included in Fig. 5.31 for #16 Denying Depression is not statistically significant).

Category numbers 3 and 6, Withdrawing and Identifying are, conceptually, polar opposite categories, (cf. Fig. 5.31), and show a high negative correlation (-.710). The inverse relationship is as follows: as Identifying increases Withdrawing decreases, and vice versa, as Withdrawing increase Identifying decreases. This pattern across phases is especially relevant in Phases 1, 3 and 5.

Category numbers 2 and 7, Resisting and Accepting (.731), as with Anxiety, show high negative correlations when compared with Expressing Depression. (Resisting and Depression [-.586] cf. Fig. 5.35, p. 245, and Accepting and Depression [-.599] cf. Fig. 5.31, p. 235). This inverse relationship is expressed as follows: as Depression increases Resisting decreases, and vice versa, as Resisting increases Depression increases. The same inverse relationship holds true when Accepting is substituted for Resisting.

Category numbers 2 and 7, Resisting and Accepting show high negative correlations with #10, Independence. (Resisting and Independence [-.572] cf. Fig. 5.35, p. 245; Accepting and Independence [-.402], not shown in the plots.) This inverse relationship is expressed as follows: as Resisting increases Independence decreases; and, conversely, as Independence increases Resisting decreases. The same relationship holds true when Accepting is substituted for Resisting.

In summary, these inverse interrelationships (#s. 2 and 7 vs. #12, #s. 2 and 7 vs. #15, and #s. 2 and 7 vs. #10.) are the focal interests in the explication of phase movement especially in Phases 2, 3, and 5. It again emphasizes the importance of the leader's "role presentation", and its reverberations in the Authority Relations and Ego State areas.

Category numbers 2 and 3, 2 and 9, 2 and 10, and 2 and 15, also manifest this inverse relationship; but, because these relationships are common to both DCT groups, their explication is deferred until the section on DCT1 and DCT2 comparisons. Meanwhile, an examination of phase movement and group process in DCT2 is performed.

An Analysis of Phase Movement and Group Process in DCT2

DCT2 is a second sample of randomly assigned subjects drawn from the same population pool as DCT1. They receive the 'same' Direct Communications Treatment by the 'same' Trainer as did DCT1. It is found that the uniquenesses of these groups outweigh their similarities.

For an adequate understanding of the descriptive account of DCT2 a rapid perusal of Tables 5.8, 5.16, 5.26 pp. 192, 199, 236, is suggested, accompanied by a close scrutiny of Figs. 5:13-5:16, pp. 238-241, and Figs. 5.32, 5.33, pp. 242-243. The above mentioned figures, plus Table 5.27, p.237, depict the phasic character of DCT2; and, ideally, are used in creative interaction with the verbal report.

DCT2

Phase	I	II	III	IV	V
Time Interval	1,2	3,4,5	6,7,8	9,10,11	12,13

During Phase 1 (time interval 1) the group, DCT2, scores high+ on Dependency and Expressing Anxiety, and slight+ on Accepting. Correspondingly, the group scores high- on Counterdependency, moderate- on Resisting, Withdrawing, and Expressing Depression, and slight- on Guilt Inducing. The same contrast of reactions to the role presentation of the leader--"expectancy shock" in SAT groups and "unexpectant humdrum" in DCT1--holds true for DCT2 as well. The members, expecting fascinating encounters or sensitivity experiences, come into contact with a leader whose role presentation is much too similar to that of any professor in any classroom situation. The immediate "reaction"

in the Impulse Area is characterized by a lack of response to the role presentation of the leader. At the beginning of Phase 1, the group scores moderate- on both Resisting and Accepting, but before the end of Phase 1 there is a rapid rise in Accepting (from moderate- to moderate+). The group initially adopts a Dependency stance in the Authority Relations area as a response to the leader's role presentation; and the emotional reverberations, which found no suitable outlet in the Impulse Area, are expressed in high+ scores on Anxiety. (A most unusual feature of DCT2 is its characteristic lack of ambiguity and ambivalence; whereas ambiguity and ambivalence prevailed throughout the phases, as evidenced by high+ correlations between polar opposite categories, in SAT1, SAT2, and DCT1, in DCT2 there is no evidence of ambiguity or ambivalence in category #s. 2 and 7, and #s. 9 and 11, in any of the five phases.) The high+ scores on both Dependency and Anxiety are somewhat intolerable, and reactions to this stressful situation initiates a change of phase. Absence of "ambiguity" lends itself to group supported strategies; but it doesn't extinguish "conflict" with the "role presentation" of the leader, or with issues of control and power.

During Phase 2 (time intervals 3, 4, and 5) the group scores high+ on Resisting and Counterdependency, and moderate+ on Expressing Anxiety. Correspondingly, the group scores high- on Guilt Inducing and Dependency, and moderate- on Withdrawing, Accepting, and Expressing Depression.

An interesting occurrence in DCT2 is the rapid rise in Resisting

(from moderate- in Phase 1 to high+ in phase 2) the "role" of the leader. As was mentioned earlier, DCT2 doesn't have the ambiguity of perception with which DCT1 was afflicted. The resistance is directed towards both the role presentation of the leader and the "role-playing" activities that he engages the group in. In fact, 'role-playing' is a useful technique for the discrimination of and communication of the "core conditions" of interpersonal processes; but DCT2 reacted against the manner of presentation of the leader and his conduct of the course. The most distinguishing change occurs in the Authority-Relations area where the polar opposite categories are radically interchanged--Dependency decreases (from high+ in Phase 1 to high- in Phase 2) whereas Counterdependency increases (from high- in Phase 1 to high in Phase 2). This total reversal of position in the Authority Relations area is evidence of lack of ambiguity within phases; but it also indicates the cohesiveness of this group in its ploys and strategems to cope with the leader. The scores on Anxiety decrease slightly to a moderate+. Phase 2 is best described as a realignment of the group's resources to prepare itself for a full confrontation in Phase 3.

During Phase 3 (time intervals 6, 7, 8) the group scores high+ on Accepting and Counterdependency, and slight+ on Guilt Inducing and Anxiety. Correspondingly, the group scores moderate- on Dependency, and slight- on Resisting, Withdrawing, and Expressing Depression. The unexpected transition during this confrontation phase is the change in Resisting (from high+ to baseline or slight-) and correspondingly the change in Accepting (from moderate- to high+). This unexpected transition of the perceived "role" of the leader, indicates that the

real concern of the group is not the role presentation of the leader, for the "role" of the leader is finally acceptable to the group. Although category #1, Moving Against, (against the "person" of the leader) is not a statistically significant category, the highest scores on Moving Against occur during this phase. Guilt-Inducing has a drastic rise (from high- to slight+) during this phase. So, the high+ scores on Counterdependency, in the context of Moving Against and Guilt Inducing activities, indicate that the confrontation in the Impulse area concerns the leader as "person", and in the Authority Relations area concerns the leader as a controlling agent. The confrontation is accompanied by a drop in Anxiety. The issue of Resisting or Accepting the "role" of the leader is never raised after this phase, for both of these categories drop below baseline.

During Phase 4 (time intervals 9, 10, and 11) the group scores high+ on Withdrawing, and Expressing Depression, and moderate+ on Dependency. Correspondingly, the group scores moderate- on Accepting, and Anxiety, and slight- on Resisting, Guilt Inducing, and Counterdependency. After a somewhat unsuccessful confrontation during Phase 3, the group enters Phase 4, which is characterized by Withdrawal from the M-L relationship, a Dependency on the leader for some viable alternative, and a correspondingly high expression of Depression. The group feels that it has exhausted its repertoire of resources, feels that it is not learning the assigned task, and, possibly wonders how they can survive the final sessions. Many of the categories have reversed from Phase 3:-- Withdrawing (from slight- to high+), Guilt Inducing (from slight + to slight-), Accepting (from high+ to slight-), Dependency (from moderate-

to moderate+), Counterdependency (from high+ to slight-), Anxiety (from slight+ to moderate-) and Depression (from slight- to high+). The anomic character of this phase, as characterized by high+ scores on Withdrawing and Depression, is manifest--in the breakdown of communication with the leader and in disruptive feelings of hopelessness and helplessness in the intrapsychic life in relation to the leader. The group has tried the Dependency stance in Phase 1, the Counterdependency stance in Phases 2 and 3, and a resurgence of Dependency in Phase 4; but to no avail. The unsuccessful maneuvers result in group anomie. The group does however make a last ditch attempt to save face in Phase 5 with drastic increases in Independence, and Counterdependency.

During Phase 5 (time intervals 12 and 13) the group scores high+ on Withdrawing, Guilt Inducing, Depression (and Independence, which is not a statistically significant category in DCT2), and moderate+ on Counterdependency. Correspondingly, the group scores high- on Resisting and Anxiety, and moderate- on Accepting and Dependency. The leader brought on a premature termination in this group by having an evaluation period in session thirteen. The result was an extremely rapid rise in Independence, and a rise in Counterdependency activities, associated with a rapid rise in Guilt Inducing. Obviously, (as rationalization mechanisms of a group take hold) the fault for the lack of success of the group lies entirely at the feet of the leader. In spite of this flare-up of Independence and Counterdependency, the group remains in its anomic state to the bitter end. The indictment, "another unhappy ending, considering the noble intent of initiation," unfortunately, holds true also for DCT2.

The horizontal view of phase movement is again utilized as a convenient way of summarizing the phase movement in DCT2.

Fig. 5.32, p.242, portrays a high positive correlation (.792) between #3 Withdrawing and #15 Expressing Depression. These categories are submerged below baseline during the first three phases, but rise to prominence in Phases 4 and 5, and are the key to the illustration of the anomic character of these phases. Fig. 5.32 also portrays a positive correlation (.442) between #2 Resisting and #12 Anxiety; but this relationship is not especially relevant to the explication of phase movement in DCT2. (The relationship between #10 and #6 is mistakenly included because these categories are not statistically significant in DCT2).

Fig. 5.33, p.243, illustrates the relationships of negatively correlated categories. Category numbers 3 and 12, Withdrawing and Anxiety, show a high negative correlation (-.891). Category numbers 4 and 12, Guilt Inducing and Anxiety, also show a high negative correlation (-.577). These inverse relationships are expressed as follows: as Withdrawing [Guilt Inducing] increases Anxiety decreases; and, conversely as Anxiety increases Withdrawing [Guilt Inducing] decreases.

Category numbers 9 and 11, Dependency and Counterdependency, show a high negative correlation (-.638). This inverse relationship is expressed as follows: as Dependency increases Counterdependency decreases, and, conversely, as Counterdependency increases Dependency decreases. The remarkable feature of this relationship is the number of times it intersected (crisscrossed) across the time intervals, which really offset the phases; and although this change in usage

of Dependency and Counterdependency indicates a high state of conflict in the group as it moved through the phases, the group remained free from ambiguity and ambivalence, for when it was using Counterdependency stances, it was obviously so, and when it was using Dependency stances, it was nonetheless obvious.

Category numbers 12 and 15, Expressing Anxiety and Expressing Depression, show a high negative correlation (-.840). This inverse relation is expressed as follows: as Depression increases Anxiety decreases; and, conversely, as Anxiety increases Depression decreases. This relationship was of special relevance during Phases 4 and 5.

Category numbers 2 and 3, 2 and 9, 2 and 10, and 2 and 15 also manifest this inverse relationship, but because these relationships are common to both DCT groups, they will be explained in "between group" comparisons.

A Comparative Analysis of Group Process in DCT1 and DCT2

The purpose of the comparisons between the two DCT groups is not to make a composite assessment of the vertical phase movements that occur in Direct Communication Treatments; but to examine the patterns of processes, (horizontally across phases) of select pairs of categories, (and of individual categories) which portray themselves in characteristic fashion between the two groups. Again, the visual account given by the "plots" is more comprehensive than the verbal summary.

For an adequate understanding of the DCT1 and DCT2 comparisons, a rapid perusal of Tables 5.9, 5.17, 5.24, 5.26, 5.23, pp. 193, 200, 228, 236, 222, respectively, is suggested, accompanied by a close

scrutiny of Figs. 5.34-5.36, pp. 244-246. (cf. Appendix D5.5-D5.8, pp. 251-254).

Fig. 5.34, p. 244,shows contrasts between category numbers 2 and 3, Resisting and Withdrawing, which have high negative correlations, (DCT1 -.681 and DCT2 -.560), which indicate an inverse relationship: as Resisting increases Withdrawing decreases and vice versa. The pattern of the relationship between the categories is the same in both groups; and the relevance of the obvious disparities occur approximately during the same phases (i.e. Phases 2 and 5) with the exception of Phase 1 in DCT1. Conceptually, it is not unreasonable to expect this inverse relationship, for when the group withdraws from the M-L relationship, an assertive resistance to the role presentation of the leader is not likely to take place.

The contrasts between category numbers 2 and 9, Resisting and Dependency, (cf. Fig. 5.34) show a low negative correlation for DCT1 (-.331), but a high negative correlation for DCT2 (-.547), which indicate an inverse relationship: as Resisting increases Dependency decreases and vice versa. The pattern of the relationship between the categories is the same in both groups; and its relevance to understanding phase movements is especially obvious during the first two phases and part of the third phase, after which the relationship becomes unique to the respective groups. Again, this inverse relationship is not unreasonable nor unexpected.

Fig. 5.35, p. 245, illustrates the differences between DCT1 and DCT2 in the relationship between category numbers 2 and 10, Resisting and Independence, which have high negative correlations (DCT1 -.572

and DCT2 -.522). These inverse relationships are expressed as follows: as Resisting increases Independence decreases, and vice versa. The pattern of the relationship is the same in both groups, and the relevance of the obvious disparities occurs approximately during the same phases (i.e. Phases 2, 3, and 5) with the exception of Phase 1 in DCT2. Conceptually, Independence could correlate positively or negatively with either/or both Resisting and Accepting; but, empirically, in the DCT groups it correlates negatively with Resisting, and this, not unreasonably so.

The contrasts between category numbers 2 and 15, Resisting and Expressing Depression (cf. Fig. 5.35) show high negative correlations (DCT1 -.586 and DCT2 -.545), which indicate an inverse relationship as follows: as Resisting increases Depression decreases and vice versa. The pattern of the relationship between the categories is the same in both groups; and its relevance to understanding phase movements is especially obvious during Phases 2, 3 and 5 in DCT1, and Phases 2,4, and 5 in DCT2. It is not unreasonable to expect an inverse relationship between Resisting and Expressing Depression.

All of the relationships examined in this comparison between the two DCT groups involve category #2, Resisting. In general, and in summary, in the two DCT groups as Resisting increases Withdrawing, Dependency, Independence, and Depression decreases and vice versa. As was observed earlier but concealed from observation in these "between group" comparisons is the finding that in DCT1 Resisting was highly positively correlated (.731) with Accepting, which indicated ambiguity and ambivalence in the group's perception of the role pre-

sentation of the leader; whereas in DCT2 this ambiguity and ambivalence did not arise. Yet, this ambiguity and ambivalence in no way affects the relationships as outlined in this section, i.e., the "role presentation of the leader is crucial whether or not the group is ambiguous in percept or ambivalent in expression of feelings. The contrast of these categories with Resisting clearly illustrates the importance of the leader's role presentation and its effect upon group processes and phase movement.

Fig. 5.36, p. 246, illustrates the similarites between DCT1 and DCT2 on individual categories. Here a positive correlation indicates that the pattern portrays the category in characteristic fashion between the two groups.

Category #2 Resisting correlates highly positively (.740), category #10 Independence correlates highly positively (.582), and category #15 Expressing Depression correlates highly positively (.750) on DCT1 and DCT2. These high correlations on individual categories complement the contrasting categories of this section; and have already received sufficient commentary.

This concludes the descriptive account of phase movement and group process in each of the DCT groups separately, and certain select comparisons of processes across phases, between the two DCT groups.

CHAPTER 6

Summary Statement and Implications for Education

Group phenomena, which are as baffling to analyze as they are interesting to observe, have been the complicated subject matter, and, Mann's M-L Scoring System, which is as conceptually intricate as the data are inextricable, has been the complex observational system used in this research report. The psychological structures of the treatments, as described in this report, are based on data (as abstracted by the M-L Scoring System) which are systematically collected "bits" of empirical fact. An attempt was made to bridge the gulf between the logical conceptual components of Mann's M-L Scoring System and what are perceived as the empirical facts to be 'counted' in the categories, through statistical analyses and summary statements accompanied by a 'certain' breadth and depth of the logic and psychologic of explanation. Coding behavior via observational systems involves the business of category validation, which, for example, asks the question: If a person behaves (verbally or non-verbally) in such-and-such-a-way empirically, does that act satisfy what we mean by category #1 or... category #16? Presuming that "reality" is validly encapsulated by the coding system, the factor analysis of such data produces an interpretable primary-factor pattern matrix which involves the business of illustrating psychological factors which actually operate yet do not have empirical existence. "Second thoughts" on this report asks the question: "Where is the science of group behavior--the causal relationship?"

The clinical observations, about adoption of "social roles"

by persons, about "structures" of treatment, about "phases" of group development, do not rise or fall on Mann's M-L Scoring System or on the various statistical techniques used to describe them; nor do they depend on the theoretic base of Freud's "family model" or the Kleinian-Bionic notion of "part-object relationship"; but, the point is, that clinical intuition, which searches out the causal relationship, requires some context to explain itself; and the "structure", "role", or "phase", although made manifest by the contexture of a factor analytic dye or an analysis of variance repeated measures trace, is independent of these analyses. The point is, the "structure", "role", or "phase", is there; the analysis doesn't impose structure, nor does the theoretical model; and the science of group behavior is in finding the structure, role or phase, and its underlying cause, not in creating it. Thus, the primary-factor pattern matrix is a picture of the psychological structure of the treatments; and the various "plots" of categories across time intervals based on the ANOVA with repeated measures statistic is a map of the phase movements of the groups.

Mann's Member-Leader Scoring System is a rather highly restrictive model (which focuses on a small part--the member-leader relationship--of the total dynamic) to use in the study of phase development; but still the process came through, and the patterns of the phases were distinct. The M-L relationship, although isolated from other important relationships, assimilates a large proportion of the momentum of the group because it is coded in highly relevant Impulse, Authority Relations, and Ego State areas. The M-L relationship, as observed in this study, changes over time and offers compelling evidence for the existence of the

phenomenon called "group development".

The investigator contends that a study of "individual careers" should be a study of "group process" as a causal factor in "social role development", and not vice versa. Some authors (Matheson, 1971, Mann, 1967) suggest that due to a lack of certain "key" persons, groups may fail to go through the expected phase developments. This paradigm would explain phase development by social role development. Yet, the "reality" suggests the reverse; "the group" in need of a certain type of leader to move the group through a certain phase will produce one. Individuals who bring to the group their unique baseline on the "power","feeling" and "task" continua are disposed to fulfill a role function more aptly than others; but it remains to "the group" to condition such-and-such a person to adopt such-and-such a role. Correlational studies indicate that "phase movement" and "social role development" are the interactive concomitants of process and person in group phenomena; but causal factors are more likely to be found in processes than persons.

This whole research report shows the need for studying causal relationships, for even if phase movements are demonstrated, and high empathy responses are shown correlated with certain phases, low empathy with other phases; and even if psychological structures (factors) are found, and persons with high scores on certain factors correlate significantly with empathy response or other dependent variables; in spite of all, the necessary logical connection is not demonstrated. The science of behavior searches for the necessary relationships--what causes phases, role, structures in groups? What causes learning or prevents learning in small groups?

Implications for Teachers

The leaders of the Self Analytic Treatment and the Direct Communications Treatment represent polar opposite positions on various continua like the following:

SAT leader (teacher)	vs.	DCT leader (teacher)
unilateral	vs.	bilateral
non-interactive	vs.	interactive
non-intercommunicative	vs.	intercommunicative
analytic role	vs.	integralistic
non-participant observer	vs.	didactic participant
non-structured	vs.	highly structured

The implications for the classroom teacher is that analogues of these continua, or variations of positions on these continua, may readily be found in the classroom; indeed, certain classroom teachers may readily find themselves on the extremities of either pole, and upon recognizing their relative positions may take to heart the interpretation of the respective factor pattern matrices of the SAT or DCT. Classrooms do in fact have varying degrees of organizational structure and teachers as well as students have varying degrees of flexibility to accommodate to such structures. A predetermined organizational structure greatly influences the members upon whom it is imposed; and these members, in turn, in their affective life accommodate or disaccommodate to the structure. These emotional reactions to a structured environment have a bearing on the learning objectives of teachers. Such additional sources of variation (i.e., emotional reactions to a structured environment) which greatly influence the

psychological structure of the classroom suggest an expansion of the psychological model of the classroom environment to include a student reaction dimension as well as a teacher dimension. A sketch of the teacher dimension and the student dimension as outlined on the following page is suggested from the interpretation of the factor patterns of the Self Analytic and Direct Communications treatments. The outline should alert the teacher to the existence of analogues to such psychological structures in the classroom. Whereas the description is based on an empirical study, which has its unique psychological structures and phase development, the generalizable point is that such psychological structures and group movement exist in the classroom and can be recognized. It is the task of the classroom teacher to recognize and describe the characteristic features of the psychological structure of the classroom and how such a structure develops over time. Then it may be possible to strengthen those features which facilitate learning and extinguish those which inhibit learning.

The psychological structures as described in Chapter 4 of this investigation are outlined. These factors suggest a variety of emotional dispositions concurring simultaneously, and phase movements suggest a constantly changing pattern of emotional life in a particular class' history. The important consideration is that the Teacher and Student dimensions be considered as interactive concomitants which facilitate or inhibit learning, and that such dimensions cannot be considered in isolation without disrupting the learning process.

TEACHER DIMENSIONS

SAT (teacher)	vs.	DCT (teacher)
unilateral	vs.	bilateral
non-interactive	vs.	interactive
non-intercommunicative	vs.	intercommunicative
analytic role	vs.	integralistic role
non-participant observer	vs.	didactic participant
non-structured class	vs.	structured class

STUDENT DIMENSIONS

I Reactions to the SAT teacher

I	Ambivalence	vs.	Self-assurance
II	Dependence-Flight	vs.	Apprehension
III	Concealment of Inner Distress	vs.	Manifestation of Inner Distress
IV	Challenge-Fight		
V	Encouragement	vs.	Discouragement

II Reactions to the DCT teacher

I	Ambivalence Reaction	vs.	Anxious Dependence Reaction
II	Defeatist Appraisal	vs.	Hopeful Expectation
III	Loyalty	vs.	Lack of Commitment
IV	Ambivalence to Person	vs.	Resistance to Role
V	Mature Outlook		

As the psychological model of the classroom suggests, the Teacher-Student relationship is characterized by a variety of fluctant emotional patterns which are highly influenced by teacher style and student reaction. The teacher-styles as indicated in the model are polar extremes of a wide range of possible teacher-styles. The SAT teacher-style with teacher as non-participant observer, who does not impose structure, is unilateral in his analytical interpretations and authority-denying in his stance regarding the direction that the group should take, is non-interactive and non-intercommunicative in his interventions, places the onus of responsibility for learning outcomes in the hands of the students. Oftentimes the SAT teacher-style is too heavy a burden for the ordinary student, who may indulge in a variety of defensive ploys and non-task oriented activities as is shown by the variety of factor patterns which emerge. In contrast, the DCT teacher-style with teacher as didactic participant, who imposes some structure, is more controlling, is bilateral and integralistic in his interventions and is personally interactive and intercommunicative shares the responsibility with the student to achieve the intended learning outcomes. Usually the ordinary student does well in this facilitative environment, but defensive ploys and non-work ethic is also in evidence as shown by certain factor patterns. That students react differently to these two teacher-styles is seen in the variety of emotional reactions as described in Chapter 4. Additionally, as Mann's Member-Leader Scoring System has clearly illustrated in the study of group development, the Teacher-Student

relationship is characterized by a variety of emotions which are ambivalent; and the positive and negative aspects of this ambivalence rises and falls with a change in phase. These ambivalent reactions are highly influenced by the change in a teacher's "role presentation" or "presentation of self"; these changes, in turn, are highly influenced by student reactions. This suggests a possible procedure for teachers--to control the behaviour of the classroom act in an indirect manner by changing your own behaviour in the appropriate directions on the above-mentioned continua. If this results in a control of disruptive and negative affect and facilitates the expression of a positive emotional environment then the obstacles to learning are removed and learning can take place.

The classroom has been regarded as the medium <u>in which</u> instruction takes place. A study of group dynamics indicates that the classroom, in its dynamic components, is the medium <u>by which</u> learning takes place. The classroom is an excellent medium for teaching and learning about group dynamics, interpersonal relationships and the "hidden curriculum" which can facilitate or impede intended learning outcomes. However, successful use of the classroom as an instructional medium requires an understanding of group structure, process, formation, and development.

Both training environments (SAT and DCT) in this study were intended to be so structured as to optimise participation on cognitive and affective dimensions; and to provide immediate on-the-spot feedback of an individual's or the group's performance. The group members (teacher-trainees) as subject and object, as initiator

and receiver, as interpreter and interpreted, had the unique learning environment which permitted them to compare their repertoire of behavioral responses with other group members, and the group-as-a-whole. They could explore their relationships and reactions to the leader, who is an authority figure, sometimes perceived as facilitative othertimes as manipulative, who is an object of love and hate, and who is identified with and withdrawn from, as the group traverses the sessions. The intended learning outcomes--the understanding of group process, and the communication of empathic response--are not accomplished equally by all the participants; but still the opportunity existed for everyone.

As most teacher-trainees soon realize, an understanding of the complexity of group phenomena requires a theoretical framework, group dynamics concepts, and skills in interpreting "what is happening in the group". A firm grasp of these concepts and skills are prerequisite to utilising them in the classroom--to maximize intended learning outcomes. These teacher-trainees, who are members of groups oriented towards understanding group phenomena, are more likely to be aware of the dynamic features of group process as they experience them in the classroom.

The most obvious implications of the factor patterns in educational settings is that a teacher is perceived (sometimes accurately, othertimes with distortion) and reacted to (sometimes with emotional maturity, othertimes with ambivalence) on a variety of dimensions, some of which facilitate learning, others which inhibit learning. For instance, the perception of the leader and

the reaction to him on the AMBIVALENCE pole of Factor I (cf. p. 49) is much different form the perception of and reaction to the leader on the SELF-ASSURANCE pole of the same factor. Elements of the various factors could possibly be found in any classroom situation.

The interpretation of the primary-factor pattern matrix, for both SAT and DCT, which describe the "psychological structure" of the particular treatment, illustrates the educational value of understanding the changing pattern of group emotional life as the perception and reaction to the leader changes throughout the life of the group. The interpretation of the factors, then, had to account for the "role presentations" and "presentations of self" of each leader, with their specific training program, all of which were reacted to by the group members, who had their own "roles" to present, "selves" to portray, the outcome of which may be at odds with the intended learning outcomes of the experiment. The upshot of this is that the factor analytic interpretations are treatment-specific, which treatment is composed of such-and-such persons with a leader who has such-and-such a program. Thus, the "psychological structure" of a classroom will be better characterized by a changing emotional environment than by techniques of classroom management. The findings from the factor analytic interpretation strongly suggest that techniques of classroom management should be formulated with a built-in flexibility to adapt to the changing affective climate of the classroom.

Perhaps the greatest merit of this study will occur, if teachers are alerted to the facts of group phenomena--such as the psychological

structure of the classroom, the dynamics of group process and phase development--and to a recognition of the difficulty of accomplishing their intended learning objectives (as it was difficult for the leader of the DCT groups to accomplish his aims) uninhibited by group members. Teachers, then, should consider the changing emotional environment of the classroom which is unduly influenced by their (and their students') "role" and "self" presentations, and allow for the influence of group process, and, consequently, develop and implement lesson plans with a built-in flexibility to cope with the changing affective environment of the classroom.

Contributions to Research on Small Groups

The major contribution of this study is an unique application of the ANOVA with repeated measures and ANOVA of trends to analyze group development. Also the use of plots for a figural representation of the variables, whose correlations are known, help to determine which variables are similar and which dissimilar; and lead to a wealth of meaningful psychological comparisons. These procedures contributed to the estimation of the number of phases, the recognition of their start and duration, and the description of their emotional content. In spite of certain similarities between groups within a particular treatment, the dissimilarities did not warrant an attempt to devise a theory of group development. Although the number of phases were the same the emotional content varied so greatly among the groups that the phase movement was more group-specific than treatment-specific. It was impossible to verify or disconfirm Mann's theory of group

development. The factor analytic procedures and the factor measurements derived from them assists in finding the psychological constructs which inhibit and promote learning.

The importance of this study then is, firstly, that the statistical methodology has demonstrated and illustrated the existence of "psychological structure" and "group movement" in these experimental groups; this type of analysis can be applied to all groups; secondly, the finding that group phenomena exists to facilitate and inhibit learning in all groups, and that these factors can be recognized and interpreted; and more profitably, can be used to increase learning, is indeed remarkable.

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APPENDIX A

The Content Categories of Mann's Member-Leader Scoring System (adapted from Mann's 1967, 1970 accounts)

The Content Categories of Mann's Member-Leader Scoring System

#1 MOVING AGAINST:
(cf. Bales category #12) Three major characteristics:
(1) the hostility is aroused by and/or directed to the person or leader, as opposed to his 'in-role' behavior;
(2) the expression of feeling has an active, self-initiated quality, rather than being mainly passive or reactive; and
(3) the hostility expressed is couched in personal terms of anger, criticism, and mistrust rather than in moralistic terms of someone invoking a higher value as a weapon against the leader.
Member mocks or belittles the leader ... to deflate him.
Acts of personal criticism, aimed more at the person behind the role rather than the role itself.
Leader as weak, incompetent, voyeuristic, rigid, devious, odious; desire to hurt the leader, offend, retaliate.
Expressions which take the form of mistrust, suspicion, scorn, and sarcasm are scored as 'Moving Against'.

#2 RESISTING:
(cf. Bales category #10) Two major characteristics:
(1) the hostility is directed at the role or the performance of the leader; and
(2) the hostility is largely responsive (reactive), occuring on the occasion of explicit pressures from the leader, or, in response to the felt pressures generated by the entire learning situation.
Resisting usually follows some intervention of the leader.
Rejection of an interpretation, various forms of contradiction, negative responses to the structure and pacing of the course provided by the leader, criticism of 'aimless talk', disagreement, impatience with continued discussion of a topic, are indicants of 'Resisting'.

#3 WITHDRAWING:
(1) Withdrawing is a form of hostility aimed at loosening the bond between the member and the leader. Acts which express the desire to decrease the intensity of the Member-Leader relationship, or to prevent it from becoming intense are scored as Withdrawing. Efforts to ignore the leader; statements about leaving the group; boredom, disinterest, or acts which express the desire to keep the leader out of his 'inner' world and to weaken the bond between them are scored as Withdrawing.
(2) To isolate the group experience from one's 'real self'; verbalized feelings to 'reserve' and 'shyness' which make a member hold back for fear of being hurt or rejected, are forms of Withdrawing.
(3) Acts which are manifestly attempts at humor -- the introjected pun or the wild and escapist free-associations to a threatening discussion-- may be forms of Withdrawing. When asked a question, a 'response' of declining to enter into interaction is scored as withdrawing: as is the 'response' to the leader's questions by silence (depends on context).

#4 GUILT INDUCING:

Some hostility depends upon the invocation of a 'third force': the set of values, morals, and unwritten rules of etiquette which the member asserts should be operative and binding upon the leader's behavior. The desired outcome of the member's act seems not to hurt, block, or avoid the leader, but to make him feel guilty in the light of these higher values. The three main verbs are: accuse, blame, and complain.

In 'Guilt Inducing' the members berate the leader for being inconsistent, for playing favorites, for being too impartial, and for being retentive, ineffectual, or hypocritical. Members blame the leader for making the group self-conscious, for causing the collapse of efforts to work, and for not preventing the end of the group.

Three premises that generate Guilt Inducing acts:

(1) the leader, regardless of his formal role, is bound by the ethics of ordinary human interaction: be humane, strong, sensitive, honest, fair, kind, thoughtful, considerate, and generous.

(2) the leader is bound to fulfill the members' expectations regarding leaders in general: be strong, be universalistic, be helpful.

(3) the leader should either be the paragon of all virtues or else manage to conceal any flaws from the believing multitudes.

Guilt Inducing unmasks the leader, exposing his selfishness. Because these are 'legitimate' demands, the member usually doesn't apprehend his hostility toward the leader. One of the major cues is the use of evaluative terms -- should, must, have a right to.
It is a quality of legitimacy, of invoking the sense that a thing must be done.

#5 MAKING REPARATION:

Making Reparation is the process of countering or undoing the hostile impulses one feels toward another person. (Klein, Riviere, 1937)

Making Reparation can only be comprehended by considering the hostile context in which it occurs.

Making Reparation takes the forms of:

(1) backing off from, or apologizing for, some earlier hostility toward the leader; or as prior response to some form of hostility which is about to occur.

(2) denying or in some way neutralizing any current hostility;

(3) disassociating oneself from the hostility of others;

(4) expanding the target of some hostile act toward the leader to include oneself, sometimes to the extent that the self replaces the leader as the legitimate target.

#6 IDENTIFYING:

In general, the member takes on some aspects or quality of the leader -- may include mannerisms of speech, peculiarities of style, or personal values, general attitudes and philosophy.

Playing the leader's role in relation to another group member, copying the leader, incorporating the leader's ideas as one's own, expressing a wish to be like the leader are forms of Identifying.

Three aspects of the leader with which the members can identify:
(1) his tendency to make interpretive comments about the group process;
(2) his values, his general outlook on life, or his particular philosophy about how to teach; and
(3) his mannerisms, or other rather superficial aspects of his behavior.

When the feelings contained in the interpretation are not those of the member, but are, rather, feelings he has chosen to interpret, as might the leader, we score the act as Identifying.
When the feelings are those of the member, if the member adopts the 'observer's stance', the act is scored as Identifying.
When in doubt, the scorer looks first for the 'expressive' aspects and only later for the 'leader-like stance' the member may be taking.

#7 ACCEPTING:
(cf. Bales category #3 "Agrees")
Both Accepting and Resisting are primarily reactive to the role performance of the leader.
Major forms of Accepting are: (Accepting vs. Moving Toward)
(1) agreeing with the leader;
(2) approving of his behavior or the structure of the course; and
(3) testifying to the validity of appropriateness of the leader's interpretation.

Accepting vs. Making Reparation: depends on how ambivalent the member is, Making Reparation involves an effort by the member to counter or undo his own hostility. Before scoring an act as Accepting, the scorer must satisfy himself that the act is not primarily an attempt to stifle the negative side of the member's ambivalence.

Accepting vs. Identifying: the crucial issure here is the temporal or causal connectedness of the leader's act and the member's act. Accepting says: "See, I support you", whereas Identifying says: "See, I am similar to you".

#8 MOVING TOWARD:
Personal affection for the leader in the form of liking, trust, comfort, admiration; perception of the leader which is associated with a warm, positive response; acts which indicate that the member is interested in decreasing the distance between himself and the leader; that he would like to know the leader or become friendly with him, are scored as Moving Toward. (cf. Bales category #1 "Seems Friendly").
Many acts scored in this category are elliptical and guarded.
Moving Toward suggests some desire to establish, strengthen, or exhibit positive and personal bonds with the person and, in this way, contrasts with the more role-oriented, impersonal affection expressed in 'Accepting'.

#9 SHOWING DEPENDENCY:

(The 'authority relations area' assesses the member's feelings toward the power of the leader.)

Characteristic feelings:

(1) the member perceives the leader to be more powerful and then responds in a submissive and deferential manner; or

(2) the member wishes the leader were more powerful and attempts to maneuver him into that position by appropriate action.

In either case, the leader's power may involve:

(1) the power to provide members with the crucial gratifications, sometimes in the form of rewards and punishments;

(2) the power which derives from control over the means, such as knowledge and experience, which are relevant to the attainment of group goals; and

(3) the power to determine the destiny of the group, for good or ill.

More subtly, dependency involves those acts which presume that the group is weak whereas the leader is strong, or that the group is passive and the leader is in full command of the situation.

Often these acts take the form of angry or impatient clamoring for the leader to be more helpful and supportive or, perhaps, to magically infuse the group with 'life' so that it can 'go' -- get on with the task.

#10 SHOWING INDEPENDENCE:

Acts which express the member's feelings of autonomy and freedom from the constricting influence of the leader's power. There are three basic ways in which this feeling is expressed:

(1) acts which emphasize the member's own responsibility for his fate;

(2) acts which attempt to clarify the member's goals and values or to enunciate the member's criteria for evaluating his own and other's behavior; and

(3) acts which convey a sense of colleagueship and equality between member and leader.

#11 SHOWING COUNTERDEPENDENCY:

A person may attempt counter dependency either by denying his inner needs or by various assaults upon external manifestations of power and control.

Acts of Counterdependency are of two forms; one aimed at the denial of and the other aimed at the destruction of the existing authority structure.

Any effort to decrease the leader's power for reasons of enhancing the member's own sense of power belongs in this category.

Counterdependency acts are distinguished from Showing Independence in that they typically have a more conflicted and defensive quality about them.

Counterdependency acts express some need to break away from a sense of Dependency, rather than a clear expression of autonomy or freedom.

EGO STATES:

#12 EXPRESSING ANXIETY:

Anxiety is defined as an affective state which accompanies a person's recognition that he is approaching, or is already in, a dangerous situation. The common element is the sense of threat to one's own safety or self-regard.

Observable indications that a person is experiencing anxiety are of three major forms:

(1) semivoluntary and non-verbal indications of inner tension;
(2) public assessment of one's own inner state; and
(3) the person's assessments of the environment, or of particular people, (especially the leader), which seem congruent with the inner experience of anxiety.

The ingredients of the complete act are a vulnerable, threatened self in relation to a judging and dangerous object, and many of the acts convey both sides of this relationship.

#13 DENYING ANXIETY:

Statements that express a feeling of goodness, comfort, or relaxation can have one of two meanings. They can be expressions of self esteem or they can be defensive denials of feeling scared, uncomfortable, or vulnerable. The critical attribute for scoring denial is the focus on negation.

(Problem: to separate 'denials' from the relatively genuine expressions of 'self-esteem'.)

Scoring Denying Anxiety depends largely on the context of the act. Acts of Denying Anxiety are cast primarily in negative terms. Similarly, when the act follows closely an expression of anxiety, and the person seems primarily concerned with negating the import of that prior act, it is scored Denying Anxiety.

The element of negation is crucial, as is the context of others' expressed anxiety.

Qualities of protesting against inner distress and of belittling what is threatening are indicants of 'Denying Anxiety'.

#14 EXPRESSING SELF-ESTEEM:

Self-esteem acts are expressions of self-satisfaction and contentment which seem motivated more by the need to express oneself than by the need to counter and deny feelings of distress.

The intention is to record the moments when the member 'feels good' in relation to the leader.

The major ways in which a member expresses his self-esteem are:

(1) through his sense of being relaxed or secure; and
(2) through feeling capable of performing some important task and capable of being what he wishes to be (honest, warm, etc.).

The essential defining characteristic of these acts is that they convey a feeling of self-esteem which is credible, which leaves it to the

scorer to separate the expressive from the defensive, the denial from the valid self-report.

#15 EXPRESSING DEPRESSION:

Bibring identifies the feeling of helplessness as the essential ingredient of all depression. It has two main components:

(1) when the person is helpless to effect desired changes in the external world; and

(2) when he is helpless to control inner forces which he wishes to restrain.

Typically, Depression is expressed in terms of incompetence. Powerlessness and guilt underlie most of the acts scored as Expressing Depression.

Powerlessness is expressed in terms of a sense of inadequacy. The members portray themselves as weak, ineffectual, and insignificant and the leader as competent and powerful.

Guilt is expressed in the recognition of how unsteady the inner controls can be at times, how helpless the ego is in the face of massive arousal of unacceptable impulses of any variety.

#16 DENYING DEPRESSION:

Much of what was said regarding Denying Anxiety would apply to Denying Depression, except that what is being denied shifts from feeling threatened by a dangerous external force to feeling powerless and guilty.

The content of the denials, when the issue is powerlessness, may involve strident assertions of potency and efforts to disparage any power differential between the members and the leader. When the issue is one of loss, the denial may involve plans to minimize the effect of separation, or it may simply involve unwillingness to share in the feelings of sadness. Denial of guilt feelings often proceeds down the familiar blame-avoidance path of defensiveness, deflection of blame, and self-justification.

Scoring Denying Depression involves the antecedents and context of the act. This category focuses upon the attempt to restore self-esteem and decrease depression through the mechanisms of denial, suppression, and reaction formation.

The manic defences against Depression often involve more active modes such as euphoric denial of sadness, separation, and guilt.

APPENDIX B

The Member-Leader Scoring Grid

APPENDIX B

THE MEMBER-LEADER SCORING GRID

Group:	Level				Level				Level			
Date:	1	2	3	4	1	2	3	4	1	2	3	4
HOSTILITY:												
1. Moving Against.....												
2. Resisting.....												
3. Withdrawing.....												
4. Guilt-inducing												
AFFECTION:												
5. Reparation.....												
6. Identifying.....												
7. Accepting.....												
8. Moving Toward												
AUTHORITY RELATIONS:												
9. Dependency.....												
10. Independence.....												
11. Counter-dependency												
EGO STATE:												
12. Expressing Anxiety....												
13. Denying Anxiety.....												
14. Self-esteem----------												
15. Expressing Depression.												
16. Denying Depression												

APPENDIX C4

Tables Associated with the Factor Analysis

TABLE C4.1 Correlation Matrix for Self-Analytic Treatment (16 variable set)

		1	2	3	4	5	6	7	8	9	10
1	Moving Against	1.000									
2	Resisting	.383	1.000								
3	Withdrawing	-.379	-.275	1.000							
4	Guilt Inducing	.136	.292	-.264	1.000						
5	Reparation	.195	.683	-.203	.170	1.000					
6	Identifying	.312	.383	-.282	.381	.240	1.000				
7	Accepting	.378	.646	-.309	.289	.426	.379	1.000			
8	Moving Toward	.135	.290	-.090	.285	.160	-.055	.288	1.000		
9	Dependence	-.196	.270	.413	.138	.323	.171	.253	.301	1.000	
10	Independence	.514	-.078	-.093	-.081	-.123	-.060	-.074	-.079	-.222	1.000
11	Counterdependence	.510	.808	-.357	.384	.552	.483	.805	.376	.220	-.062
12	Express Anxiety	-.163	-.319	-.332	-.260	-.301	-.212	-.172	-.226	-.364	-.045
13	Denying Anxiety	.260	.150	-.323	.094	.100	.132	-.045	.034	-.162	-.010
14	Self-esteem	-.092	-.144	-.282	-.146	-.214	-.115	.062	.062	-.207	.198
15	Express Depression	-.444	-.429	.708	-.184	-.287	-.267	-.341	-.184	.250	-.215
16	Denying Depression	-.023	-.137	.456	-.213	-.194	-.250	-.335	-.145	-.118	-.031

	11	12	13	14	15	16
11	1.000					
12	-.209	1.000				
13	.108	-.155	1.000			
14	-.119	.115	-.153	1.000		
15	-.348	.081	-.428	-.344	1.000	
16	-.271	-.409	.426	-.226	.194	1.000

TABLE C4.2 Correlation Matrix for Self Analytic Treatment (20 variable set)

		1	2	3	4	5	6	7	8	9	10
1	Moving Against	1.000									
2	Resisting	.383	1.000								
3	Withdrawing	-.379	-.275	1.000							
4	Guilt Inducing	.136	.292	-.264	1.000						
5	Reparation	.195	.683	-.203	.170	1.000					
6	Identifying	.213	.383	-.282	.381	.240	1.000				
7	Accepting	.378	.646	-.309	.289	.426	.379	1.000			
8	Moving Toward	.135	.290	-.090	.285	.160	-.055	.288	1.000		
9	Dependence	-.196	.270	.413	.138	.323	.171	.253	.301	1.000	
10	Independence	.514	-.078	-.093	-.081	-.123	-.060	-.174	-.079	-.222	1.000
11	Counterdependence	.510	.808	-.357	.384	.552	.483	.805	.376	.220	-.062
12	Express Anxiety	-.163	-.319	-.332	-.260	-.301	-.212	-.172	-.226	-.364	-.045
13	Denying Anxiety	.260	.150	-.323	.094	.100	.132	-.045	.034	-.162	-.010
14	Self-esteem	-.092	-.144	-.282	-.146	-.214	-.115	.062	.062	-.207	.198
15	Express Depression	-.444	-.429	.708	-.184	-.287	-.267	-.341	-.184	.250	-.215
16	Denying Depression	-.023	-.137	.456	-.213	-.194	-.250	-.335	-.145	-.118	-.031
17	Level 1	.633	.477	-.373	.194	.284	.272	.480	.193	.019	.143
18	Level 2	-.373	-.255	.400	-.088	-.186	-.083	-.255	-.105	.050	-.353
19	Level 3	.432	.475	-.297	.201	.283	.277	.759	.193	.153	.144
20	Level 4	.142	-.061	-.233	-.068	-.098	-.049	-.063	-.068	-.206	.238

		11	12	13	14	15	16	17	18	19	20
11		1.000									
12		-.209	1.000								
13		.108	-.155	1.000							
14		-.119	.115	-.153	1.000						
15		-.348	.081	-.428	-.344	1.000					
16		-.271	-.409	.426	-.226	.194	1.000				
17		.613	-.080	-.113	-.028	-.335	-.356	1.000			
18		-.214	.032	.248	-.268	.451	.458	-.697	1.000		
19		.608	-.112	-.267	.133	-.323	-.464	.778	-.725	1.000	
20		-.053	.060	-.258	.273	-.187	-.234	.478	-.743	.475	1.000

TABLE C4.3 Correlation Matrix for Direct Communications Treatment (16 variable set)

		1	2	3	4	5	6	7	8	9	10
1	Moving Against	1.000									
2	Resisting	-.326	1.000								
3	Withdrawing	.167	-.342	1.000							
4	Guilt Inducing	.448	-.002	.184	1.000						
5	Reparation	.589	-.134	.303	.430	1.000					
6	Identifying	.291	-.047	.000	.016	.383	1.000				
7	Accepting	.158	-.090	-.217	.198	.237	.186	1.000			
8	Moving Toward	.588	-.232	.045	.431	.407	.384	.045	1.000		
9	Dependence	-.060	-.099	-.039	.052	.153	.024	.562	-.088	1.000	
10	Independence	.383	-.022	-.083	.192	.332	.595	.262	.538	-.057	1.000
11	Counterdependence	.240	.026	.216	.231	.477	.352	-.000	.224	-.096	.435
12	Express Anxiety	-.403	-.122	-.492	-.454	-.448	-.219	-.307	-.266	-.170	-.305
13	Denying Anxiety	-.107	-.229	.186	-.232	-.117	-.043	-.007	-.106	.284	-.217
14	Self-esteem	.278	-.045	.108	.313	.112	.270	.155	.528	-.209	.451
15	Express Depression	.333	-.516	.739	.319	.329	-.035	-.130	.200	.119	.001
16	Denying Depression	.198	-.119	-.401	.122	.049	-.057	.579	,050	.089	.154

		11	12	13	14	15	16
11		1.000					
12		-.376	1.000				
13		-.274	.131	1.000			
14		.083	-.483	-.353	1.000		
15		.298	-.448	.029	.153	1.000	
16		-.079	.093	-.199	.178	-.179	1.000

TABLE C4.4 Correlation Matrix for Direct Communications Treatment (20 variable set)

		1	2	3	4	5	6	7	8	9	10
1	Moving Against	1.000									
2	Resisting	-.326	1.000								
3	Withdrawing	.167	-.342	1.000							
4	Guilt Inducing	.448	-.002	.184	1.000						
5	Reparation	.589	-.134	.303	.430	1.000					
6	Identifying	.291	-.047	.000	.016	.383	1.000				
7	Accepting	.158	-.090	-.217	.198	.237	.186	1.000			
8	Moving Toward	.588	-.232	.045	.431	.407	.384	.045	1.000		
9	Dependence	-.060	-.099	-.039	.052	.153	.024	.562	.088	1.000	
10	Independence	.383	-.022	-.083	.192	.332	.595	.262	.538	-.057	1.000
11	Counterdependence	.240	.026	.216	.321	.477	.352	-.000	.224	-.096	.435
12	Express Anxiety	-.403	-.122	-.492	-.454	-.448	-.219	-.307	-.266	-.170	-.305
13	Denying Anxiety	-.107	-.229	.186	-.232	-.117	-.043	-.007	-.106	.284	-.217
14	Self-esteem	.278	-.045	.108	.313	.112	.270	.155	.528	-.209	.451
15	Express Depression	.333	-.516	.739	.319	.329	-.035	-.130	.200	.119	.001
16	Denying Depression	.198	-.119	-.401	.122	.049	-.057	.579	.050	.089	.154
17	Level 1	.542	-.177	.152	.346	.432	.356	.238	.527	.043	.538
18	Level 2	-.500	.007	-.116	-.370	-.390	-.210	-.237	-.419	-.070	-.354
19	Level 3	.318	.046	-.056	.268	.183	.203	.184	.280	.027	.222
20	Level 4	.527	.001	.097	.335	.371	.181	.125	.227	.076	.183

	11	12	13	14	15	16	17	18	19	20
11	1.000									
12	-.376	1.000								
13	-.274	.131	1.000							
14	.083	-.483	-.353	1.000						
15	.298	-.448	.029	.153	1.000					
16	-.079	.093	-.199	.178	-.179	1.000				
17	.376	-.297	-.120	.312	.234	.359	1.000			
18	-.360	.412	.269	-.398	-.326	-.468	-.675	1.000		
19	-.040	-.197	-.207	.375	.072	.385	.270	-.653	1.000	
20	.226	-.430	-.295	.300	.249	.120	.337	-.465	.209	1.000

TABLE C4.5

Principal Factor Solution for Self Analytic Treatment (16 variable set)

Unrotated Factor Loadings

		1	2	3	4	5
1	MA	-.602	.292	-.456	.511	.295
2	RS	-.817	-.259	-.031	-.042	-.019
3	WI	.585	-.730	-.121	.320	-.074
4	GI	-.423	-.119	.049	-.108	.007
5	RP	-.586	-.276	.028	-.098	.011
6	ID	-.493	-.081	.044	-.104	.092
7	AC	-.746	-.135	.212	.114	-.036
8	MT	-.340	-.161	.075	.050	-.218
9	DN	-.166	-.667	.211	.059	-.141
10	IN	-.037	.360	-.239	.518	-.005
11	CD	-.896	-.197	.081	.053	.114
12	EA	.266	.508	.422	-.138	.366
13	DA	-.233	.162	-.616	-.430	-.025
14	SE	.026	.495	.254	.179	-.607
15	ED	.627	-.507	.181	.127	.305
16	DD	.342	-.245	-.770	-.112	-.119

Principal Factor Solution for Self Analytic Treatment (20 variable set)

Unrotated Factor Loadings

		1	2	3	4	5	6
1	MA	-.641	.077	.387	-.482	.350	.277
2	RS	-.721	-.438	.044	.024	-.055	-.066
3	WI	.593	-.381	-.524	-.451	-.036	.153
4	GI	-.354	-.242	.038	.117	-.039	-.119
5	RP	-.497	-.391	-.019	.063	-.057	-.187
6	ID	-.427	-.234	.068	.127	.043	-.108
7	AC	-.756	-.284	-.137	.181	-.016	.309
8	MT	-.299	-.209	-.067	.041	-.194	.091
9	DN	-.103	-.521	-.469	.005	-.169	-.042
10	IN	-.144	.367	.148	-.378	.024	.195
11	CD	-.829	-.414	.007	.113	.128	.139
12	EA	.185	.507	.028	.542	.441	.078
13	DA	-.037	-.252	.754	-.071	-.066	-.136
14	SE	-.083	.529	.023	.183	-.559	.376
15	ED	.613	-.201	-.533	-.073	.331	.058
16	DD	.457	-.307	.339	-.500	-.090	.019
17	L1	-.791	.171	-.163	-.213	.224	-.081
18	L2	.667	-.569	.253	.242	.136	.251
19	L3	-.824	.161	-.373	-.087	.026	.099
20	L4	-.296	.639	-.233	-.254	-.071	-.256

TABLE C4.6

Principal Factor Solution for Direct Communications Treatment
(16 Variable Set)

Unrotated Factor Loadings

		1	2	3	4	5
1	MA	.694	-.025	.028	.232	.109
2	RS	-.265	-.337	-.444	-.685	-.004
3	WI	.388	.769	.098	-.140	-.034
4	GI	.559	-.011	.029	-.144	.326
5	RP	.676	.025	.078	-.066	-.129
6	ID	.492	-.253	-.197	.113	-.578
7	AC	.309	-.621	.694	-.187	-.023
8	MT	.659	-.119	-.191	.306	.035
9	DN	.049	-.097	.648	-.218	-.242
10	IN	.611	-.386	-.248	.123	-.241
11	CD	.494	.048	-.216	-.140	-.166
12	EA	-.715	-.123	-.053	.533	-.063
13	DA	-.215	.255	.349	.107	-.328
14	SE	.521	-.177	-.222	.031	.253
15	ED	.519	.663	.218	.023	.132
16	DD	.099	-.561	.303	.190	.352

Principal Factor Solution for Direct Communications Treatment
(20 Variable Set)

Unrotated Factor Loadings

		1	2	3	4	5	6
1	MA	.723	-.072	-.050	.208	.025	-.139
2	RS	-.190	.347	.448	-.644	-.087	-.191
3	WI	.269	-.792	-.111	-.068	-.098	.096
4	GI	.549	-.063	-.027	-.118	-.182	-.063
5	RP	.651	-.167	-.110	-.114	.237	-.229
6	ID	.450	.102	.174	.012	.518	.103
7	AC	.346	.532	-.658	-.278	.152	.242
8	MT	.656	.010	.190	.280	.134	.118
9	DN	.057	.072	-.616	-.256	.145	.153
10	IN	.616	.240	.257	.065	.431	.134
11	CD	.473	-.178	.198	-.167	.266	-.256
12	EA	-.667	.269	.033	.572	.099	-.207
13	DA	-.275	-.225	-.351	.100	.222	.119
14	SE	.605	.145	.359	.049	-.304	.628
15	ED	.442	-.704	-.240	.081	-.211	-.006
16	DD	.276	.655	-.330	.227	-.271	-.115
17	L1	.714	.099	-.039	.183	.105	-.158
18	L2	-.765	-.182	.044	-.035	.295	.263
19	L3	.450	.284	.004	.070	-.289	-.027
20	L4	.536	-.013	.020	-.117	-.141	-.138

TABLE C4.7

Intercorrelation Matrix of Factors: Self-Analytic Treatment
(16 variable set)

	1	2	3	4	5
Factor 1	1.000	-.066	.002	.260	.322
Factor 2	-.066	1.000	.069	-.275	-.361
Factor 3	.002	.069	1.000	.159	-.088
Factor 4	.260	-.275	.159	1.000	.272
Factor 5	.322	-.361	-.088	.272	1.000

Intercorrelation Matrix of Factors: Self-Analytic Treatment
(20 variable set)

	1	2	3	4	5	6
Factor 1	1.000	.125	-.030	-.015	.086	.199
Factor 2	.125	1.000	-.022	-.178	.205	.243
Factor 3	-.030	-.022	1.000	.070	-.078	-.172
Factor 4	-.015	-.178	.070	1.000	-.119	-.006
Factor 5	.086	.205	-.078	-.119	1.000	.032
Factor 6	.199	.243	-.172	-.006	.032	1.000

TABLE C4.8

Intercorrelation Matrix of Factors: Direct Communications Treatment (16 variable set)

	1	2	3	4	5
Factor 1	1.000	.170	.200	.203	.547
Factor 2	.170	1.000	-.002	.245	.239
Factor 3	.200	-.002	1.000	.172	.179
Factor 4	.203	.245	.172	1.000	.250
Factor 5	.547	.239	.179	.250	1.000

Intercorrelation Matrix of Factors: Direct Communications Treatment (20 variable set)

	1	2	3	4	5	6
Factor 1	1.000	.124	.126	.016	.322	.175
Factor 2	.124	1.000	-.033	.074	.133	-.013
Factor 3	.126	-.033	1.000	.033	.042	-.014
Factor 4	.016	.074	.033	1.000	-.009	-.048
Factor 5	.322	.133	.042	-.009	1.000	.116
Factor 6	.175	-.013	-.014	-.048	.116	1.000

APPENDIX D 5

Tables and Figures used in the Study of Group Development

TABLE 5.1 SUMMARY OF ANALYSIS OF VARIANCE
(Var. #12 Expressing Anxiety)
SAT1

SOURCE OF VARIATION	SS	DF		MS	F	P
Between Subjects	0.119	11	n-1			
Within Subjects	0.198	144	n(k-1)	0.001		
Treatments	0.080	12	k-1	0.007	7.473	0.000
Residual (Error)	0.118	132	(n-1)(k-1)	0.001		

COEFFICIENTS IN TESTS FOR TREND

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
22	11	2	-5	-10	-13	-14	-13	-10	-5	2	11	22
-11	0	6	8	7	4	0	-4	-7	-8	-6	0	11
99	-66	-96	-54	11	64	84	64	11	-54	-96	-66	99

SUMMARY OF ANALYSIS OF VARIANCE OF TRENDS

SOURCE OF VARIATION	SS	DF		MS	F	P
Within Subjects	0.198	144	n(k-1)	0.001		
Within subjects linear	0.035	12	n			
Treatments linear	0.021	1	1	0.021	16.710	0.002
Error linear	0.014	11	n-1	0.001		
Within subjects quadratic	0.025	12	n			
Treatments quadratic	0.011	1	1	0.011	8.881	0.012
Error quadratic	0.014	11	n-1	0.001		
Within subjects cubic	0.033	12	n			
Treatments cubic	0.018	1	1	0.018	13.450	0.003
Error cubic	0.015	11	n-1	0.001		
Within subjects quartic	0.031	12	n			
Treatments quartic	0.011	1	1	0.011	5.930	0.031
Error quartic	0.020	11	n-1	0.002		
.....	.....	..	...			
Within subjects (degree k-1)....	....	..	...			

TABLE 5.2 SUMMARY OF ANALYSIS OF VARIANCE
(Var. #12 Expressing Anxiety)
SAT1 & 2

SOURCE OF VARIATION	SS	DF		MS	F	P
Between Subjects	1.522	22	np-1	0.069		
A main effects	1.174	1	p-1	1.174	70.780	0.000
Subj. within groups	0.348	21	p(n-1)	0.017		
Within Subjects	0.740	276	np(q-1)	0.003		
B main effect	0.257	12	q-1	0.021	16.984	0.000
AB interaction	0.166	12	(p-1)(q-1)	0.014	10.977	0.000
B x subj. w. groups	0.317	252	p(n-1)(q-1)	0.001		

COEFFICIENTS IN TESTS FOR TREND

-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
22	11	2	-5	-10	-13	-14	-13	-10	-5	2	11	22
-11	0	6	8	7	4	0	-4	-7	-8	-6	0	11
99	-66	-96	-54	11	64	84	64	11	-54	-96	-66	99

SUMMARY OF ANALYSIS OF VARIANCE OF TRENDS

SOURCE OF VARIATION	SS	DF		MS	F	P
Within Subjects	0.740	276	np(q-1)	0.003		
Within subjects linear	0.058	23	np			
B linear	0.022	1	1	0.022	13.967	0.001
AB linear	0.003	1	p-1	0.003	2.194	0.150
B x subj. w. gps. lin.	0.033	21	p(n-1)	0.002		
Within subjects quadratic	0.118	23	np			
B quadratic	0.004	1	1	0.004	1.174	0.290
AB quadratic	0.047	1	p-1	0.047	14.824	0.001
B x subj. w. gps. quad	0.067	21	p(n-1)	0.003		
Within subjects cubic	0.054	23	np			
B cubic	0.008	1	1	0.008	4.727	0.039
AB cubic	0.011	1	p-1	0.011	6.440	0.018
B x subj. w. gps. cub.	0.035	21	p(n-1)	0.002		
Within subjects quartic	0.326	23	np			
B quartic	0.185	1	1	0.185	74.686	0.000
AB quartic	0.089	1	p-1	0.089	35.740	0.000
B x subj. w. gps. quar	0.052	21	p(n-1)	0.002		
.....	.....	23	np			
Within subjects (degree q-1) ...		23	np			

TABLE 5.3
A CRITICAL VALUES TABLE FOR SIGNIFICANT F RATIO'S UNDER THE ORDINARY TEST AND THE CONSERVATIVE TEST

One-Way ANOVA

The Ordinary Test $F_{1-\alpha}[(k-1),(n-1)(k-1)]$

The Conservative Test $F_{1-\alpha}[1,(n-1)]$

	SAT1		SAT2		DCT1		DCT2	
	Ord.	Cons.	Ord.	Cons.	Ord.	Cons.	Ord.	Cons.
#1	*	NS						
#2	*	*	*	*	*	*	*	*
#3	*	*	*	*	*	*	*	*
#4	*	*	*	NS			*	NS
#5								
#6			*	NS	*	NS		
#7	*	NS	*	*	*	*	*	*
#8			*	*				
#9	*	*	*	*	*	*	*	*
#10	*	NS			*	NS		
#11	*	NS	*	*	*	*	*	NS
#12	*	*	*	*	*	NS	*	*
#13	*	*	*	*				
#14								
#15	*	*	*	*	*	*	*	*
#16	*	*	*	*				

Two-Way ANOVA

The Ordinary Test

B $F_{1-\alpha}[(q-1),p(n-1)(q-1)]$

AB $F_{1-\alpha}[(p-1)(q-1),p(n-1)(q-1)]$

The Conservative Test

B $F_{1-\alpha}[1,p(n-1)]$

AB $F_{1-\alpha}[(p-1),p(n-1)]$

	SAT1 & 2				DCT1 & 2				SAT1&2 & DCT1&2			
	Ord. B	Ord. AB	Cons. B	Cons. AB	Ord. B	Ord. AB	Cons. B	Cons. AB	Ord. B	Ord. AB	Cons. B	Cons. AB
#1	*	**	NS	**								
#2	*	**	NS	**	*	**	*	**	*	**	*	**
#3	*	**	*	**	*	**	*	**	*	**	*	**
#4	*	**	NS	**						**		**
#5												
#6	*	**	NS	NS		**		NS	*	**	NS	NS
#7	*	**	*	NS	*	**	*	**	*	**	*	**
#8												
#9	*	**	*	**	*	**	*	**	*	**	*	**
#10		**		NS	*		NS		*	**	NS	NS
#11	*	**	NS	**	*	**	NS	**		**		**
#12	*	**	*	**	*	**	*	**	*	**	*	**
#13	*	**	*	**					*	**	*	**
#14												
#15	*	**	*	**	*	**	*	**	*	**	*	**
#16	*	**	*	**					*	**	*	**

TABLE 5.11 INDEX AND CROSS REFERENCES

Group	Figures	Tables
SAT1	5.1--5.4 pp. 204-207	5.4 5.12 5.19 5.20
	5.17-5.20 pp. 208-211	pp. 188 195 202 203
SAT2	5.5--5.8 pp. 214-217	5.5 5.13 5.21 5.22
	5.21-5.24 pp. 218-221	pp. 189 196 212 213
SAT1 & 2	5.1--5.8	5.6 5.14 5.19 5.21 5.23
	5.25-5.29 pp. 223-227	pp. 190 198 208 212 222
	D5.1-D5.4 pp. 247-250	
DCT1	5.9--5.12 pp. 230-233	5.7 5.15 5.24 5.25
	5.30-5.31 pp. 234-235	pp. 191 198 228 229
DCT2	5.13-5.16 pp. 238-241	5.8 5.16 5.26 5.27
	5.32-5.33 pp. 242-243	pp. 192 199 236 237
DCT1 & 2	5.9--5.16	5.9 5.17 5.24 5.26 5.23
	5.34-5.36 pp. 244-246	pp. 193 200 228 236 222
	D5.5-D5.8 pp. 251-254	

TABLE 5.4 Means and F ratios from One Way Analysis of Variance on Mann's Sixteen Categories with Thirteen Repeated Measures on SAT1

Factor B	Repeated Measures													F	P
Category	1	2	3	4	5	6	7	8	9	10	11	12	13		
#1	.020	.025	.020	.020	.013	.020	.020	.024	.029	.029	.025	.015	.010	2.25	.012
#2	.039	.040	.036	.038	.035	.051	.059	.039	.026	.022	.026	.027	.025	6.02	.000
#3	.081	.074	.072	.058	.068	.076	.081	.091	.088	.112	.118	.143	.144	22.59	.000
#4	.021	.023	.020	.026	.026	.021	.013	.011	.020	.018	.016	.002	.003	5.41	.000
#5	.010	.018	.021	.023	.014	.006	.006	.006	.005	.006	.007	.006	.004	0.00	1.000
#6	.017	.019	.027	.029	.025	.019	.020	.024	.027	.024	.023	.015	.022	1.53	.119
#7	.028	.033	.031	.031	.025	.032	.035	.024	.020	.014	.015	.017	.020	4.32	.000
#8	.005	.008	.009	.009	.006	.007	.008	.010	.020	.018	.018	.003	.004	0.00	1.000
#9	.145	.126	.115	.120	.154	.178	.161	.103	.092	.101	.117	.147	.124	8.51	.000
#10	.031	.030	.040	.042	.039	.041	.047	.057	.068	.057	.054	.030	.034	2.35	.009
#11	.059	.062	.047	.051	.030	.048	.044	.039	.030	.030	.030	.025	.024	4.48	.000
#12	.321	.328	.309	.299	.306	.309	.317	.291	.267	.251	.265	.302	.316	7.47	.000
#13	.029	.030	.040	.040	.039	.019	.033	.046	.041	.032	.017	.035	.040	5.34	.000
#14	.004	.006	.014	.015	.012	.005	.006	.005	.011	.009	.011	.003	.004	0.00	1.000
#15	.184	.166	.171	.170	.181	.155	.120	.179	.187	.224	.215	.207	.193	8.06	.000
#16	.007	.011	.025	.029	.028	.014	.032	.049	.067	.054	.045	.025	.034	19.14	.000

TABLE 5.5

Means and F ratios from One Way Analysis of Variance on Mann's Sixteen Categories with Thirteen Repeated Measures on SAT2

Factor B	Repeated Measures													F	P
Category	1	2	3	4	5	6	7	8	9	10	11	12	13		
#1	.004	.006	.008	.009	.008	.006	.005	.004	.008	.011	.023	.035	.034	0.00	1.000
#2	.028	.040	.049	.036	.018	.018	.015	.021	.030	.034	.036	.034	.026	6.19	.000
#3	.126	.136	.206	.203	.182	.121	.121	.142	.150	.145	.122	.125	.108	15.00	.000
#4	.035	.036	.027	.018	.025	.029	.029	.022	.016	.020	.026	.043	.040	4.19	.000
#5	.016	.019	.011	.010	.011	.012	.010	.008	.008	.009	.021	.034	.034	0.00	1.000
#6	.026	.039	.035	.050	.035	.038	.027	.036	.042	.040	.043	.051	.062	2.03	.026
#7	.025	.032	.032	.022	.009	.007	.009	.010	.013	.014	.015	.012	.009	6.75	.000
#8	.012	.009	.005	.004	.004	.005	.006	.005	.006	.013	.023	.029	.022	7.11	.000
#9	.200	.205	.195	.206	.186	.182	.146	.152	.160	.183	.170	.133	.105	23.17	.000
#10	.020	.023	.018	.009	.003	.004	.004	.006	.007	.009	.009	.016	.015	0.00	1.000
#11	.018	.036	.044	.041	.027	.031	.043	.044	.050	.050	.063	.080	.078	12.37	.000
#12	.204	.152	.109	.119	.205	.246	.254	.218	.175	.139	.131	.106	.191	17.18	.000
#13	.025	.016	.015	.016	.014	.017	.049	.067	.074	.069	.060	.068	.044	34.50	.000
#14	.009	.009	.004	.001	.001	.002	.002	.003	.002	.002	.003	.003	.003	0.00	1.000
#15	.223	.218	.223	.232	.258	.261	.220	.185	.168	.180	.188	.161	.190	17.29	.000
#16	.028	.024	.021	.024	.023	.023	.060	.081	.090	.079	.067	.069	.036	30.80	.000

TABLE 5.6 Means and F ratios from Two Way Analysis of Variance on Mann's Sixteen Categories with Thirteen Repeated Measures on SAT1 & SAT2

*Factor B	Repeated Measures													F	P
Category	1	2	3	4	5	6	7	8	9	10	11	12	13		
#1	.012	.016	.014	.014	.010	.013	.012	.014	.019	.020	.023	.025	.022	4.04	.000
#2	.034	.040	.042	.037	.026	.035	.038	.030	.027	.028	.030	.030	.025	3.55	.000
#3	.103	.103	.136	.127	.122	.098	.100	.115	.118	.128	.120	.135	.127	6.85	.000
#4	.028	.029	.023	.022	.026	.025	.020	.016	.018	.019	.021	.022	.021	2.01	.023
#5	.013	.019	.016	.017	.012	.009	.008	.007	.006	.008	.014	.019	.019	0.00	1.000
#6	.021	.028	.031	.039	.030	.028	.023	.030	.034	.032	.033	.032	.041	2.13	.015
#7	.026	.033	.032	.027	.017	.020	.023	.017	.017	.014	.015	.015	.015	7.41	.000
#8	.008	.008	.007	.007	.005	.006	.007	.008	.014	.016	.020	.016	.013	0.00	1.000
#9	.171	.164	.154	.161	.169	.180	.154	.127	.125	.140	.142	.140	.115	12.98	.000
#10	.026	.026	.030	.026	.022	.024	.027	.033	.039	.034	.034	.024	.025	1.41	.159
#11	.040	.050	.045	.047	.028	.040	.044	.041	.040	.040	.046	.052	.050	2.32	.008
#12	.265	.244	.213	.213	.258	.279	.287	.256	.223	.197	.201	.209	.256	16.98	.000
#13	.027	.023	.028	.028	.027	.018	.041	.056	.057	.050	.037	.051	.042	22.18	.000
#14	.007	.008	.010	.008	.007	.004	.004	.004	.007	.006	.007	.003	.004	0.00	1.000
#15	.202	.191	.196	.200	.218	.206	.168	.182	.178	.203	.202	.185	.191	4.69	.000
#16	.017	.017	.023	.126	.026	.018	.045	.065	.078	.066	.055	.046	.035	45.33	.000

*The AB interaction arrays of means for SAT1 & 2 are found in TABLES 5:4 5:5. The AB F-ratios in TABLE 5:14.

TABLE 5.7

Means and F ratios from One Way Analysis of Variance on Mann's Sixteen Categories with Thirteen Repeated Measures on DCT1

Factor B	Repeated Measures													F	P
Category	1	2	3	4	5	6	7	8	9	10	11	12	13		
#1	.004	.005	.004	.004	.002	.003	.003	.005	.003	.002	.006	.010	.009	0.00	1.000
#2	.040	.048	.071	.138	.154	.134	.068	.081	.089	.102	.055	.038	.040	39.92	.000
#3	.083	.057	.057	.046	.054	.037	.040	.048	.053	.053	.062	.070	.078	6.19	.000
#4	.008	.009	.007	.004	.004	.008	.011	.013	.018	.020	.014	.008	.009	0.00	1.000
#5	.007	.008	.012	.011	.013	.011	.013	.012	.010	.007	.003	.004	.005	0.00	1.000
#6	.029	.047	.050	.048	.066	.066	.077	.051	.054	.048	.038	.045	.052	1.90	.039
#7	.041	.065	.121	.159	.166	.106	.094	.063	.068	.063	.076	.075	.085	27.66	.000
#8	.006	.008	.005	.003	.003	.005	.006	.006	.007	.006	.007	.006	.008	0.00	1.000
#9	.127	.097	.061	.079	.063	.100	.096	.097	.078	.057	.068	.086	.077	11.51	.000
#10	.009	.013	.013	.008	.008	.007	.011	.017	.018	.020	.018	.029	.034	3.56	.000
#11	.016	.019	.023	.020	.016	.014	.018	.028	.037	.043	.028	.017	.014	5.22	.000
#12	.456	.508	.479	.392	.371	.437	.481	.456	.422	.442	.457	.420	.403	3.43	.000
#13	.032	.037	.040	.024	.025	.004	.007	.012	.013	.014	.005	.002	.021	0.00	1.000
#14	.002	.002	.002	.001	.001	.002	.002	.002	.002	.002	.004	.005	.006	0.00	1.000
#15	.119	.052	.037	.056	.047	.066	.068	.096	.110	.105	.146	.169	.138	40.97	.000
#16	.024	.028	.019	.010	.009	.004	.008	.015	.018	.018	.015	.017	.026	0.00	1.000

TABLE 5.8 Means and F ratios from One Way Analysis of Variance on Mann's Sixteen Categories with Thirteen Repeated Measures on DCT2

Factor B	Repeated Measures													F	P
Category	1	2	3	4	5	6	7	8	9	10	11	12	13		
#1	.001	.002	.007	.008	.007	.006	.008	.009	.009	.007	.009	.009	.006	0.00	1.000
#2	.110	.119	.188	.245	.228	.147	.145	.142	.157	.125	.124	.101	.073	28.55	.000
#3	.040	.048	.047	.043	.069	.076	.079	.056	.050	.100	.117	.132	.130	16.99	.000
#4	.012	.011	.012	.004	.005	.006	.013	.017	.019	.009	.010	.023	.024	4.46	.000
#5	.005	.004	.005	.006	.006	.010	.010	.011	.008	.004	.011	.018	.018	0.00	1.000
#6	.049	.050	.053	.048	.050	.044	.040	.041	.044	.036	.044	.053	.064	1.74	.063
#7	.074	.105	.091	.100	.069	.100	.109	.124	.106	.080	.072	.068	.075	5.82	.000
#8	.004	.003	.004	.003	.003	.003	.004	.005	.006	.005	.006	.007	.008	0.00	1.000
#9	.100	.111	.085	.048	.034	.065	.070	.082	.098	.093	.097	.073	.062	9.02	.000
#10	.027	.024	.025	.018	.017	.013	.012	.021	.020	.019	.018	.023	.038	1.62	.091
#11	.017	.016	.021	.023	.040	.038	.042	.031	.028	.022	.027	.036	.030	3.21	.000
#12	.468	.414	.392	.416	.379	.374	.343	.368	.332	.330	.285	.273	.271	10.14	.000
#13	.028	.025	.012	.003	.029	.034	.031	.013	.013	.025	.019	.014	.012	0.00	1.000
#14	.006	.005	.006	.002	.002	.001	.001	.003	.002	.002	.002	.003	.006	0.00	1.000
#15	.036	.041	.045	.031	.031	.054	.065	.071	.103	.140	.158	.159	.097	34.59	.000
#16	.025	.022	.010	.005	.033	.032	.028	.007	.006	.006	.004	.008	.011	0.00	1.000

TABLE 5.9

Means and F ratios from Two Way Analysis of Variance on Mann's Sixteen Categories with Thirteen Repeated Measures on DCT1 & DCT 2

*Factor B	Repeated Measures													F	P
Category	1	2	3	4	5	6	7	8	9	10	11	12	13		
#1	.002	.003	.006	.006	.005	.004	.006	.007	.006	.004	.007	.009	.007	0.00	1.000
#2	.076	.085	.132	.194	.192	.141	.108	.113	.125	.114	.090	.071	.057	56.29	.000
#3	.061	.053	.052	.045	.062	.057	.060	.052	.052	.078	.091	.103	.105	16.66	.000
#4	.010	.010	.010	.004	.005	.007	.012	.015	.018	.015	.012	.015	.016	0.00	1.000
#5	.006	.006	.008	.009	.009	.011	.011	.012	.009	.006	.008	.012	.012	0.00	1.000
#6	.040	.049	.052	.048	.058	.054	.057	.046	.049	.042	.041	.049	.058	1.51	.118
#7	.058	.086	.105	.129	.116	.103	.102	.095	.088	.072	.074	.071	.080	14.51	.000
#8	.005	.006	.004	.003	.003	.004	.005	.005	.007	.006	.006	.007	.008	0.00	1.000
#9	.113	.104	.073	.063	.048	.081	.082	.089	.088	.075	.083	.080	.069	12.30	.000
#10	.018	.018	.019	.013	.013	.010	.011	.019	.020	.019	.018	.026	.036	3.80	.000
#11	.017	.017	.022	.021	.029	.027	.031	.030	.032	.032	.028	.027	.023	2.82	.001
#12	.462	.459	.434	.404	.375	.405	.409	.410	.375	.384	.368	.344	.334	8.04	.000
#13	.030	.031	.025	.013	.027	.020	.019	.012	.013	.020	.012	.008	.016	0.00	1.000
#14	.004	.004	.004	.002	.001	.002	.002	.002	.002	.002	.003	.004	.006	0.00	1.000
#15	.076	.046	.041	.043	.039	.060	.066	.083	.107	.123	.153	.164	.117	66.25	.000
#16	.024	.025	.014	.007	.022	.018	.019	.011	.012	.012	.009	.013	.018	0.00	1.000

*The AB interaction arrays of means for DCT1 & 2 are found in TABLES 5:7 5:8 The AB F-ratios in TABLE 5:17

TABLE 5.10 Means and F ratios from Two Way Analysis of Variance on Mann's Sixteen Categories with Thirteen Repeated Measures on SAT1 & 2 and DCT1 & 2

*Factor B	Repeated Measures													F	P
Category	1	2	3	4	5	6	7	8	9	10	11	12	13		
#1	.007	.009	.009	.010	.008	.009	.009	.011	.012	.012	.015	.017	.014	0.00	1.000
#2	.056	.063	.089	.119	.113	.090	.075	.073	.078	.073	.062	.051	.042	47.49	.000
#3	.081	.077	.092	.084	.091	.077	.079	.082	.083	.102	.105	.118	.115	16.24	.000
#4	.019	.019	.016	.013	.015	.016	.016	.016	.018	.017	.016	.019	.019	1.35	.184
#5	.010	.012	.012	.013	.011	.010	.010	.009	.008	.007	.011	.015	.015	0.00	1.000
#6	.030	.039	.042	.044	.044	.042	.041	.038	.042	.037	.037	.041	.050	2.01	.021
#7	.043	.061	.070	.080	.067	.063	.064	.058	.054	.044	.046	.044	.049	15.58	.000
#8	.007	.007	.006	.005	.004	.005	.006	.006	.010	.010	.013	.011	.010	0.00	1.000
#9	.141	.133	.111	.110	.106	.128	.117	.107	.106	.107	.111	.109	.091	13.45	.000
#10	.022	.022	.024	.019	.017	.017	.019	.026	.029	.027	.025	.025	.031	2.58	.002
#11	.028	.033	.033	.033	.028	.033	.037	.035	.036	.036	.036	.039	.036	1.56	.097
#12	.368	.356	.328	.313	.319	.344	.351	.337	.302	.295	.288	.279	.297	12.36	.000
#13	.029	.027	.027	.021	.027	.019	.030	.033	.034	.034	.024	.029	.029	8.56	.000
#14	.005	.006	.007	.005	.004	.003	.003	.003	.004	.004	.005	.004	.005	0.00	1.000
#15	.136	.116	.115	.118	.125	.130	.115	.130	.141	.161	.176	.174	.153	29.59	.000
#16	.021	.021	.018	.016	.024	.018	.031	.037	.044	.038	.031	.029	.026	24.81	.000

*The AB interaction arrays of means for SAT1 & 2 and DCT1 & 2 are found in TABLES 5:4 5:5 5:7 5:8
The AB F-ratios in TABLE 5:18.

TABLE 5.12

Summary of Analysis of Trends F-ratios on Mann's Sixteen Categories with Thirteen Repeated Measures on SAT1

Factor B	Over-all ANOVA		Linear Trend		Quadratic Trend		Cubic Trend		Quartic Trend	
Category	F	P	F	P	F	P	F	P	F	P
#1	2.25	.012	----	----	----	----	6.23	.028	----	----
#2	6.02	.000	12.87	.004	----	----	----	----	8.68	.012
#3	22.59	.000	89.47	.000	16.56	.002	----	----	----	----
#4	5.41	.000	11.90	.005	4.32	.059	----	----	----	----
#5	0.00	1.000	15.97	.002	----	----	10.84	.007	9.85	.009
#6	1.53	.119	----	----	----	----	----	----	----	----
#7	4.31	.000	10.54	.007	----	----	7.20	.020	----	----
#8	0.00	1.000	----	----	11.38	.005	9.28	.010	----	----
#9	8.50	.000	----	----	----	----	11.57	.006	12.58	.004
#10	2.34	.009	----	----	----	----	4.73	.050	----	----
#11	4.48	.000	14.15	.003	----	----	----	----	----	----
#12	7.47	.000	16.71	.002	8.88	.012	13.45	.003	5.93	.031
#13	5.34	.000	----	----	----	----	----	----	----	----
#14	0.00	1.000	----	----	----	----	----	----	9.04	.011
#15	8.06	.000	13.13	.004	----	----	13.52	.003	15.44	.002
#16	19.14	.000	27.23	.000	82.73	.000	5.49	.037	----	----

TABLE 5.13

Summary of Analysis of Trends F-ratios on Mann's
Sixteen Categories with Thirteen Repeated Measures on SAT2

Factor B	Over-all ANOVA		Linear Trend		Quadratic Trend		Cubic Trend		Quartic Trend	
Category	F	P	F	P	F	P	F	P	F	P
#1	0.00	1.000	20.89	.001	20.31	.001	22.58	.001	6.77	.025
#2	6.19	.000	----	----	----	----	----	----	32.39	.000
#3	15.00	.000	24.38	.000	19.26	.001	7.09	.022	17.92	.002
#4	4.18	.000	----	----	7.87	.017	----	----	----	----
#5	0.00	1.000	9.82	.010	32.56	.000	8.37	.015	----	----
#6	2.03	.026	----	----	----	----	----	----	----	----
#7	6.75	.000	10.71	.008	5.89	.034	----	----	18.95	.001
#8	7.11	.000	6.04	.032	10.84	.008	----	----	21.09	.001
#9	23.17	.000	70.94	.000	----	----	9.54	.011	12.93	.005
#10	0.00	1.000	----	----	16.98	.002	----	----	4.82	.050
#11	12.37	.000	53.73	.000	----	----	4.54	.056	4.90	.049
#12	17.18	.000	----	----	7.49	.020	----	----	83.06	.000
#13	34.50	.000	73.52	.000	----	----	75.40	.000	----	----
#14	0.00	1.000	----	----	12.95	.005	4.61	.055	----	----
#15	17.29	.000	53.89	.000	----	----	22.91	.001	6.89	.024
#16	30.80	.000	60.23	.000	10.22	.009	69.74	.000	----	----

TABLE 5.14

Summary of Analysis of Trends F-ratios on Mann's Sixteen Categories with Thirteen Repeated Measures on SAT1 & SAT2

Factor B		Over-all ANOVA		Linear Trend		Quadratic Trend		Cubic Trend		Quartic Trend	
Category		B	AB	B	AB	B	AB	B	AB	B	AB
#1	F	4.04	9.38	7.04	9.84	----	14.59	----	14.85	6.27	----
	P	*.000	*.000	*.014	*.005	----	*.001	----	*.001	*.019	----
#2	F	3.35	8.76	6.85	----	----	6.60	----	----	----	35.66
	P	*.000	*.000	*.015	----	----	*.017	----	----	----	*.000
#3	F	6.85	29.03	6.95	97.78	----	32.96	----	9.53	14.98	14.75
	P	*.000	*.000	*.014	*.000	----	*.000	----	*.005	*.001	*.001
#4	F	2.01	7.47	----	7.21	----	12.55	----	----	----	----
	P	*.023	*.000	----	*.013	----	*.002	----	----	----	----
#5	F	0.00	0.00	----	24.98	24.31	21.13	19.17	----	7.78	5.71
	P	1.000	1.000	----	*.000	*.000	*.000	*.000	----	*.010	*.024
#6	F	2.13	1.83	----	----	----	----	----	----	----	----
	P	*.015	*.043	----	----	----	----	----	----	----	----
#7	F	7.41	3.44	21.25	----	----	4.38	----	4.44	----	10.76
	P	*.000	*.000	*.000	----	----	*.046	----	*.044	----	*.003
#8	F	0.00	0.00	8.69	----	----	20.19	9.65	----	9.39	----
	P	1.000	1.000	*.007	----	----	*.000	*.005	----	*.005	----
#9	F	12.98	13.13	24.09	9.94	----	----	----	20.19	----	25.65
	P	*.000	*.000	*.000	*.004	----	----	----	*.000	----	*.000
#10	F	1.41	3.83	----	----	----	8.63	5.18	----	----	----
	P	.159	*.000	----	----	----	*.007	*.031	----	----	----
#11	F	2.31	12.74	----	51.13	----	----	----	----	----	----
	P	*.008	*.000	----	*.000	----	----	----	----	----	----
#12	F	16.98	10.97	13.96	----	----	14.82	4.72	6.44	74.68	35.74
	P	*.000	*.000	*.001	----	----	*.001	*.039	*.018	*.000	*.000
#13	F	22.18	19.87	34.18	34.96	----	----	24.87	56.93	----	----
	P	*.000	*.000	*.000	*.000	----	----	*.000	*.000	----	----
#14	F	0.00	0.00	5.89	----	----	10.72	----	8.02	7.76	8.55
	P	1.000	1.000	*.023	----	----	*.003	----	*.009	*.010	*.008
#15	F	4.69	18.15	----	53.68	----	6.13	----	37.06	----	21.63
	P	*.000	*.000	----	*.000	----	*.020	----	*.000	----	*.000
#16	F	45.33	6.49	84.30	4.91	39.37	----	50.09	14.05	----	----
	P	*.000	*.000	*.000	*.035	*.000	----	*.000	*.001	----	----

TABLE 5.15 Summary of Analysis of Trends F-ratios on Mann's Sixteen Categories with Thirteen Repeated Measures on DCT1

Factor B	Over-all ANOVA		Linear Trend		Quadratic Trend		Cubic Trend		Quartic Trend	
Category	F	P	F	P	F	P	F	P	F	P
#1	0.00	1.000	----	----	----	----	----	----	----	----
#2	39.92	.000	13.84	.003	143.41	.000	24.84	.000	----	----
#3	6.19	.000	----	----	43.18	.000	----	----	----	----
#4	0.00	1.000	4.48	.055	----	----	8.13	.015	----	----
#5	0.00	1.000	----	----	5.82	.032	----	----	----	----
#6	1.90	.039	----	----	----	----	----	----	----	----
#7	27.65	.000	6.19	.028	27.59	.000	69.13	.000	12.17	.005
#8	0.00	1.000	----	----	----	----	----	----	----	----
#9	11.50	.000	6.66	.024	----	----	40.44	.000	34.35	.000
#10	3.56	.000	----	----	----	----	----	----	----	----
#11	5.21	.000	4.70	.050	----	----	12.01	.005	----	----
#12	3.43	.000	----	----	----	----	----	----	----	----
#13	0.00	1.000	61.32	.000	73.77	.000	5.72	.034	----	----
#14	0.00	1.000	----	----	5.67	.034	----	----	----	----
#15	40.96	.000	79.67	.000	35.71	.000	40.32	.000	----	----
#16	0.00	1.000	----	----	28.64	.000	----	----	----	----

TABLE 5.16

Summary of Analysis of Trends F-ratios on Mann's Sixteen Categories with Thirteen Repeated Measures on DCT2

Factor B	Over-all ANOVA		Linear Trend		Quadratic Trend		Cubic Trend		Quartic Trend	
Category	F	P	F	P	F	P	F	P	F	P
#1	0.00	1.000	8.50	.012	----	----	----	----	----	----
#2	28.55	.000	37.37	.000	86.02	.000	21.40	.000	18.79	.001
#3	16.98	.000	41.21	.000	11.07	.006	----	----	----	----
#4	4.46	.000	9.94	.008	----	----	----	----	----	----
#5	0.00	1.000	12.94	.003	----	----	----	----	----	----
#6	1.73	.063	----	----	5.60	.033	----	----	----	----
#7	5.82	.000	----	----	8.05	.014	----	----	----	----
#8	0.00	1.000	----	----	----	----	----	----	----	----
#9	9.02	.000	----	----	5.39	.036	32.27	.000	4.85	.045
#10	1.62	.091	----	----	----	----	----	----	----	----
#11	3.20	.000	----	----	----	----	----	----	7.71	.016
#12	10.13	.000	52.00	.000	----	----	----	----	----	----
#13	0.00	1.000	8.24	.013	----	----	5.93	.029	5.65	.033
#14	0.00	1.000	----	----	8.53	.012	----	----	----	----
#15	34.59	.000	70.16	.000	----	----	57.46	.000	33.91	.000
#16	0.00	1.000	30.84	.000	----	----	5.53	.034	44.94	.000

TABLE 5.17 Summary of Analysis of Trends F-ratios on Mann's Sixteen Categories with Thirteen Repeated Measures on DCT1 & DCT2

Factor B		Over-all ANOVA		Linear Trend		Quadratic Trend		Cubic Trend		Quartic Trend	
Category		B	AB	B	AB	B	AB	B	AB	B	AB
#1	F	0.00	0.00	7.14	----	----	6.91	----	----	----	----
	P	1.000	1.000	*.013	----	----	*.014	----	----	----	----
#2	F	56.29	6.68	51.11	9.75	210.51	----	42.78	----	15.25	11.12
	P	*.000	*.000	*.000	*.004	*.000	----	*.000	----	*.001	*.003
#3	F	16.66	10.36	31.93	23.22	42.05	----	----	----	----	----
	P	*.000	*.000	*.000	*.000	*.000	----	----	----	----	----
#4	F	0.00	0.00	14.27	----	----	----	7.06	4.02	----	----
	P	1.000	1.000	*.001	----	----	----	*.013	*.054	----	----
#5	F	0.00	0.00	----	12.06	----	----	----	----	4.59	----
	P	1.000	1.000	----	*.002	----	----	----	----	*.040	----
#6	F	1.51	2.26	----	----	----	8.07	8.11	----	----	----
	P	.118	*.009	----	----	----	*.009	*.008	----	----	----
#7	F	14.51	16.72	7.14	----	28.66	----	29.73	35.82	----	10.35
	P	*.000	*.000	*.013	----	*.000	----	*.000	*.000	----	*.004
#8	F	0.00	0.00	----	----	----	----	----	----	----	----
	P	1.000	1.000	----	----	----	----	----	----	----	----
#9	F	12.30	7.30	----	----	8.89	----	53.23	10.58	3.84	29.96
	P	*.000	*.000	----	----	*.006	----	*.000	*.003	*.059	*.000
#10	F	3.80	0.90	----	----	7.45	----	----	----	----	----
	P	*.000	.544	----	----	*.011	----	----	----	----	----
#11	F	2.82	5.08	7.52	----	4.43	----	----	12.53	----	10.53
	P	*.001	*.000	*.011	----	*.043	----	----	*.002	----	*.003
#12	F	8.04	5.12	27.89	11.09	----	----	4.02	----	----	----
	P	*.000	*.000	*.000	*.003	----	----	*.053	----	----	----
#13	F	0.00	0.00	63.26	22.64	7.80	24.84	----	11.67	----	9.31
	P	1.000	1.000	*.000	*.000	*.010	*.000	----	*.002	----	*.005
#14	F	0.00	0.00	----	5.45	14.01	----	----	----	----	----
	P	1.000	1.000	----	*.027	*.001	----	----	----	----	----
#15	F	66.25	7.01	141.60	----	25.98	8.90	96.52	----	17.07	30.43
	P	*.000	*.000	*.000	----	*.000	*.006	*.000	----	*.000	*.000
#16	F	0.00	0.00	17.44	15.99	8.11	22.87	----	7.16	20.36	32.13
	P	1.000	1.000	*.000	*.000	*.008	*.000	----	*.012	*.000	*.000

TABLE 5.18 Summary of Analysis of Trends F-ratios on Mann's Sixteen Categories with Thirteen Repeated Measures on SAT1 & 2 and DCT1 & 2

Factor B		Over-all ANOVA		Linear Trend		Quadratic Trend		Cubic Trend		Quartic Trend	
Category		B	AB	B	AB	B	AB	B	AB	B	AB
#1	F	0.00	0.00	12.01	6.78	----	9.45	----	7.38	7.25	----
	P	1.000	1.000	*.001	*.001	----	*.000	----	*.000	*.009	----
#2	F	47.49	18.39	56.07	11.85	138.83	43.41	40.80	11.05	16.72	13.32
	P	*.000	*.000	*.000	*.000	*.000	*.000	*.000	*.000	*.000	*.000
#3	F	16.24	15.38	38.11	33.57	26.43	16.84	----	4.22	6.65	5.23
	P	*.000	*.000	*.000	*.000	*.000	*.000	----	*.010	*.012	*.003
#4	F	1.35	5.72	----	8.22	----	5.46	----	3.27	----	----
	P	.184	*.000	----	*.000	----	*.003	----	*.029	----	----
#5	F	0.00	0.00	----	13.39	4.84	9.16	19.22	----	----	6.61
	P	1.000	1.000	----	*.000	*.031	*.000	*.000	----	----	*.001
#6	F	2.01	1.84	----	----	----	3.95	11.11	----	----	----
	P	*.021	*.002	----	----	----	*.013	*.002	----	----	----
#7	F	15.58	12.85	19.14	----	19.69	9.63	31.35	28.33	----	6.77
	P	*.000	*.000	*.000	----	*.000	*.000	*.000	*.000	----	*.001
#8	F	0.00	0.00	10.46	2.89	4.57	11.24	9.49	3.15	7.14	3.28
	P	1.000	1.000	*.002	*.045	*.035	*.000	*.003	*.033	*.010	*.028
#9	F	13.45	11.03	23.97	6.58	----	----	24.00	22.28	----	19.02
	P	*.000	*.000	*.000	*.001	----	----	*.000	*.000	----	*.000
#10	F	2.58	2.50	----	----	----	5.26	----	----	----	----
	P	*.002	*.000	----	----	----	*.003	----	----	----	----
#11	F	1.56	7.70	4.74	25.07	----	----	----	5.34	----	4.77
	P	.097	*.000	*.032	*.000	----	----	----	*.003	----	*.006
#12	F	12.36	6.41	38.00	10.92	----	----	----	3.50	23.61	14.93
	P	*.000	*.000	*.000	*.000	----	----	----	*.022	*.000	*.000
#13	F	8.56	25.76	----	48.49	----	6.51	14.90	33.34	----	3.71
	P	*.000	*.000	----	*.000	----	*.001	*.000	*.000	----	*.017
#14	F	0.00	0.00	----	3.33	5.26	6.43	----	3.31	6.33	7.37
	P	1.000	1.000	----	*.027	*.025	*.001	----	*.027	*.014	*.000
#15	F	29.59	20.41	75.49	48.04	12.13	7.04	37.04	32.00	15.23	17.96
	P	*.000	*.000	*.000	*.000	*.001	*.000	*.000	*.000	*.000	*.000
#16	F	24.81	24.33	41.92	40.59	14.38	20.49	38.50	24.14	----	10.28
	P	*.000	*.000	*.000	*.000	*.000	*.000	*.000	*.000	----	*.000

TABLE 5.19

Intercorrelation Matrix and Probability Levels of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
#1	R	1.000															
	P	0.0															
#2	R	-.113	1.000														
	P		0.0														
#3	R	-.197	-.598	1.000													
	P		*.031	0.0													
#4	R	.339	.242	-.859	1.000												
	P			*.000	0.0												
#5	R	-.045	.149	-.661	.621	1.000											
	P			*.014	*.023	0.0											
#6	R	.229	-.259	-.373	.399	.415	1.000										
							0.0										
#7	R	-.157	†.863	-.756	.429	.551	-.049	1.000									
	P		*.000	*.003		*.051		0.0									
#8	R	.825	-.377	.001	.239	-.196	.510	-.458	1.000								
	P	*.001							0.0								
#9	R	-.577	.664	-.163	.030	-.059	-.603	.484	-.674	1.000							
	P	*.039	*.013					.094	*.012	0.0							
#10	R	.674	-.203	-.033	.087	-.365	.556	-.383	.879	-.578	1.000						
	P	*.012					*.048		*.000	*.038	0.0						
#11	R	.200	.627	-.704	.564	.589	-.161	.801	-.252	.235	-.377	1.000					
	P		*.022	*.007	*.045	*.034		*.001		.439		0.0					
#12	R	-.619	.599	-.272	-.016	.347	-.432	.753	-.870	.615	-.811	.559	1.000				
	P	*.024	*.031					*.003	*.000	*.025	*.000	*.049	0.0				
#13	R	-.174	-.185	-.067	-.180	.164	.482	.011	-.115	-.440	.153	-.206	.057	1.000			
	P													0.0			
#14	R	.236	-.183	-.518	.645	.652	.847	.059	.448	-.375	.326	.031	-.351	.158	1.000		
	P				*.017	*.016	*.000								0.0		
#15	R	.169	-.931	.618	-.224	-.236	.073	-.907	.360	-.526	.165	-.565	-.648	-.055	.068	1.000	
	P		*.000	*.024				*.000				*.044	*.017			0.0	
#16	R	.475	-.497	.276	-.186	-.431	.559	-.625	.789	-.703	.904	-.661	-.831	.351	.262	.388	1.000
	P	.101					*.047	*.022	*.001	*.007	*.000	*.014	*.000				0.0

† The underlined correlated variables (ex. .863) have been used to illustrate phase development in this study.

TABLE 5.20 CHARACTERISTICS OF THE M-L CATEGORIES BY PHASE: SAT1

Phase	I	II	III	IV	V
Time Intervals	1,2	3,4	5,6,7	8,9,10	11,12,13
Significant Categories					
#1	M+	S-	S-	H+	H-
#2	S+	S+	H+	M-	M-
#3	M-	M-	S-	M+	H+
#4	M+	H+	S-	S+	H-
#7	H+	M+	H+	H-	M-
#9	S-	S-	H+	H-	S+
#10	H-	S-	S+	H+	M-
#11	H+	M+	S+	M-	H-
#12	H+	S+	M+	H-	M+
#13	M-	M+	S-	S-	M+
#15	M-	S-	H-	H+	S+
#16	H-	S-	S-	H+	S+

Slight (S±) Z score value 0--.5 standard deviations from group mean
Moderate(M±) Z score value.5--1.0 standard deviations from group mean
High (H±) Z score value1.0--2...standard deviations from group mean

Fig.5.1 Plots of Z-score values of Mann's Hostility Categories across Thirteen Repeated Measures on SAT1

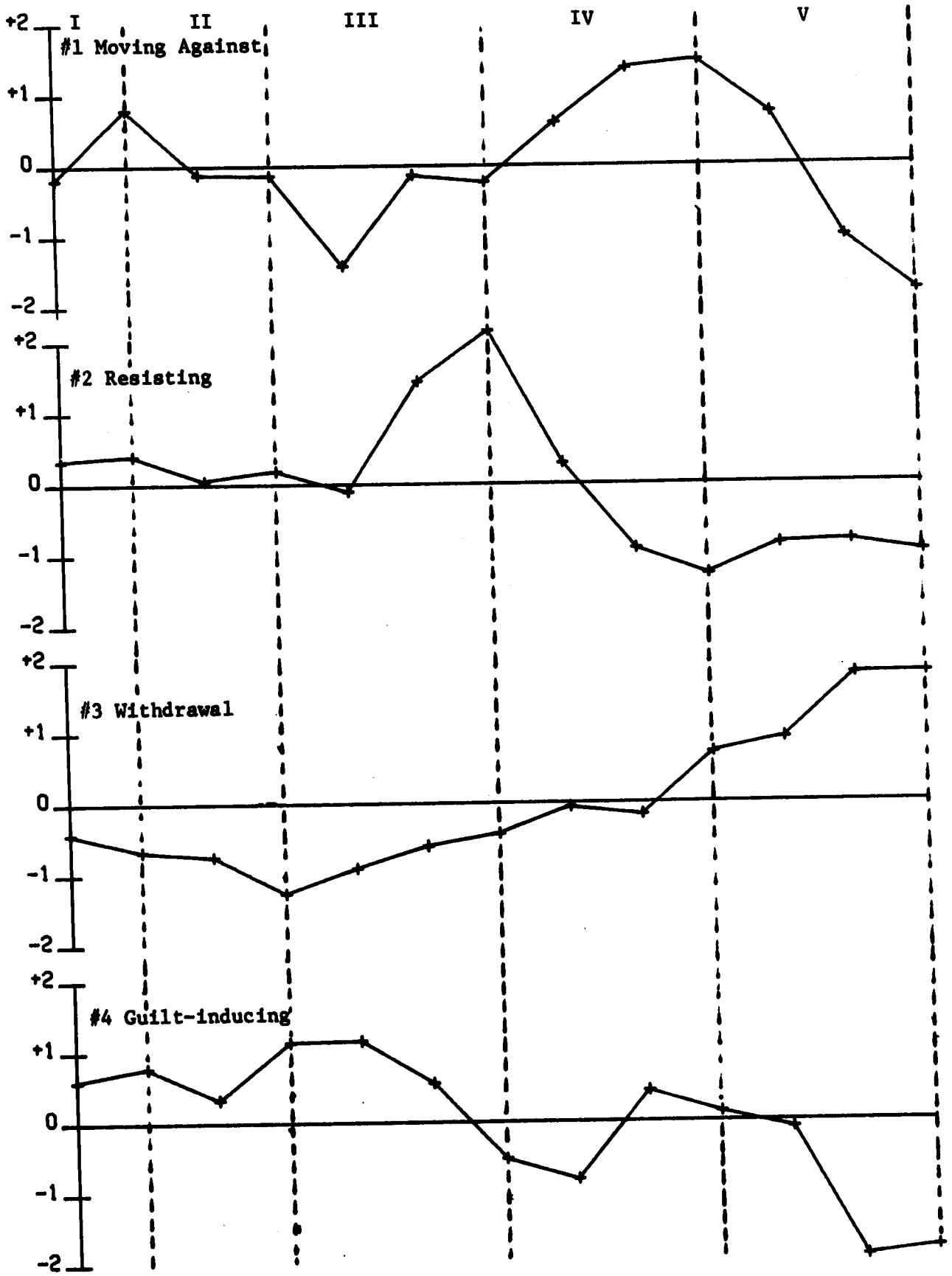


Fig 5.2 Plots of Z-score values of Mann's Affection Categories across Thirteen Repeated Measures on SAT1

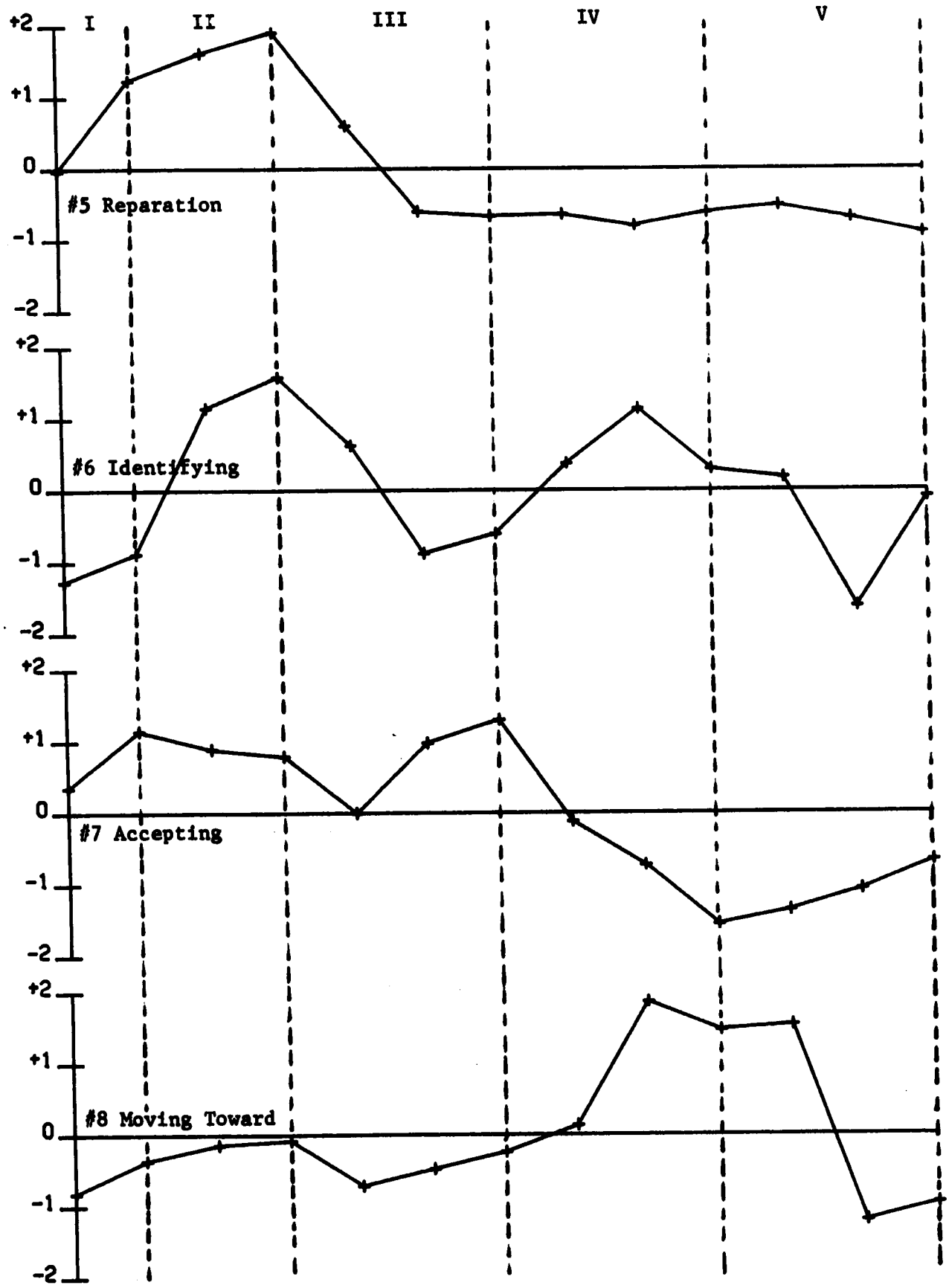


Fig 5.3 Plots of Z-score values of Mann's Authority Relations Categories across Thirteen Repeated Measures on SAT1

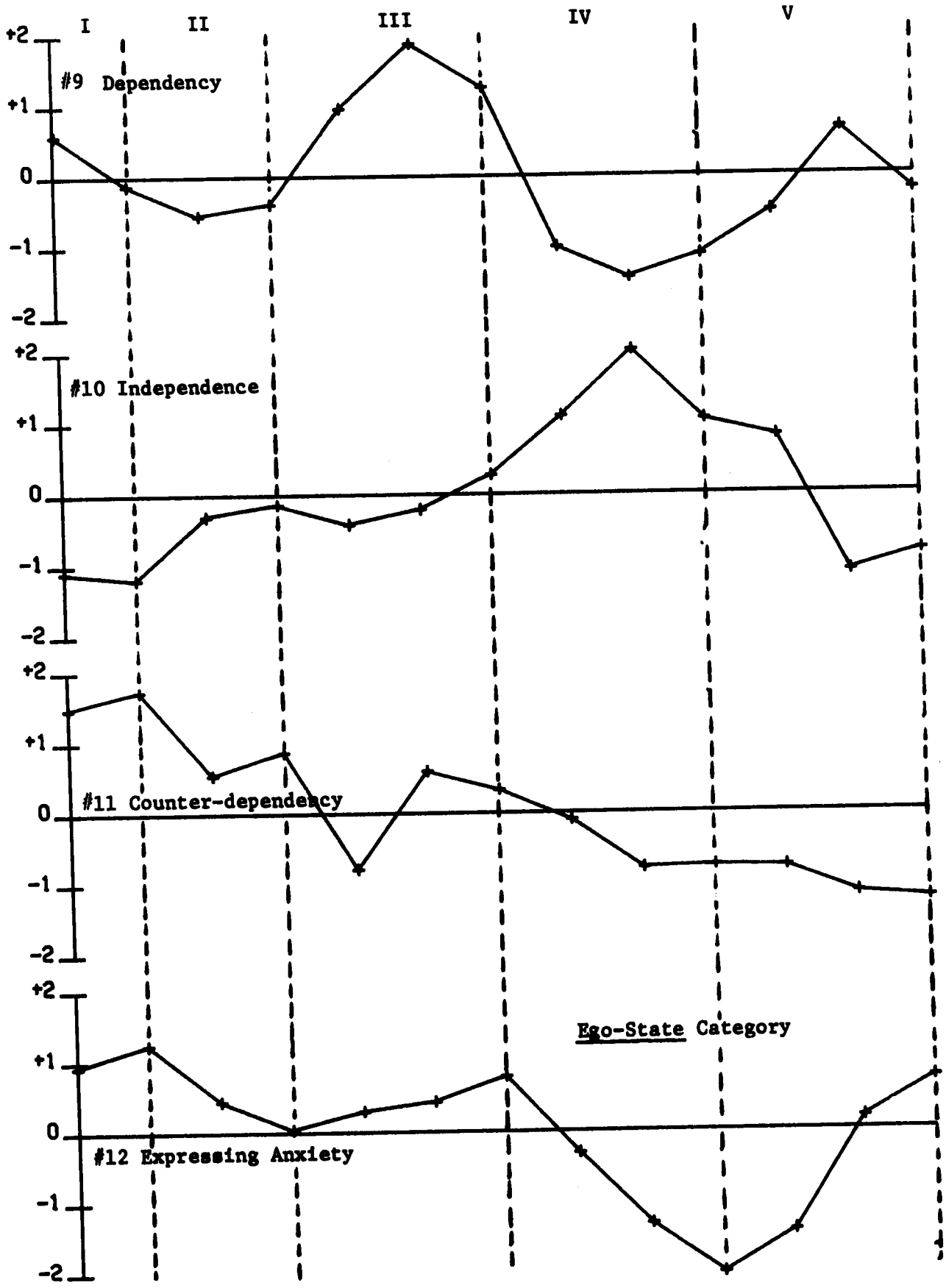


Fig.5.4 Plots of Z-score values of Mann's Ego State Categories across Thirteen Repeated Measures on SAT1

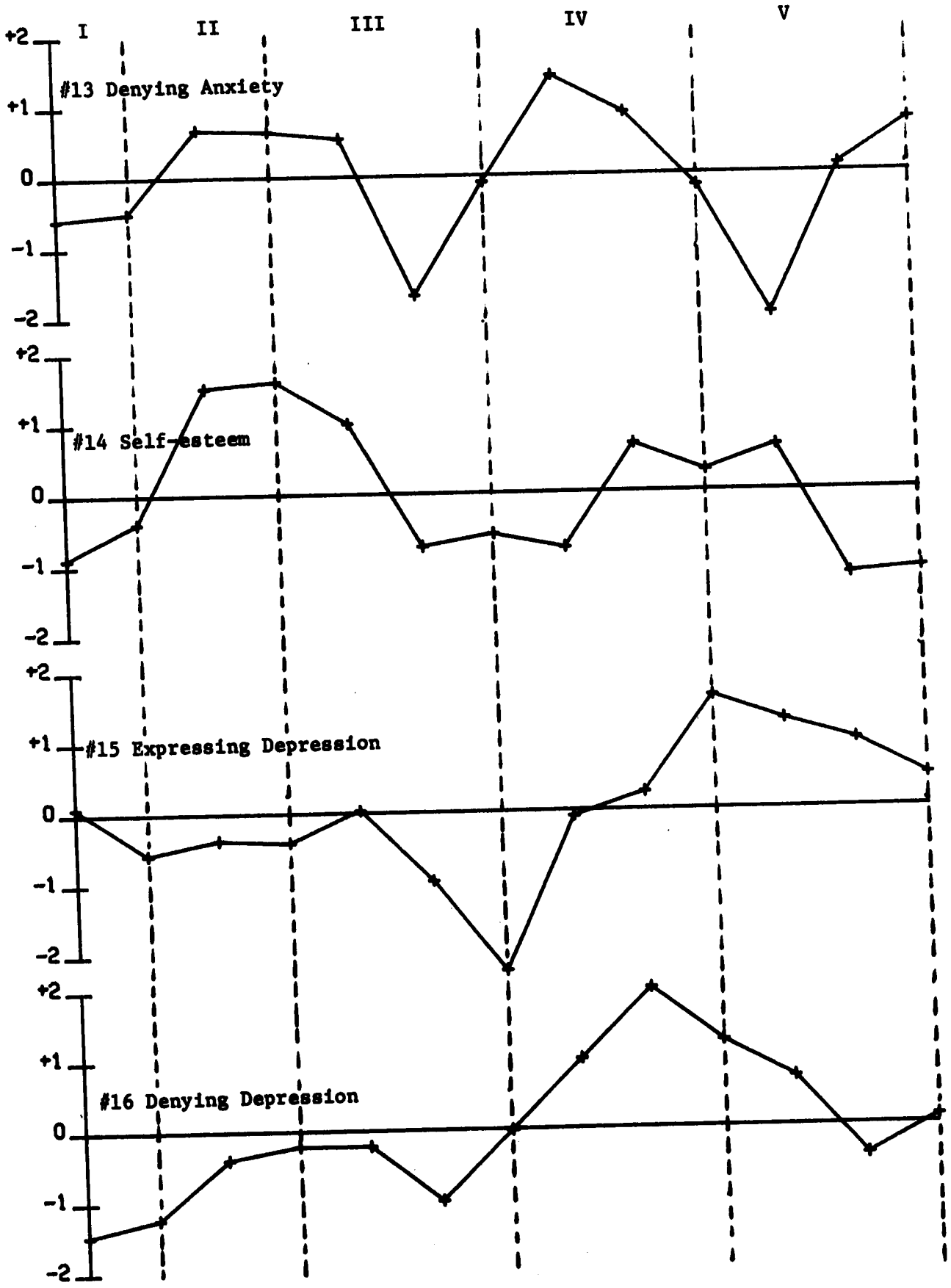


Fig.5.17

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 (Positively Correlated)

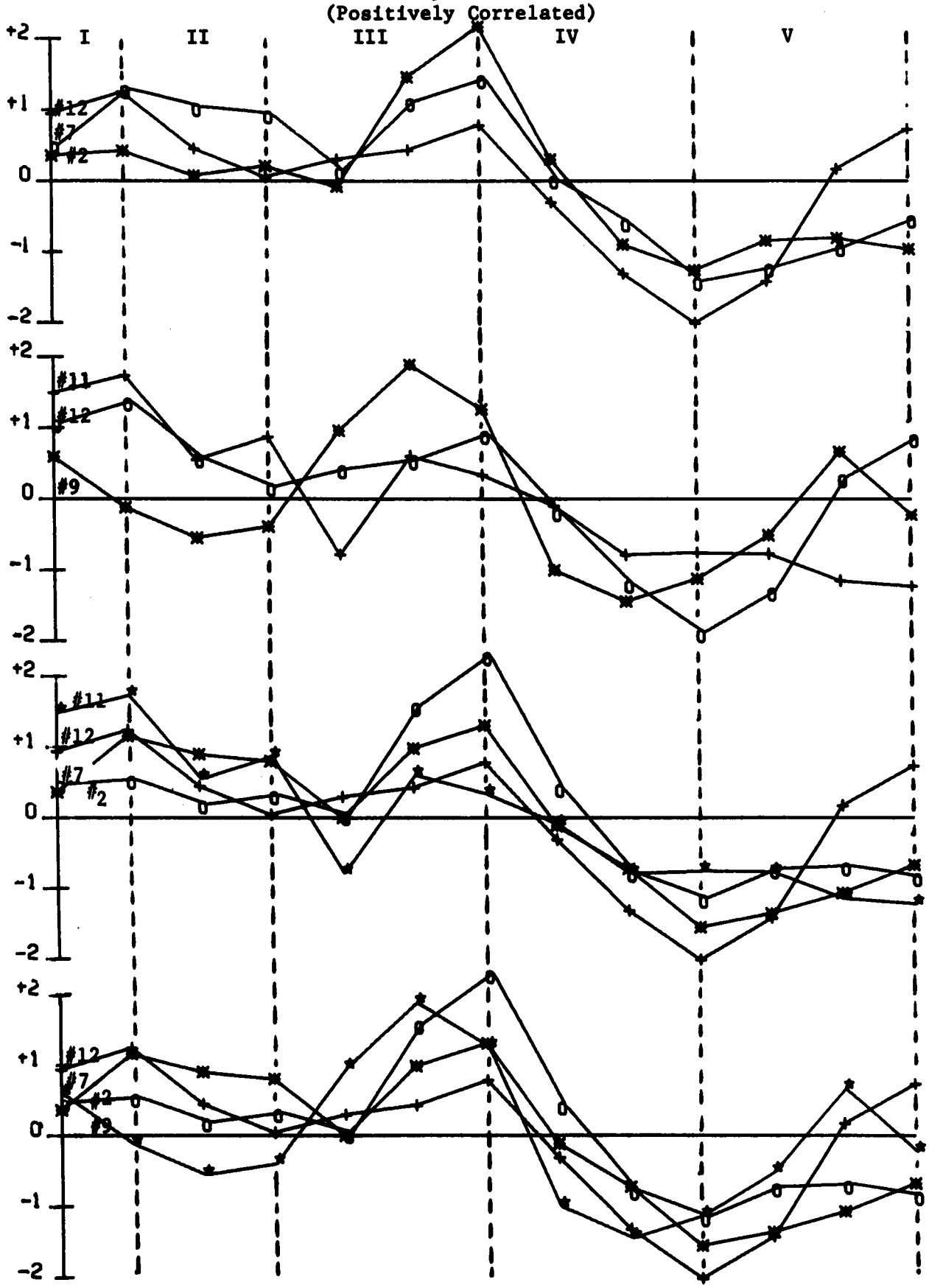


Fig.5:18

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 (Positively Correlated)

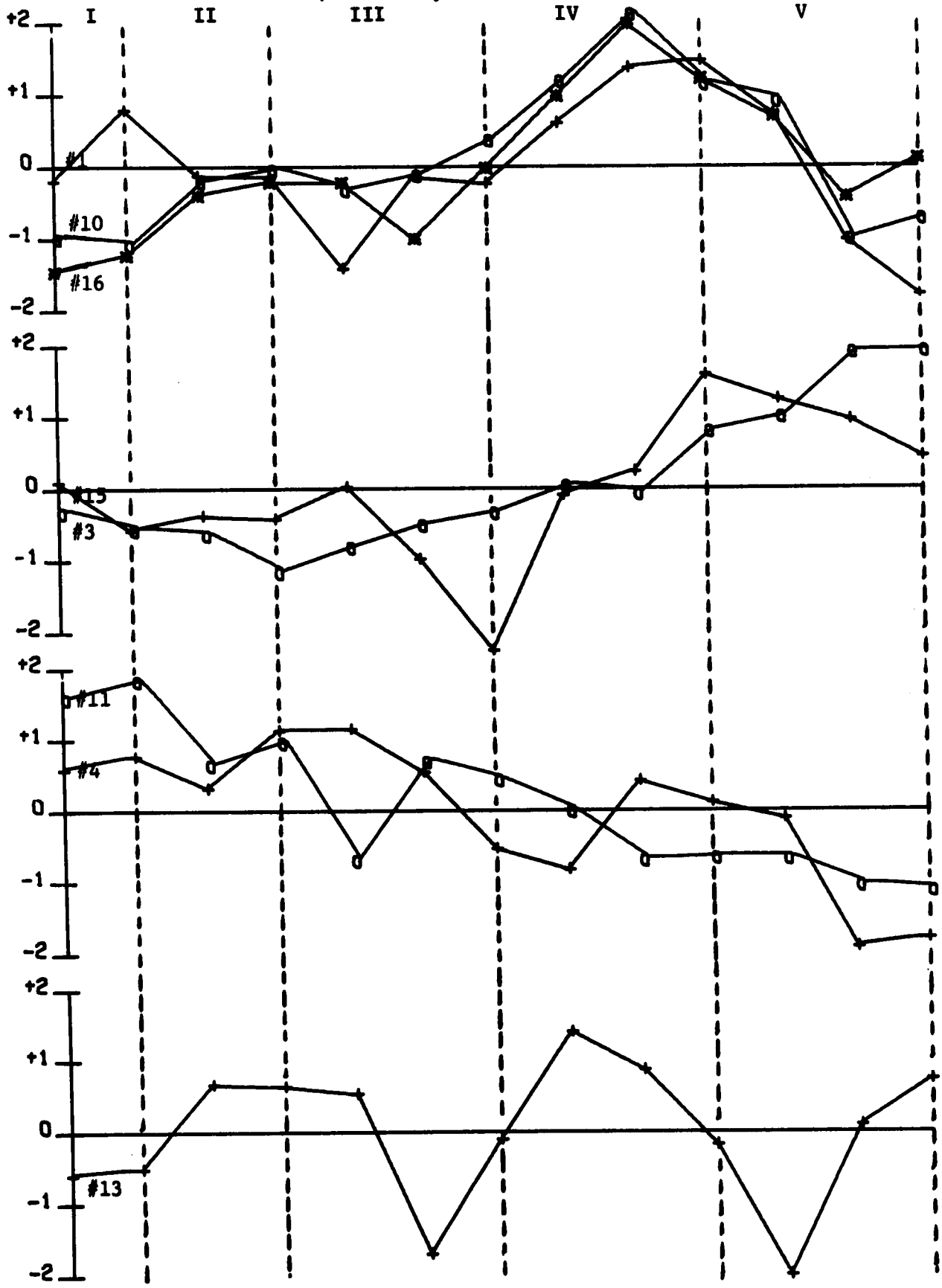


Fig. 5.19

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 (Negatively correlated)

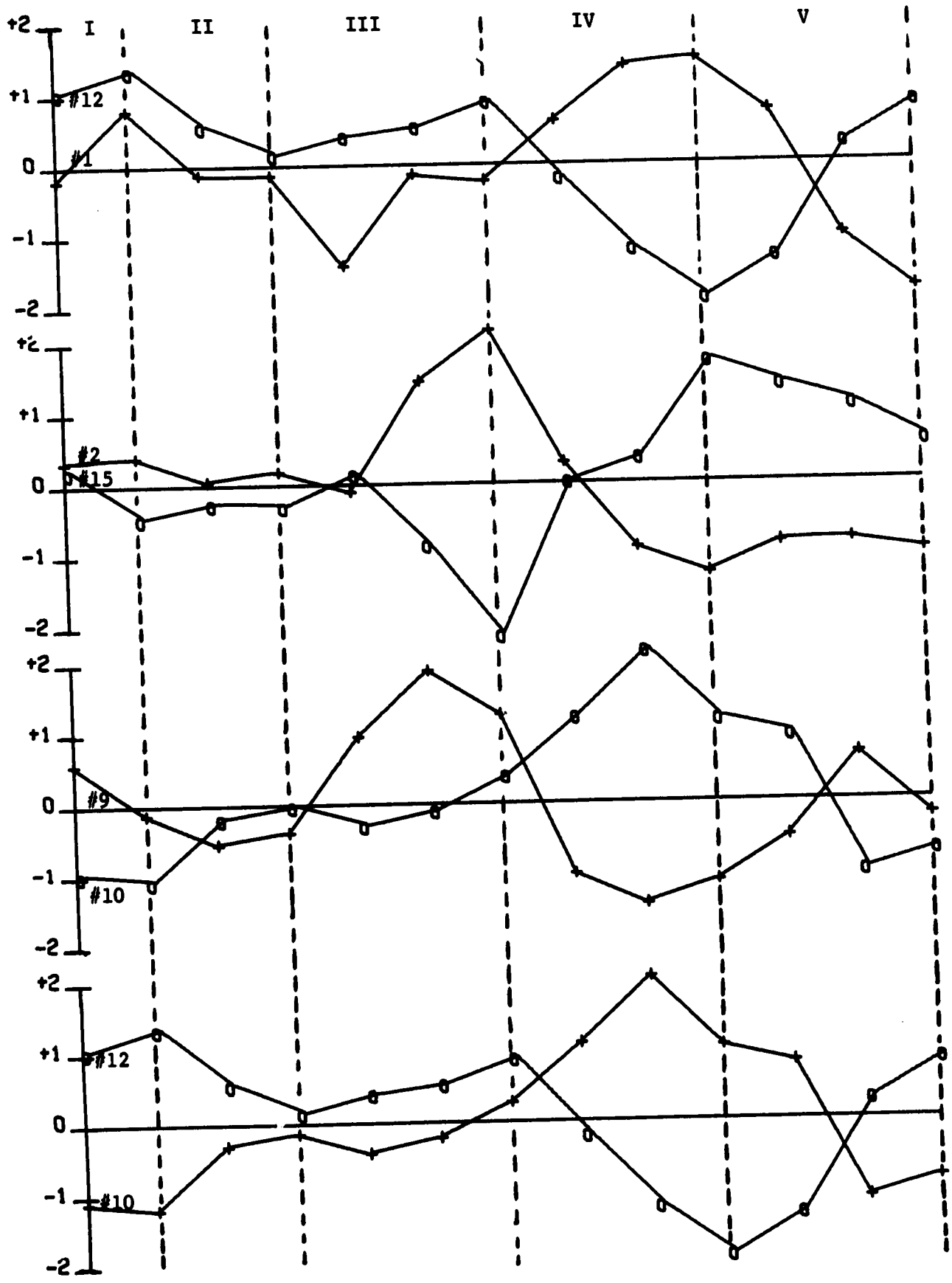


Fig.5.20 Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 (Negatively Correlated)

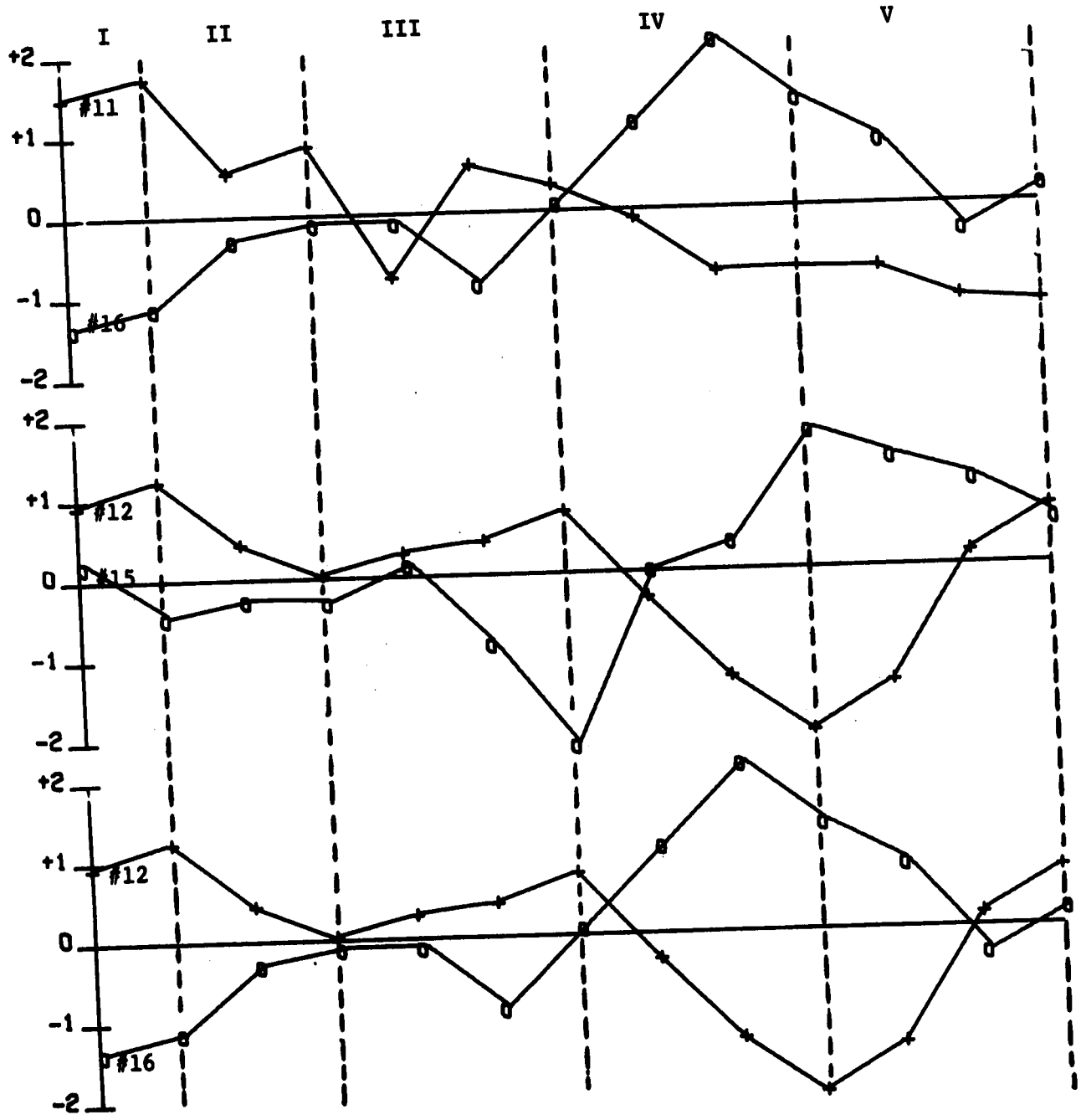


TABLE 5.21

Intercorrelation Matrix and Probability Levels of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT2

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
#1	R	1.000															
	P	0.0															
#2	R	.178	1.000														
	P		0.0														
#3	R	-.371	.431	1.000													
	P			0.0													
#4	R	.572	-.004	-.550	1.000												
	P	*.041		*.052	0.0												
#5	R	.901	.142	-.523	.842	1.000											
	P	*.000			*.000	0.0											
#6	R	.800	.219	-.096	.239	.652	1.000										
	P	*.001				*.016	0.0										
#7	R	-.275	†.795	.437	.033	-.094	-.214	1.000									
	P		*.001	.135				0.0									
#8	R	.907	.206	-.555	.630	.888	.556	-.164	1.000								
	P	*.000		*.049	*.021	*.000	*.049										
#9	R	-.680	.374	.571	-.411	-.587	-.504	.658	-.550	1.000							
	P	*.011	.208	*.042		*.035		*.014	*.051	0.0							
#10	R	.223	.695	-.047	.562	.477	.111	.782	.358	.185	1.000						
	P		*.008		*.045			*.002			0.0						
#11	R	.901	.214	-.328	.351	.715	.769	-.307	.783	-.766	.100	1.000					
	P	*.000		.274			*.002		*.002	*.002		0.0					
#12	R	-.422	-.895	-.426	.012	-.275	-.425	-.527	-.409	-.206	-.503	-.433	1.000				
	P		*.000					.064					0.0				
#13	R	.363	-.107	-.438	-.129	.143	.189	-.468	.453	-.599	-.230	.602	-.082	1.000			
	P							.107		*.030		*.029		0.0			
#14	R	-.121	.347	-.239	.514	.256	-.289	.697	.133	.291	.851	-.265	-.076	-.280	1.000		
	P							*.008			*.000				0.0		
#15	R	-.533	-.260	.338	-.061	-.373	-.388	.131	-.605	.555	-.181	-.736	.402	-.892	.014	1.000	
	P							.671	*.029	*.049		*.004	.173	*.000		0.0	
#16	R	.179	-.124	-.331	-.291	-.054	.050	-.434	.277	-.468	-.317	.461	-.045	.976	-.314	-.828	1.000
	P							.138		.106				*.000		*.000	0.0

† The underlined correlated variables (ex. .795) have been used to illustrate phase development

TABLE 5.22 CHARACTERISTICS OF THE M-L CATEGORIES BY PHASE: SAT2

Phase	I	II	III	IV	V
Time Intervals	1	2,3,4	5,6,7	8,9,10,11	12,13
Significant Categories					
#2	S+	M+	H-	S+	S-
#3	M-	H+	M-	M-	H-
#4	M+	H-	S+	M-	H+
#7	H+	M+	M-	S-	M-
#8	S+	M-	M-	H+	H+
#9	M+	M+	M-	S+	H-
#11	H-	S-	M-	M+	H+
#12	M+	M-	H+	M-	S+
#13	M-	M-	S+	H+	S+
#15	S+	M+	M+	M-	M-
#16	M-	M-	S+	H+	S-

Slight (S+) Z score values 0--.5 standard deviations from group mean
Moderate (M+) Z score values .5--1.0 standard deviations from group mean
High (H+) Z score value 1.0--2...standard deviations from group mean

Fig.5.5 Plots of Z-score values of Mann's Hostility Categories across Thirteen Repeated Measures on SAT2

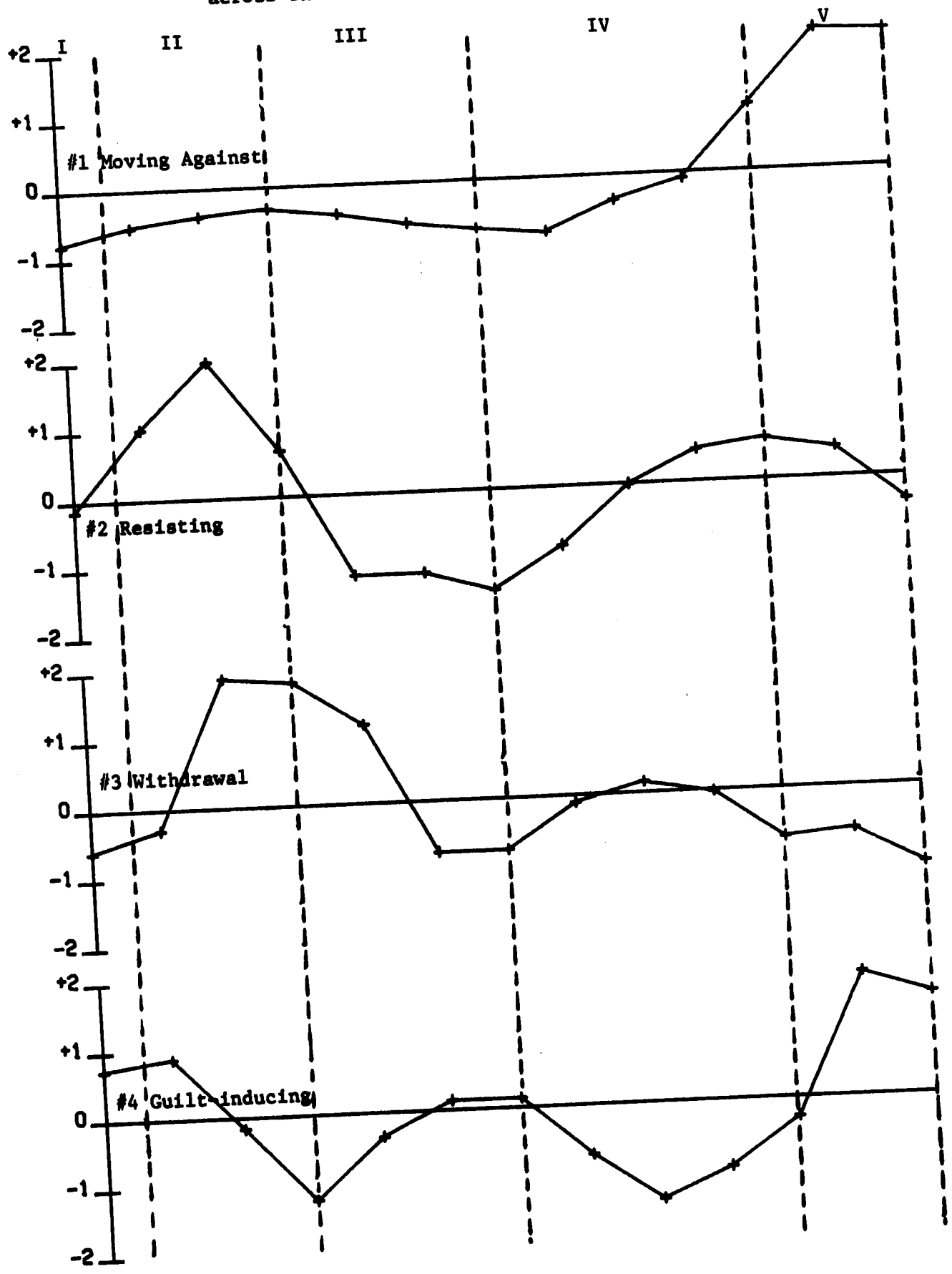


Fig.5:6 Plots of Z-score values of Mann's Affection Categories across Thirteen Repeated Measures on SAT2

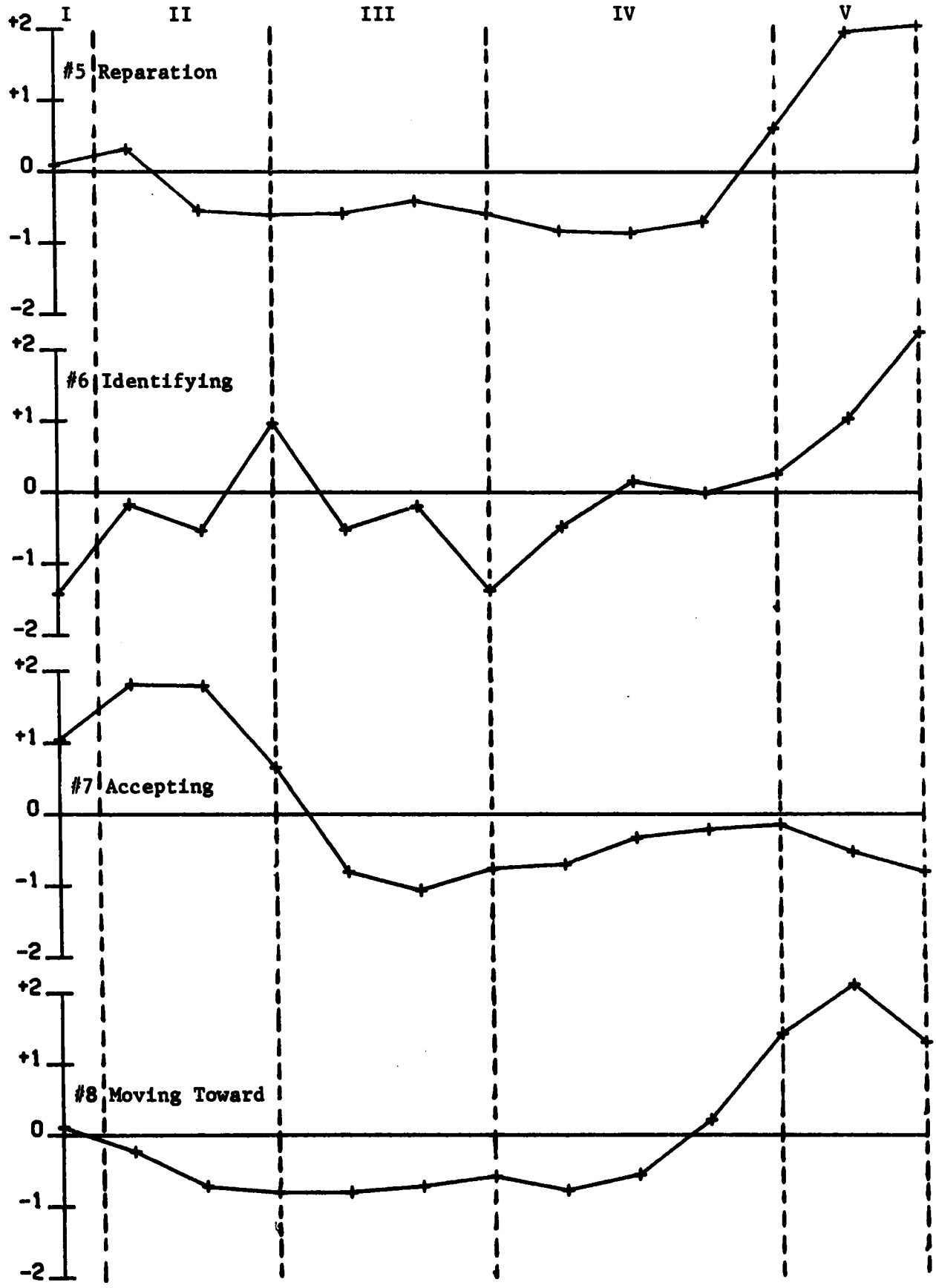


Fig. 5.7 Plots of Z-score values of Mann's Authority Relations Categories across Thirteen Repeated Measures on SAT2

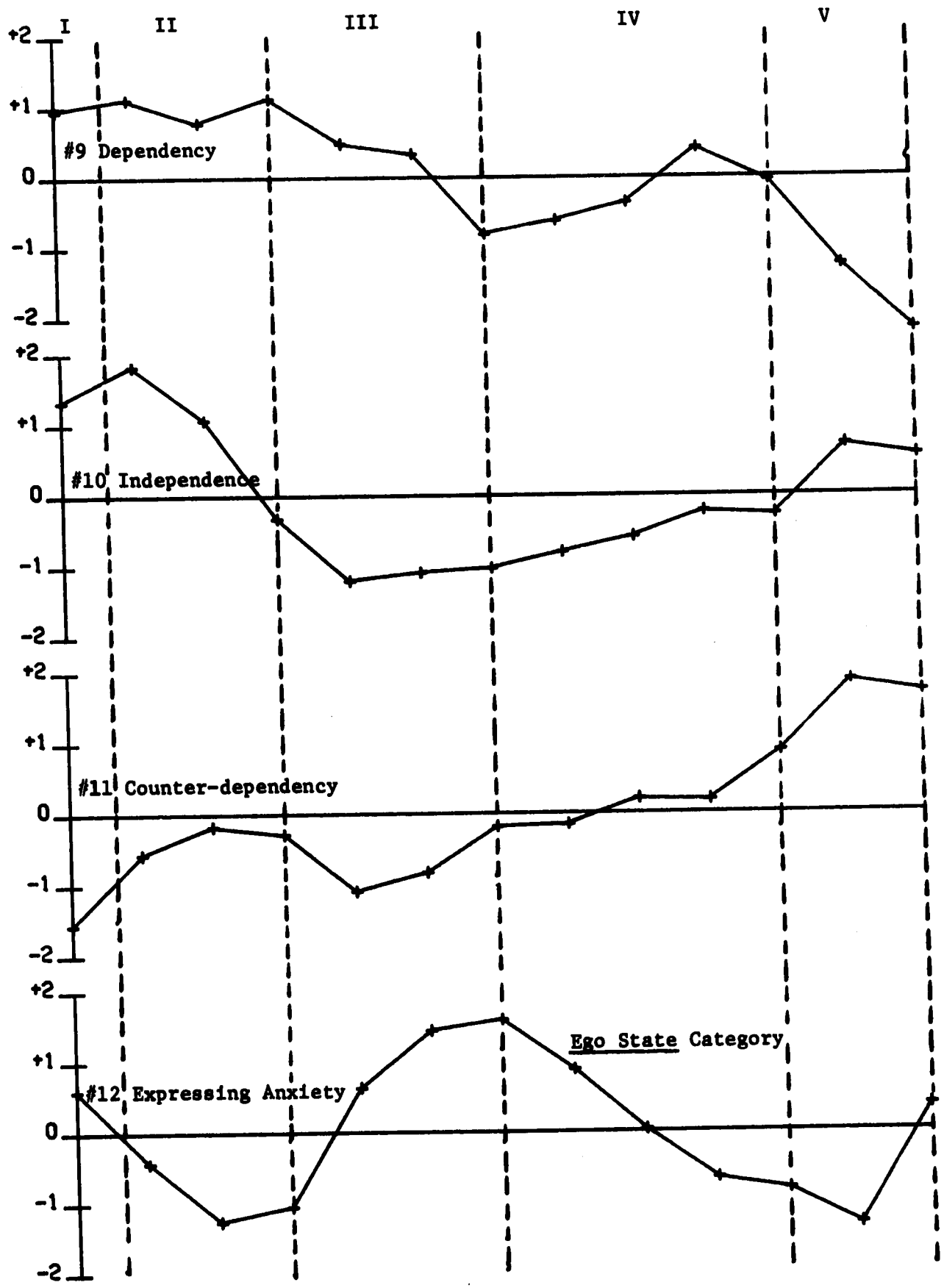


Fig. 5.8 Plots of Z-score values of Mann's Ego State Categories across Thirteen Repeated Measures on SAT2

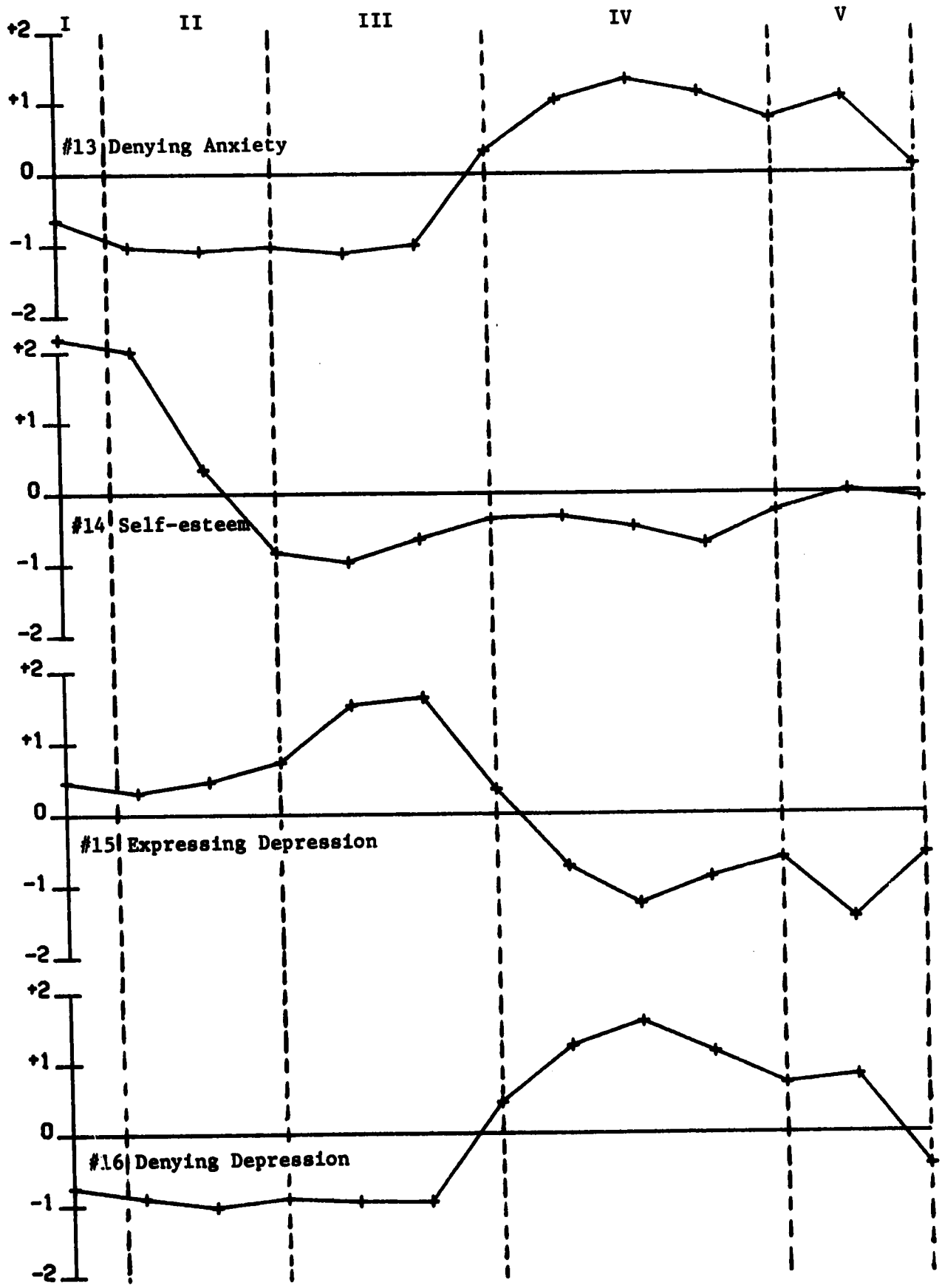


Fig.5.21 Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT2 (Positively Correlated)

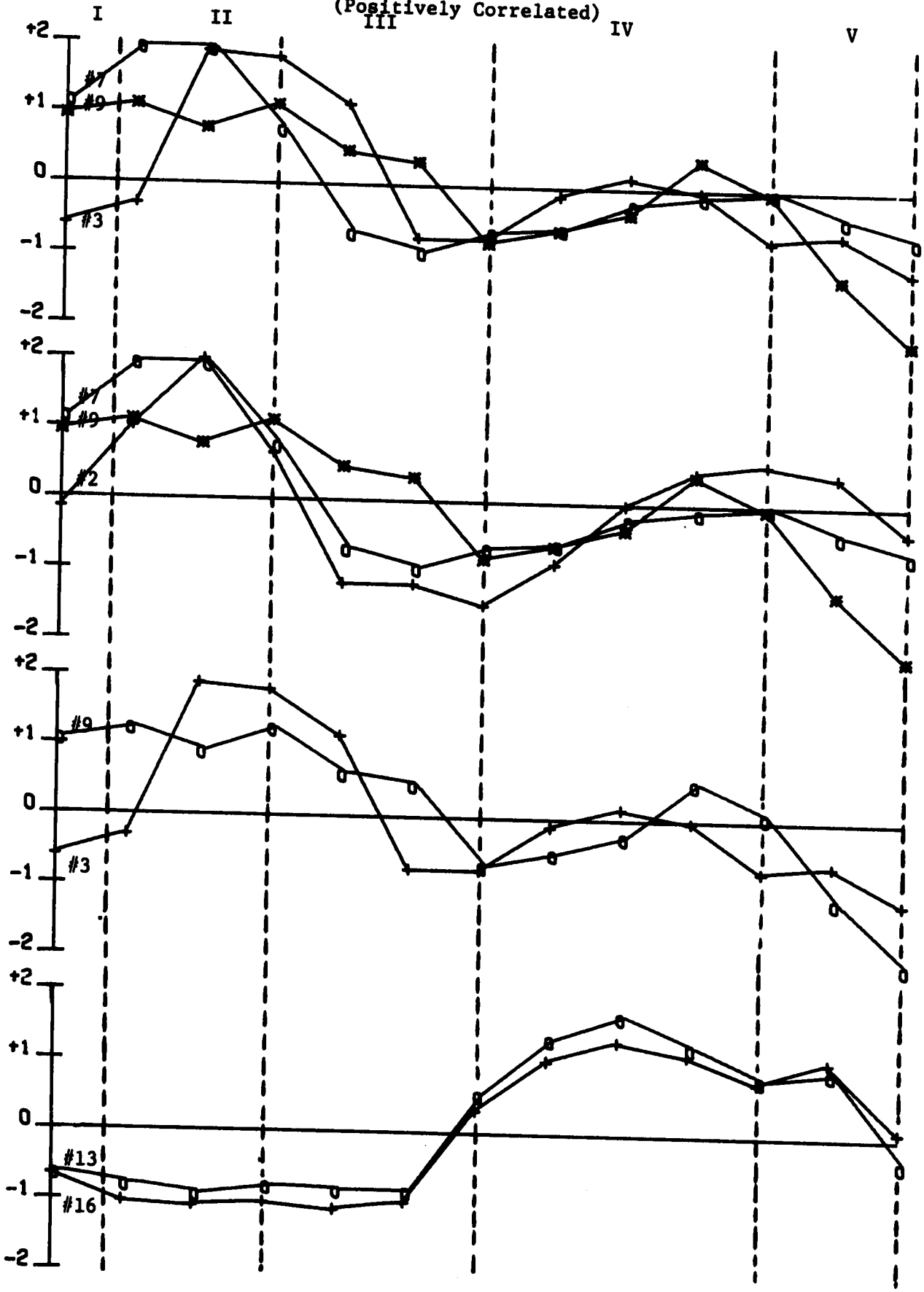


Fig.5.22
Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT2 (Positively Correlated)

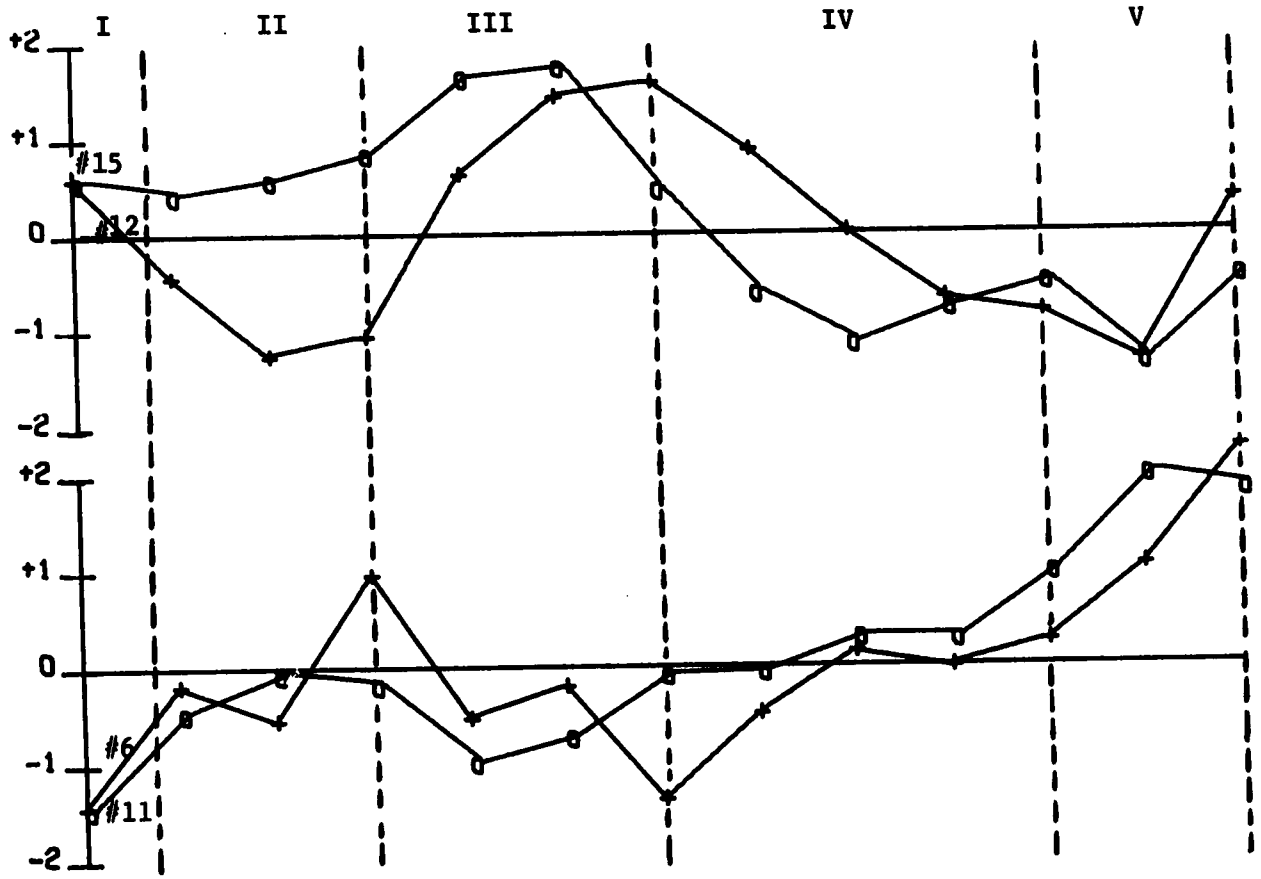


Fig.5.23 Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT2 (Negatively Correlated)

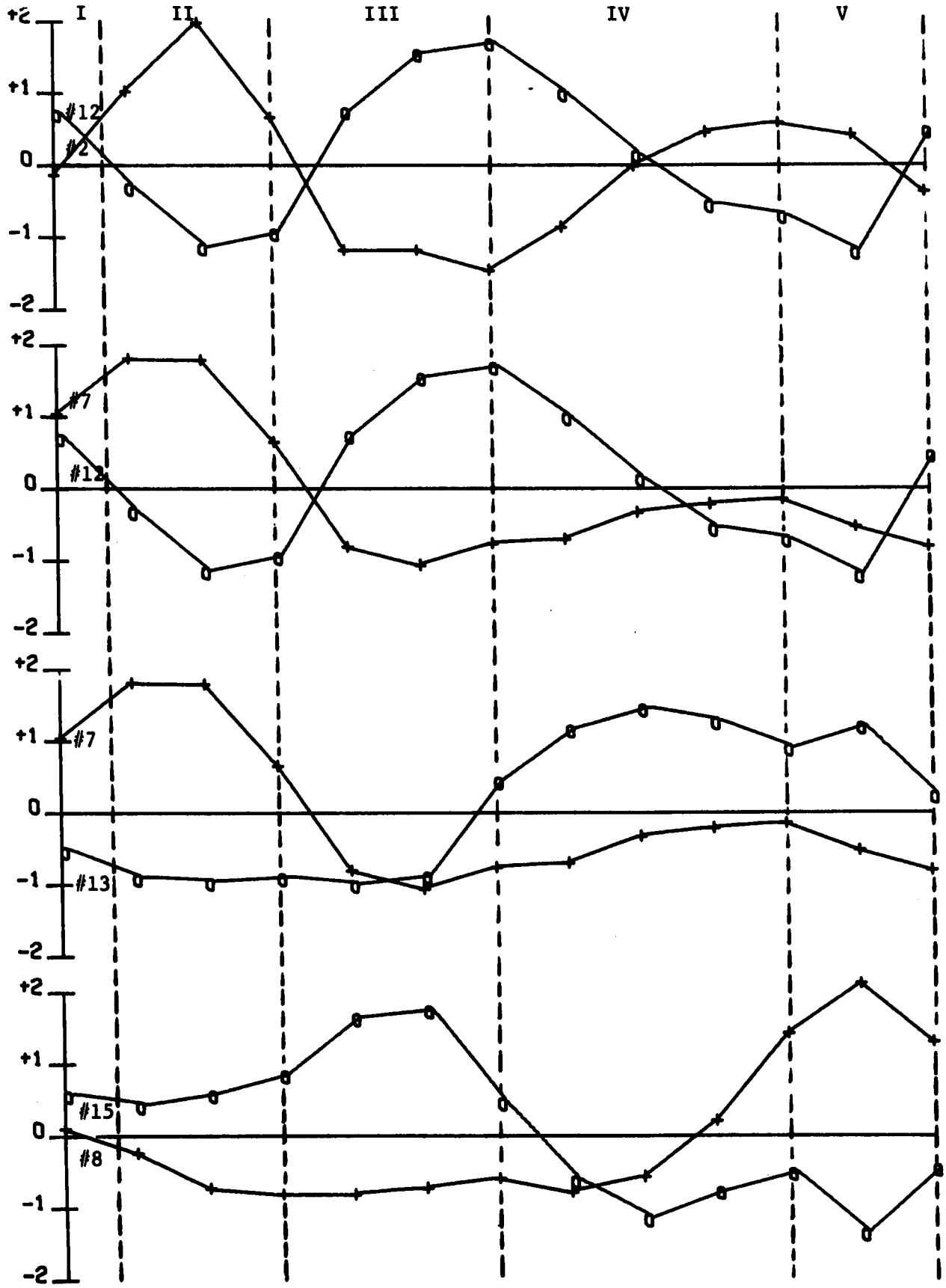


Fig.5.24

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT2 (Negatively Correlated)

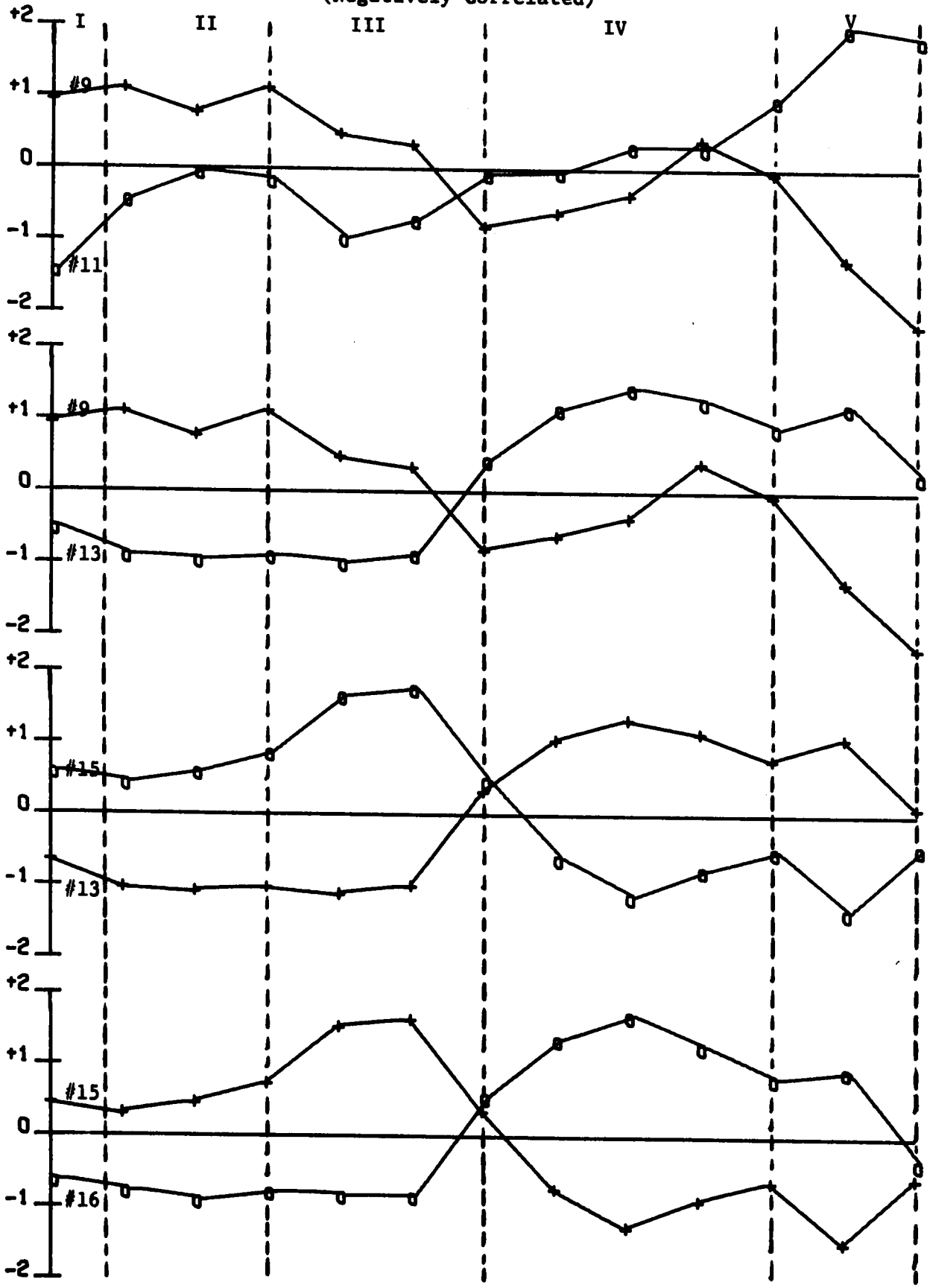


TABLE 5.23

Intercorrelation and Probability Levels of Mann's Categories as assigned to various figures

Figure	Cat.#'s	r	P
Fig.5.28	3,3	-.569	.041
	4,4	-.531	.061
	10,10	-.555	.048
	11,11	-.655	.014
Fig.5.29	15,15	-.543	.054
	16,16	.755	.002
Fig.5.36	2,2	.740	.003
	10,10	.582	.036
	15,15	.750	.003

Fig.5.25

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 & SAT2 (Negatively Correlated)

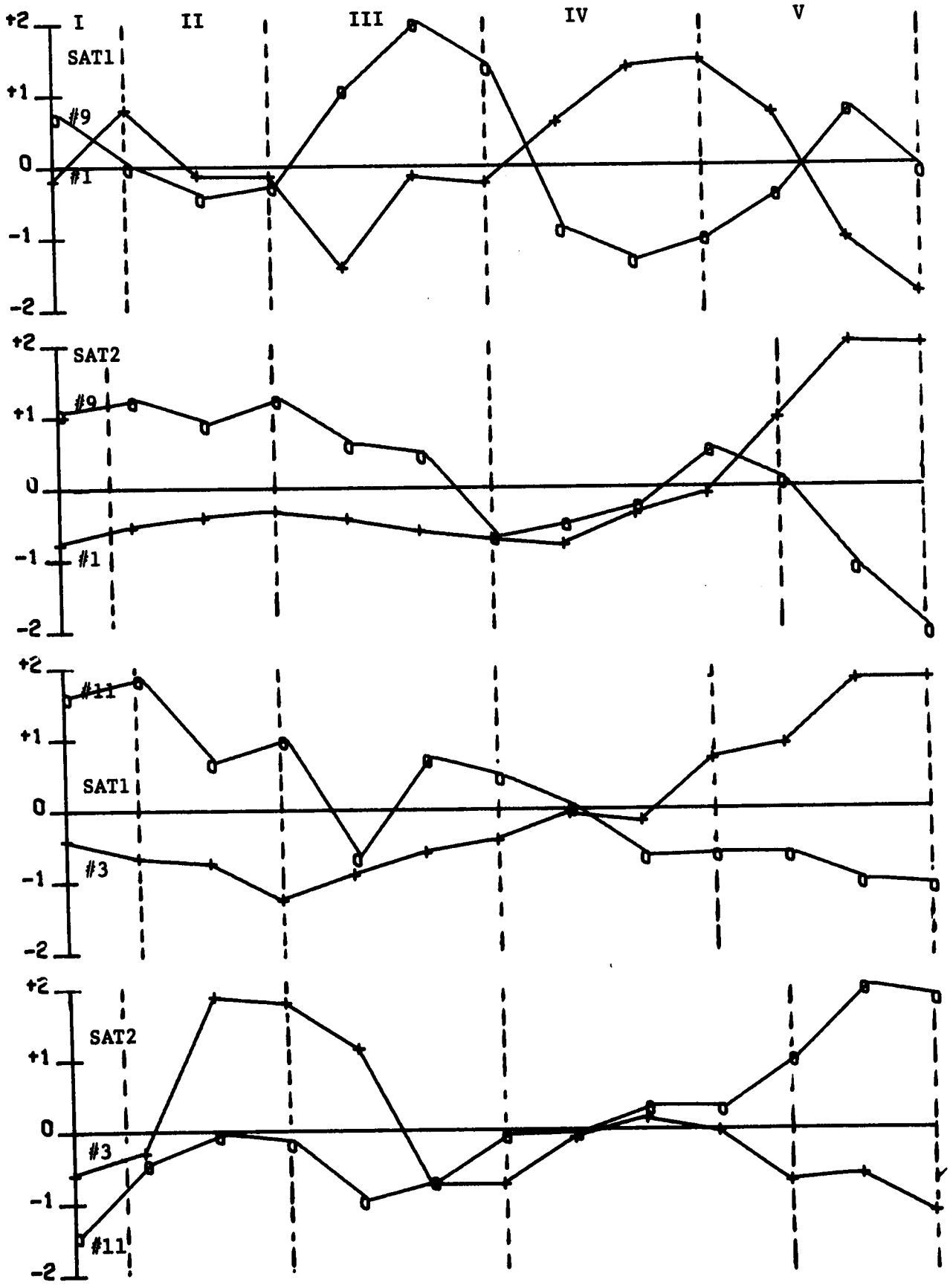


Fig.5.26 Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 & SAT2 (Negatively Correlated)

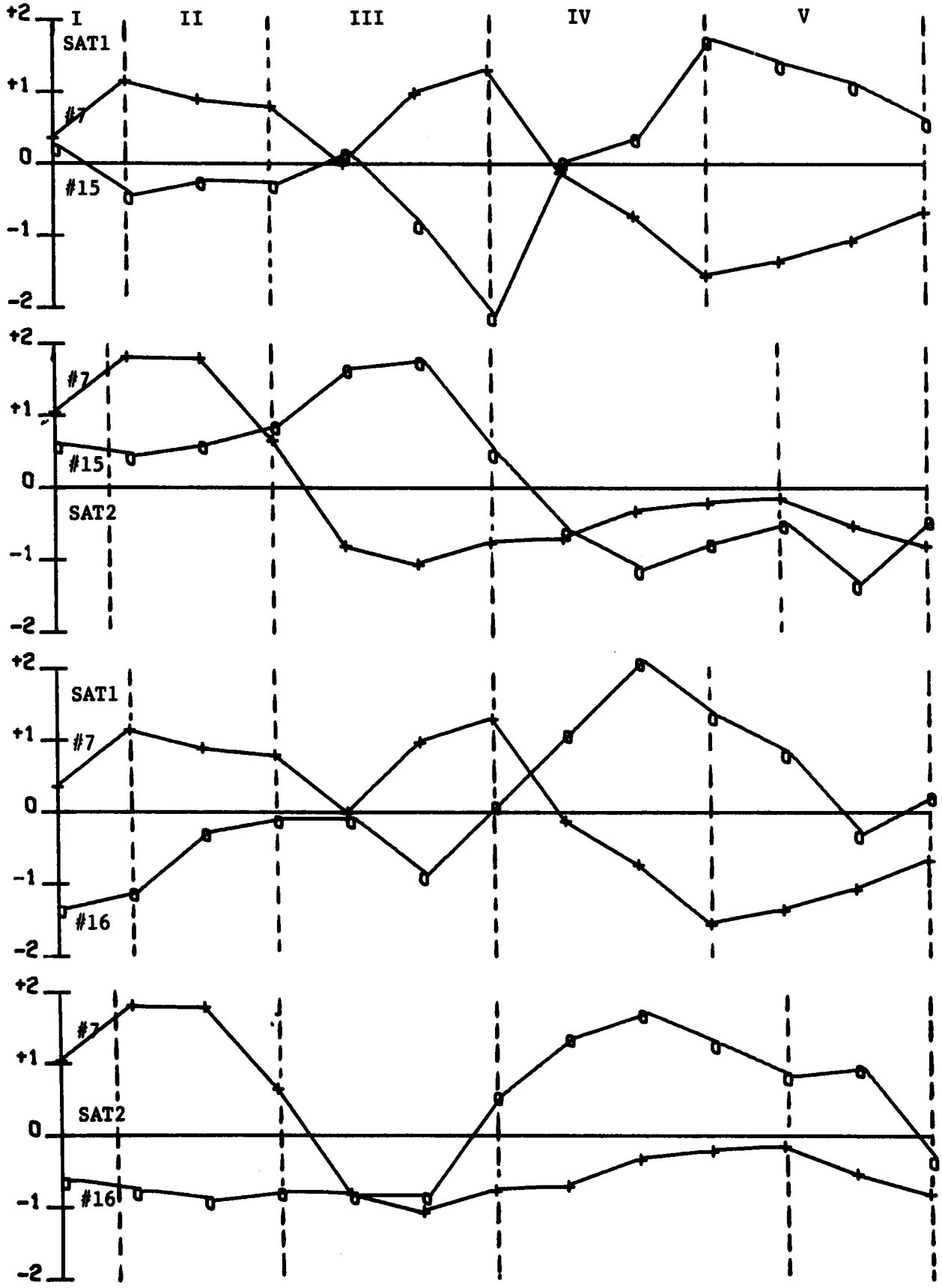


Fig.5.27 Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 & SAT2 (Negatively Correlated)

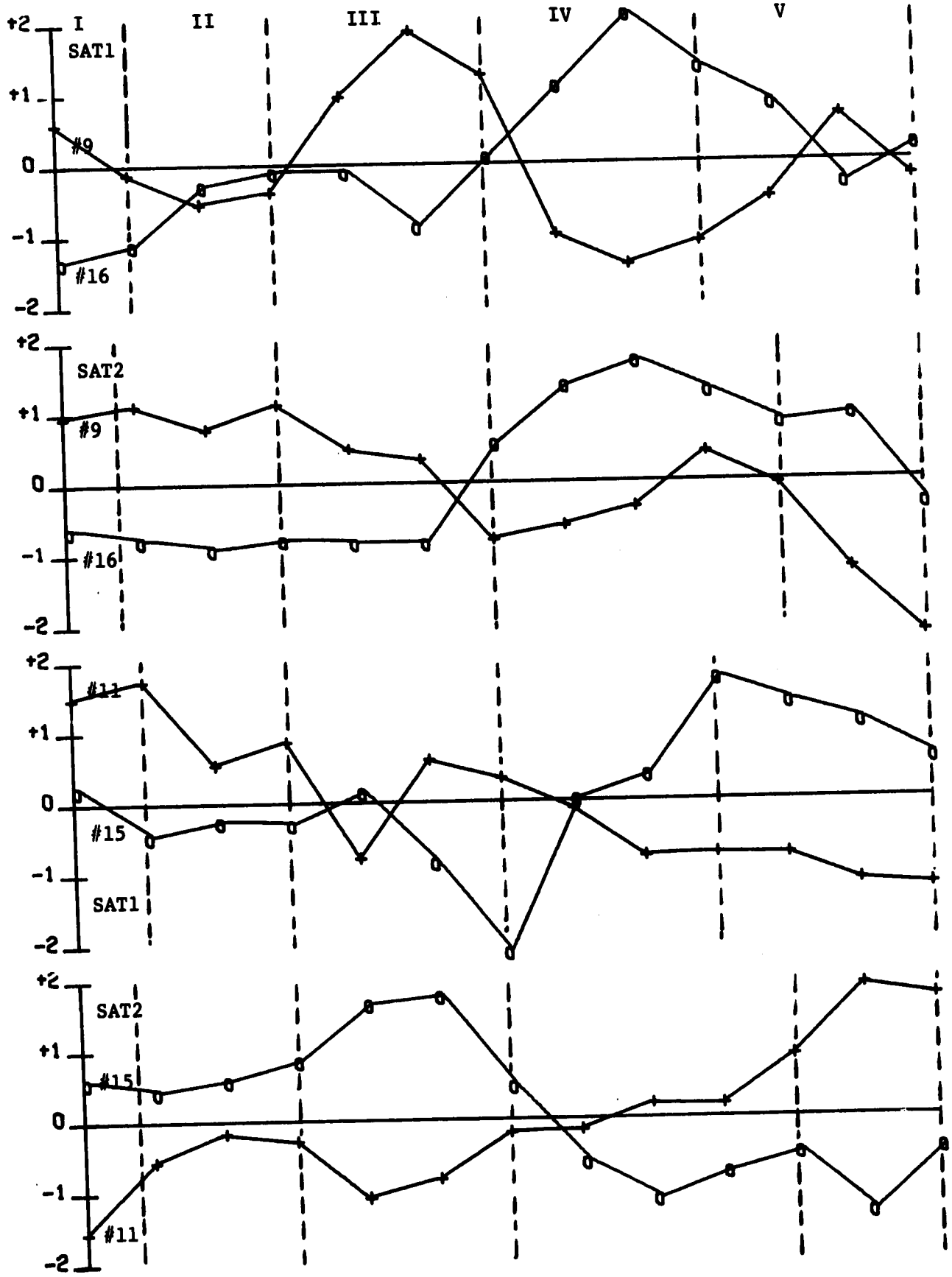


Fig.5.28 Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on SAT1 & SAT2 (Negatively Correlated)

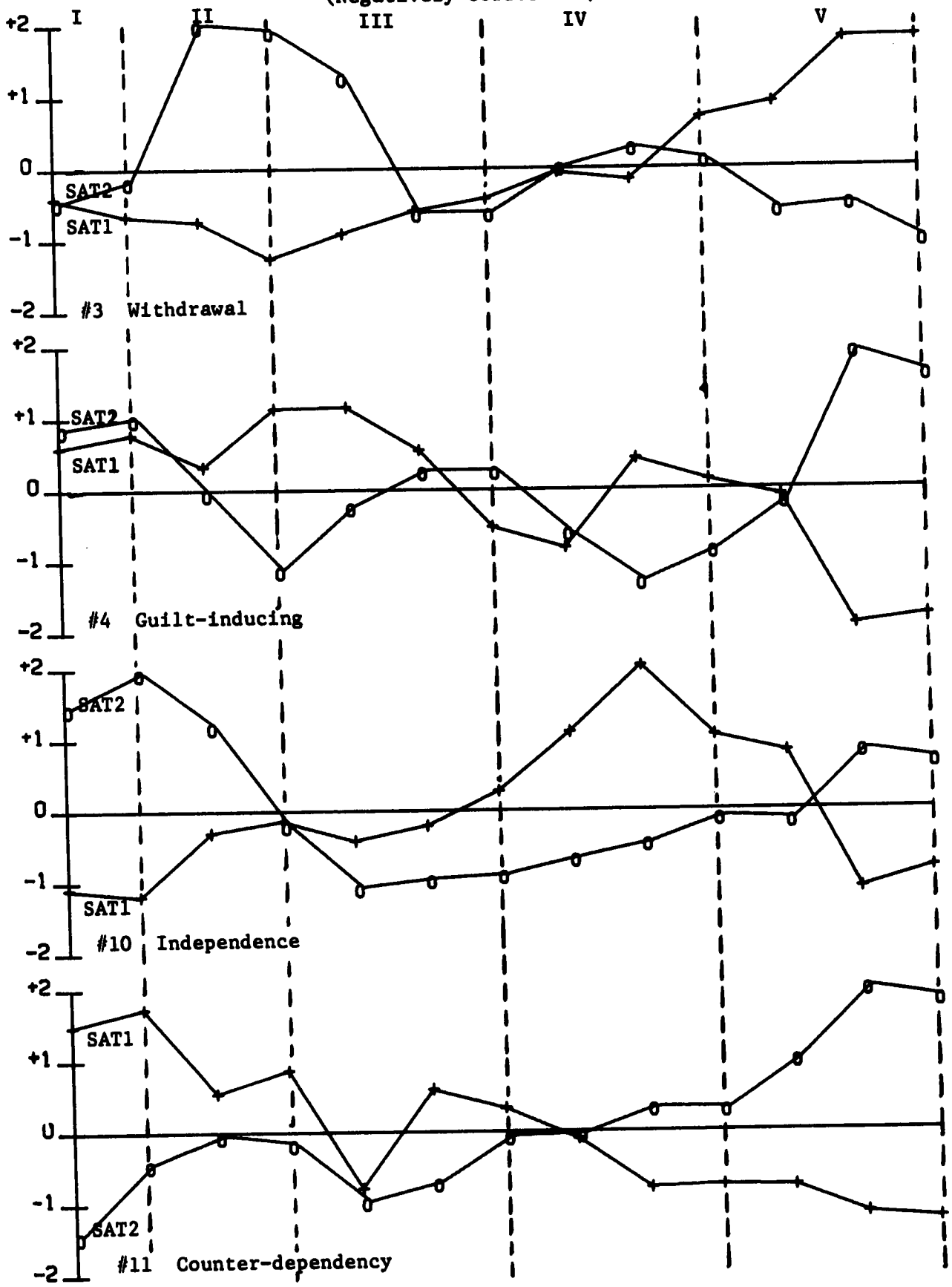


Fig.5.29

Plots of Z-score values of Mann's Sixteen Categories
across Thirteen Repeated Measures on SAT1 & SAT2
(Negatively Correlated)
(Positively Correlated)

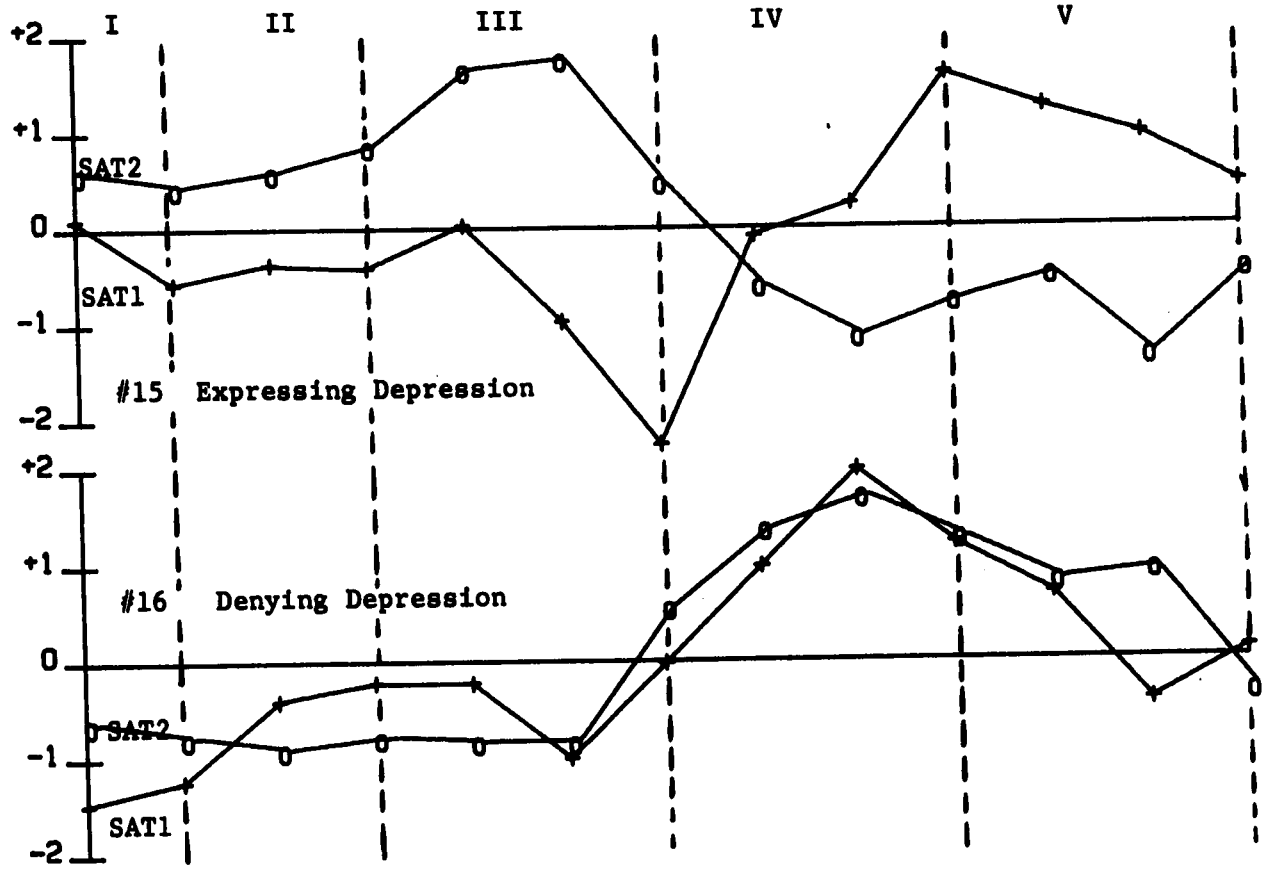


TABLE 5. 24 Intercorrelation Matrix and Probability Levels of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
#1	R	1.000															
	P	0.0															
#2	R	-.636	1.000														
	P	*.020	0.0														
#3	R	.587	†-.681	1.000													
	P	*.035	*.010	0.0													
#4	R	-.278	-.170	-.102	1.000												
	P				0.0												
#5	R	-.699	.631	-.716	-.197	1.000											
	P	*.008	*.021	*.006		0.0											
#6	R	-.336	.488	-.710	-.098	.630	1.000										
	P			*.007		*.021	0.0										
#7	R	-.180	.731	-.424	-.615	.490	.475	1.000									
	P		*.005		*.025			0.0									
#8	R	.422	-.799	.387	.420	-.535	-.216	-.801	1.000								
	P		*.001					*.001	0.0								
#9	R	.057	-.331	.168	-.321	.036	-.161	-.454	.313	1.000							
	P		.269							0.0							
#10	R	.748	-.572	.527	.296	-.700	-.227	-.402	.582	-.252	1.000						
	P	*.003	*.041	.064		*.008			*.037		0.0						
#11	R	-.391	.080	-.201	.890	-.027	-.160	-.329	.082	-.469	.155	1.000					
	P				*.000							0.0					
#12	R	-.101	-.533	-.075	.275	.023	-.125	-.546	.513	.335	-.166	.115	1.000				
	P		.061					*.054					0.0				
#13	R	-.168	-.156	.294	-.392	.209	-.290	.177	-.118	.010	-.304	-.197	.189	1.000			
	P													0.0			
#14	R	.843	-.613	.597	.131	-.817	-.245	-.323	.556	-.189	.933	-.066	-.171	-.334	1.000		
	P	*.000	*.026	*.031		*.001			*.048		*.000				0.0		
#15	R	.646	-.586	.613	.364	-.825	-.481	-.599	.503	.088	.767	.157	-.158	-.539	.800	1.000	
	P	*.017	*.035	*.026		*.001		*.031			*.002			.058	*.001	0.0	
#16	R	.381	-.730	.754	.168	-.537	-.642	-.588	.655	.104	.496	.103	.315	.520	.415	.331	1.000
	P		*.005	*.003		.058	*.018	*.035	*.015								0.0

† The underlined correlated categories (ex. .681) have been used to illustrate phase development in this study.

TABLE 5.25 CHARACTERISTICS OF THE M-L CATEGORIES BY PHASE: DCT1

Phase	I	II	III	IV	V
Time Intervals	1	2,3,4,5	6,7,8	9,10	11,12,13
Significant Categories					
#2	H-	H+	S-	S+	M-
#3	H+	S-	H-	S-	H+
#6	H-	S-	H+	S-	M-
#7	H-	H+	M-	M-	S-
#9	H+	M-	M+	H-	S-
#10	M-	M-	S+	S+	H+
#11	M-	M-	M+	H+	M-
#12	S+	H-	M+	S-	M-
#15	S+	M-	S-	S+	H+

Slight (S+) Z score value 0--.5 standard deviations from group mean
Moderate (M+) Z score value .5--1.0 standard deviations from group mean
High (H+) Z score value1.0--2...standard deviations from group mean

Fig.5.9 Plots of Z-score values of Mann's Hostility Categories across Thirteen Repeated Measures on DCT1

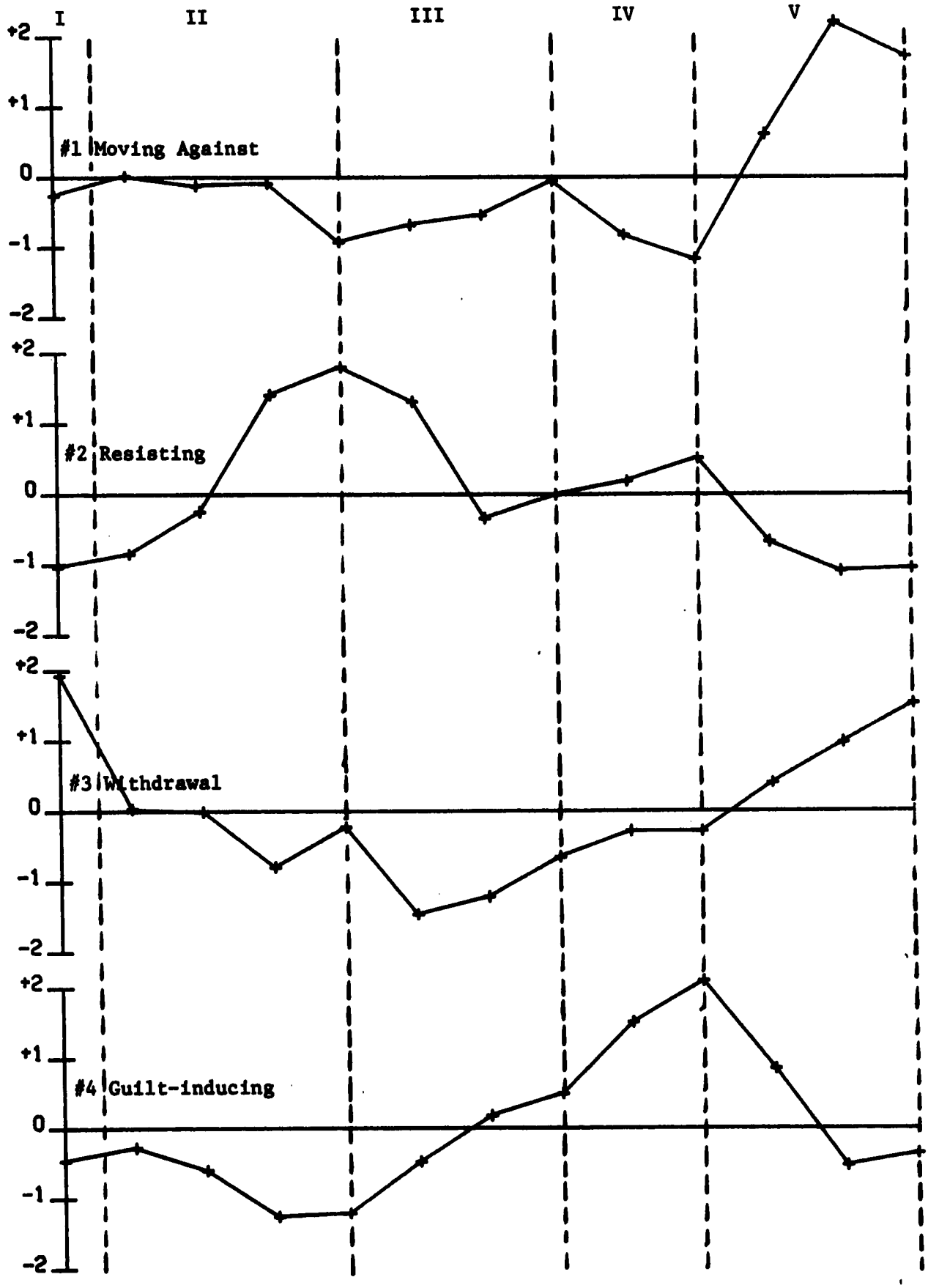


Fig.5.10 Plots of Z-score values of Mann's Affection Categories across Thirteen Repeated Measures on DCT1

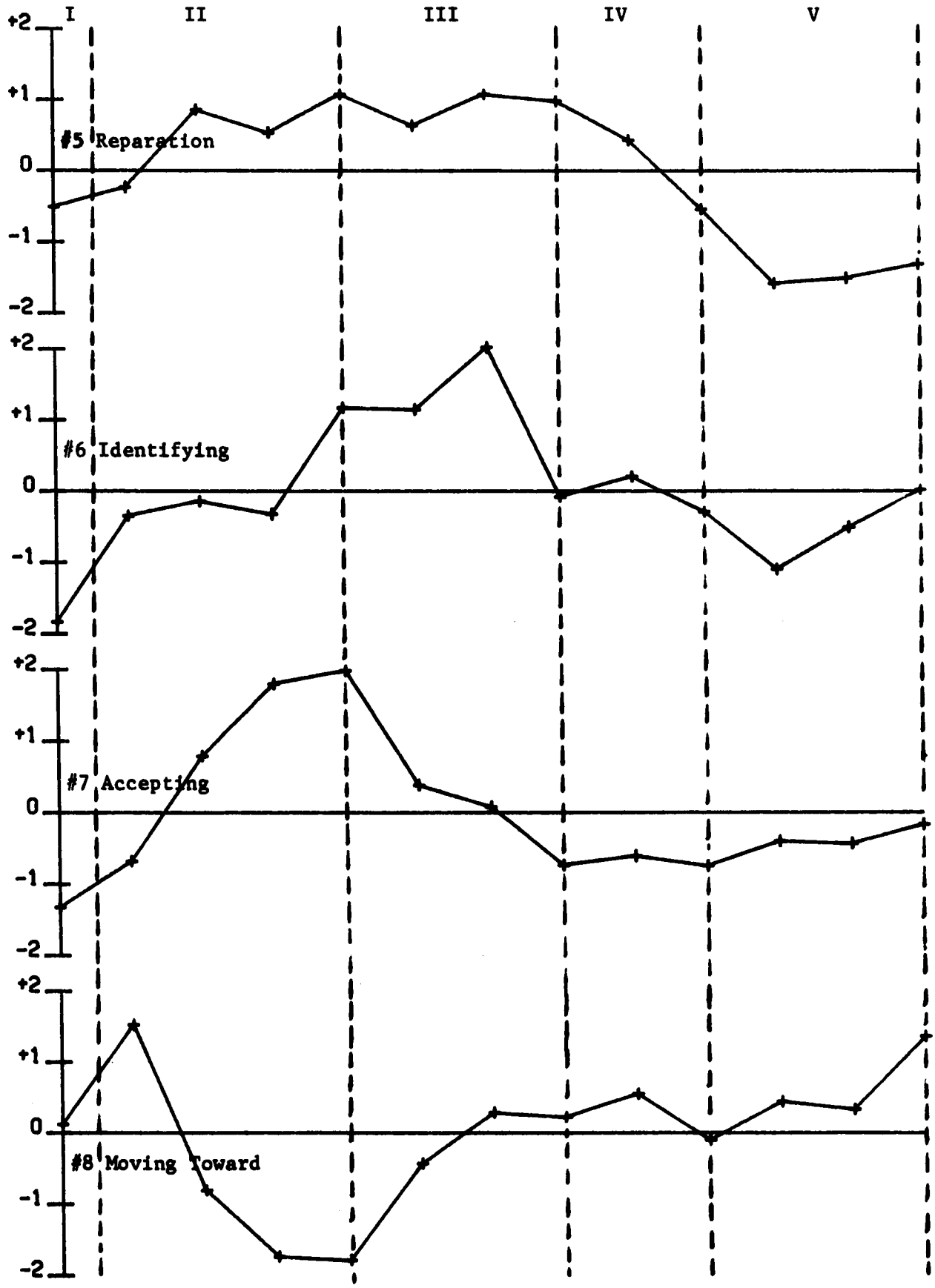


Fig.5.11 Plots of Z-score values of Mann's Authority Relations Categories across Thirteen Repeated Measures on DCT1

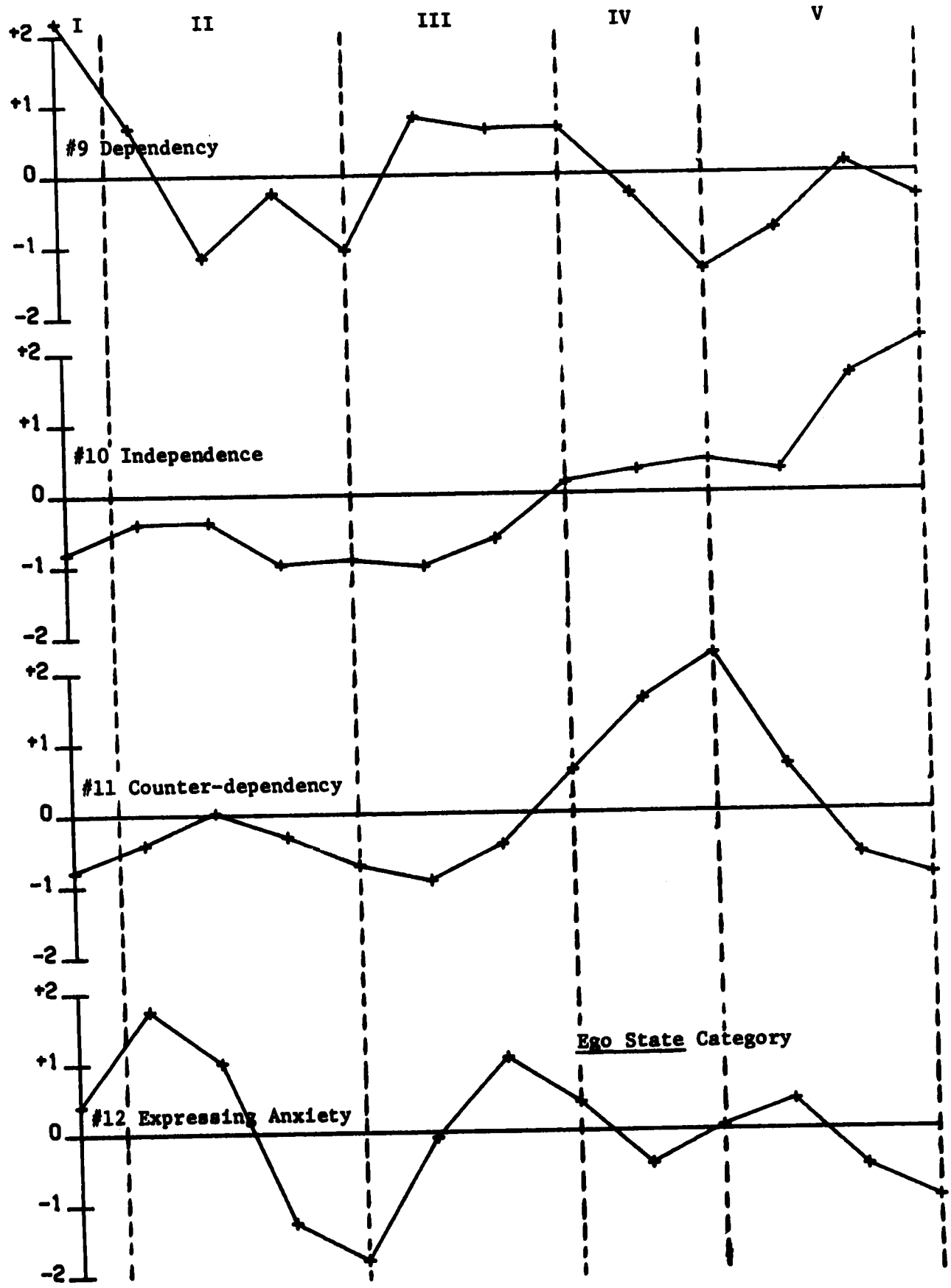


Fig.5.12

Plots of Z-score values of Mann's Ego State Categories across Thirteen Repeated Measures on DCT1

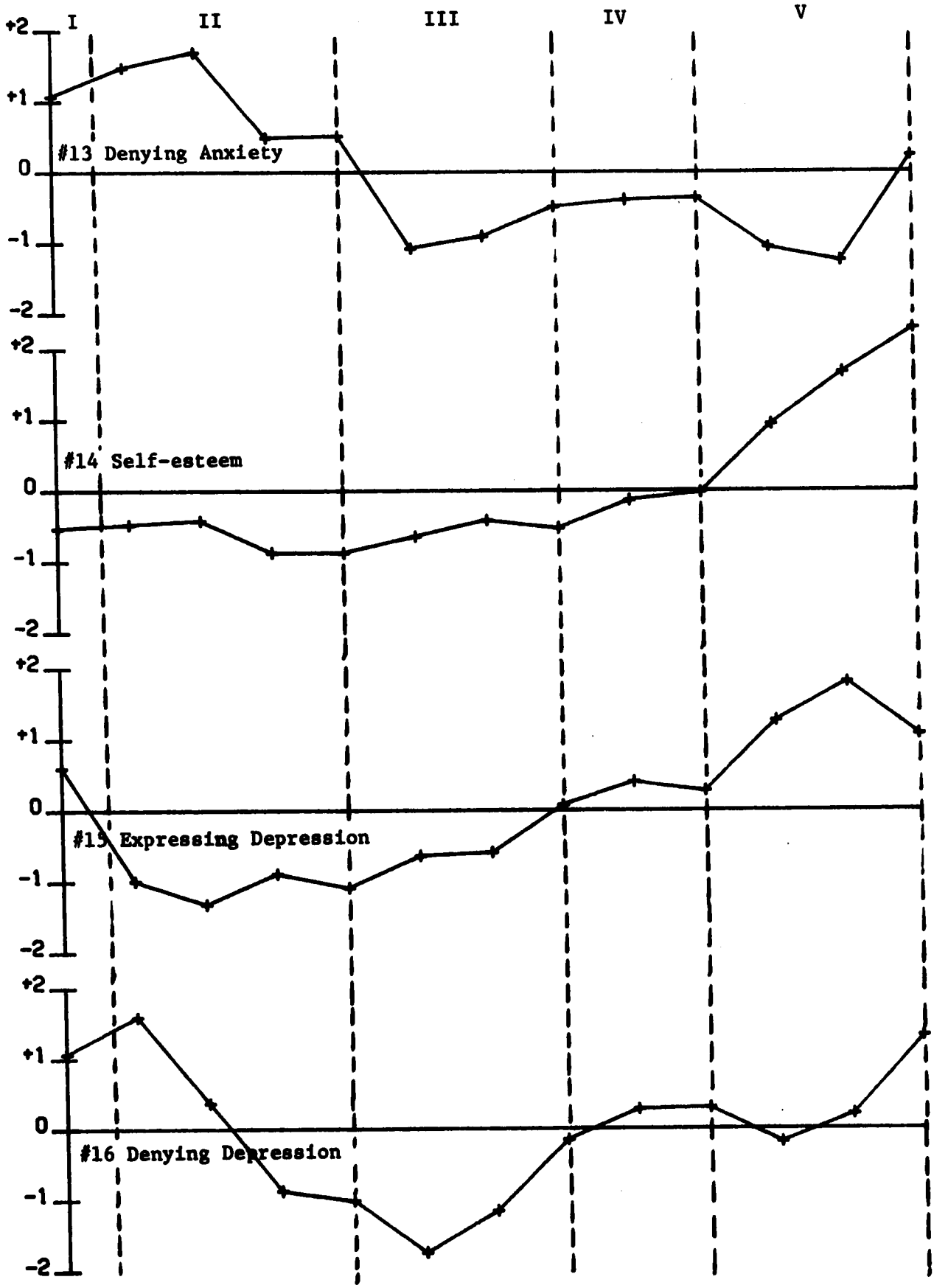


Fig.5.30

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT1 (Positively Correlated)

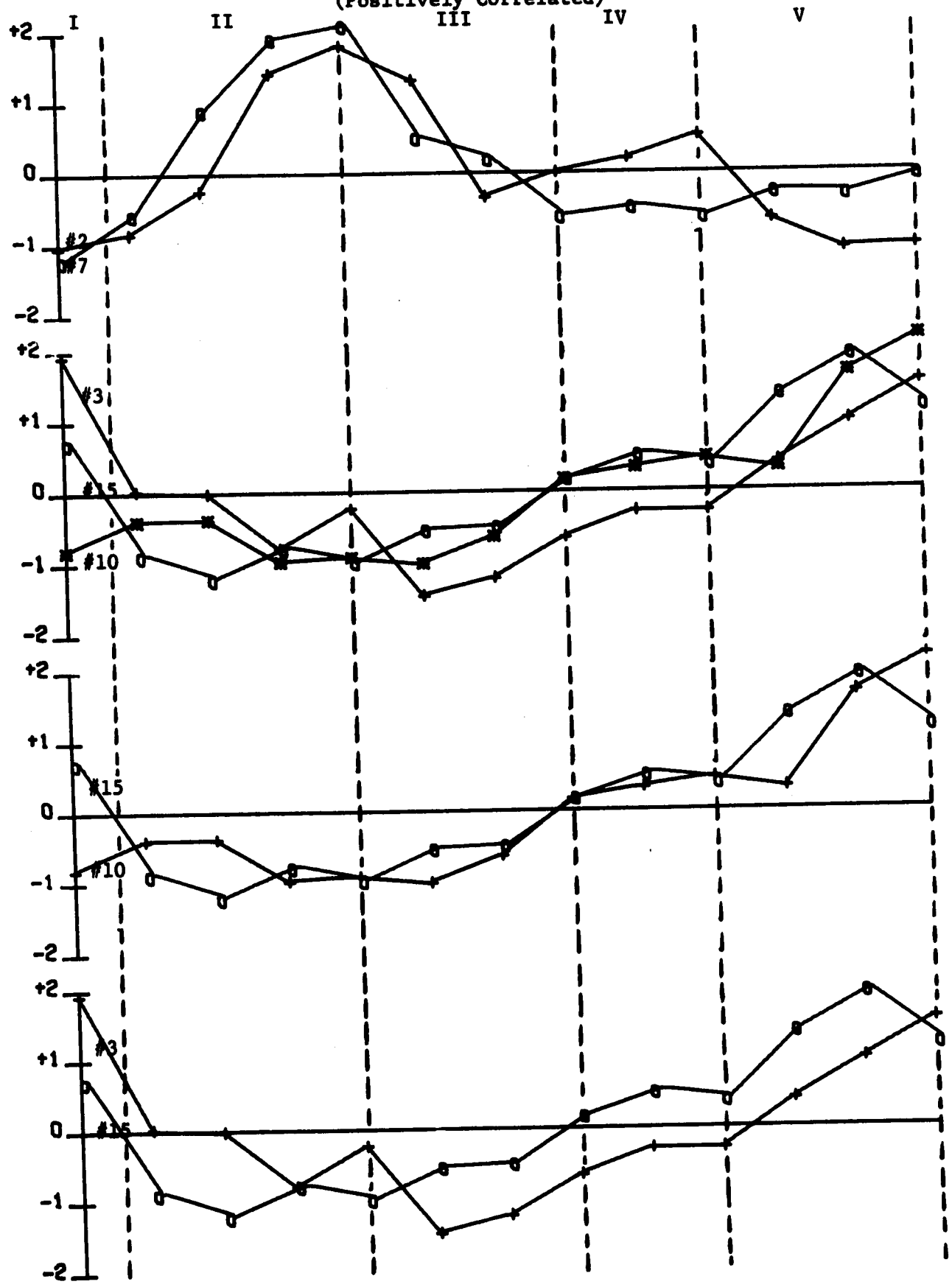


Fig.5.31

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT1 (Negatively Correlated)

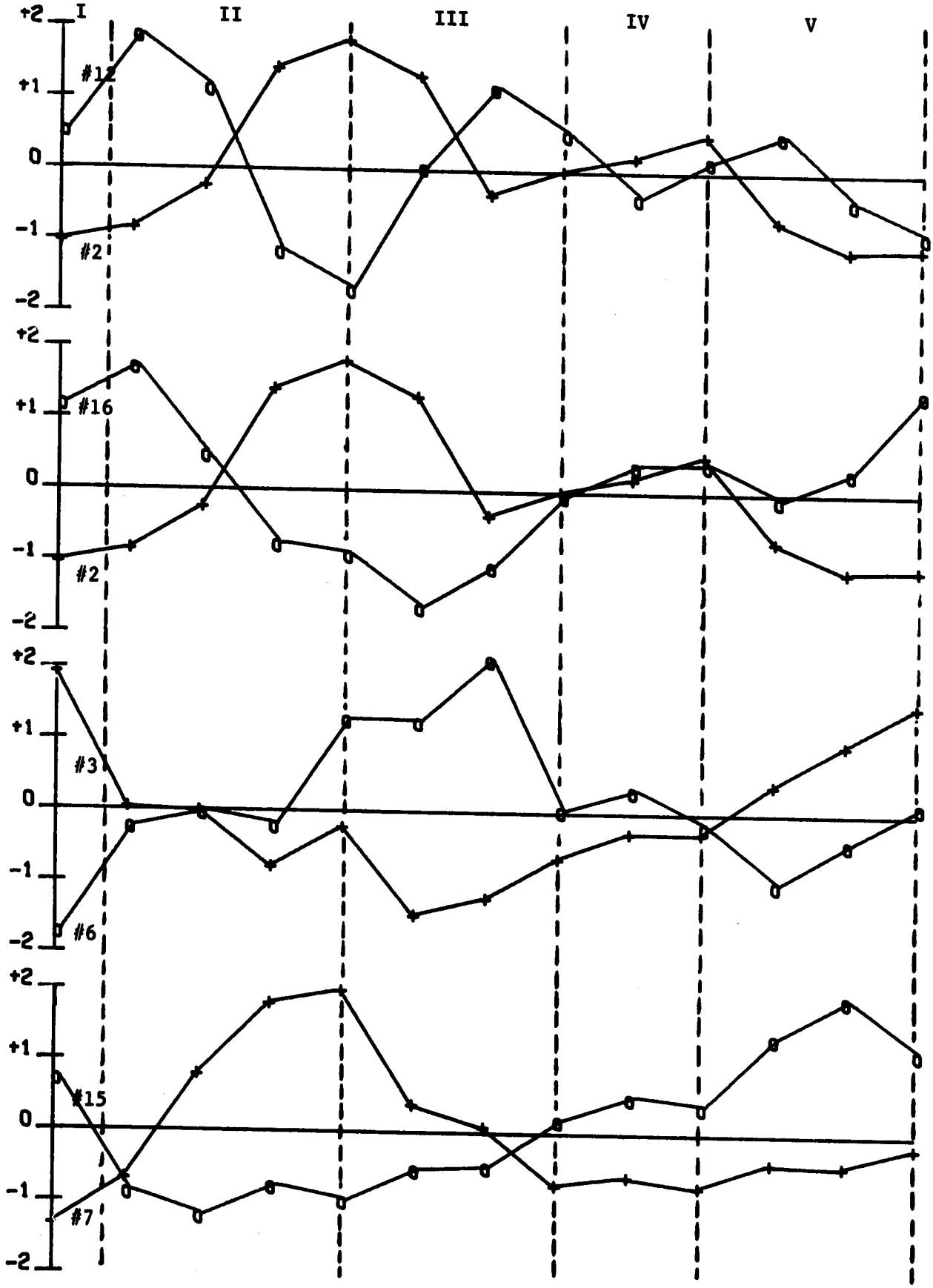


TABLE 5:26

Intercorrelation Matrix and Probability Levels of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT2

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
#1	R	1.000															
	P	0.0															
#2	R	.274	1.000														
	P		0.0														
#3	R	.336	†-.560	1.000													
	P		*.047	0.0													
#4	R	.186	-.685	.452	1.000												
	P		*.010		0.0												
#5	R	.422	-.522	.740	.731	1.000											
	P			*.004	*.005	0.0											
#6	R	-.256	-.181	.220	.416	.428	1.000										
	P						0.0										
#7	R	.157	.208	-.559	-.033	-.168	-.416	1.000									
	P			*.047				0.0									
#8	R	.372	-.563	.688	.815	.677	.343	-.359	1.000								
	P		*.045	*.009	*.001	*.011			0.0								
#9	R	-.366	-.547	-.136	.267	-.226	-.258	.154	.155	1.000							
	P		*.053							0.0							
#10	R	-.369	-.522	.202	.615	.313	.776	-.325	.563	.212	1.000						
	P		.068		*.025		*.002		*.045		0.0						
#11	R	.573	.104	.386	.091	.519	-.089	.024	.044	-.638	-.449	1.000					
	P	*.040								*.019		0.0					
#12	R	-.608	.442	-.891	-.577	-.754	-.123	.292	-.809	.076	-.135	-.440	1.000				
	P	*.028	.130	*.000	*.039	*.003			*.001				0.0				
#13	R	-.433	-.183	-.002	-.362	-.266	-.358	-.117	-.466	.067	-.392	.281	.212	1.000			
	P													0.0			
#14	R	-.662	-.404	-.148	.386	-.030	.679	-.183	.162	.393	.851	-.616	.257	-.174	1.000		
	P	*.014					*.011				*.000	*.025			0.0		
#15	R	.453	-.545	.792	.490	.519	-.146	-.370	.771	.302	.078	.104	-.840	-.163	-.229	1.000	
	P		*.054	*.001					*.002				*.000			0.0	
#16	R	-.458	.104	-.231	-.379	-.206	-.006	-.005	-.625	-.294	-.302	.399	.419	.822	-.051	-.583	1.000
	P													*.001		*.036	0.0

† The underlined correlated variables (ex. -.560) have been used to illustrate phase development in this study.

TABLE 5.27 CHARACTERISTICS OF THE M-L CATEGORIES BY PHASE: DCT2

Phase	I	II	III	IV	V
Time Intervals	1,2	3,4,5	6,7,8	9,10,11	12,13
Significant Categories					
#2	M-	H+	S-	S-	H-
#3	M-	M-	S-	H+	H+
#4	S-	H-	S+	S-	H+
#7	S+	M-	H+	M-	M-
#9	H+	H-	M-	M+	M-
#11	H-	H+	H+	S-	M+
#12	H+	M+	S+	M-	H-
#15	M-	M-	S-	H+	H+

Slight (S+) Z score value 0--.5 standard deviations from group mean
Moderate (M+) Z score value .5--1.0 standard deviations from group mean
High (H+) Z score value 1.0--2... standard deviations from group mean

Fig.5.13 Plots of Z-score values of Mann's Hostility Categories across Thirteen Repeated Measures on DCT2

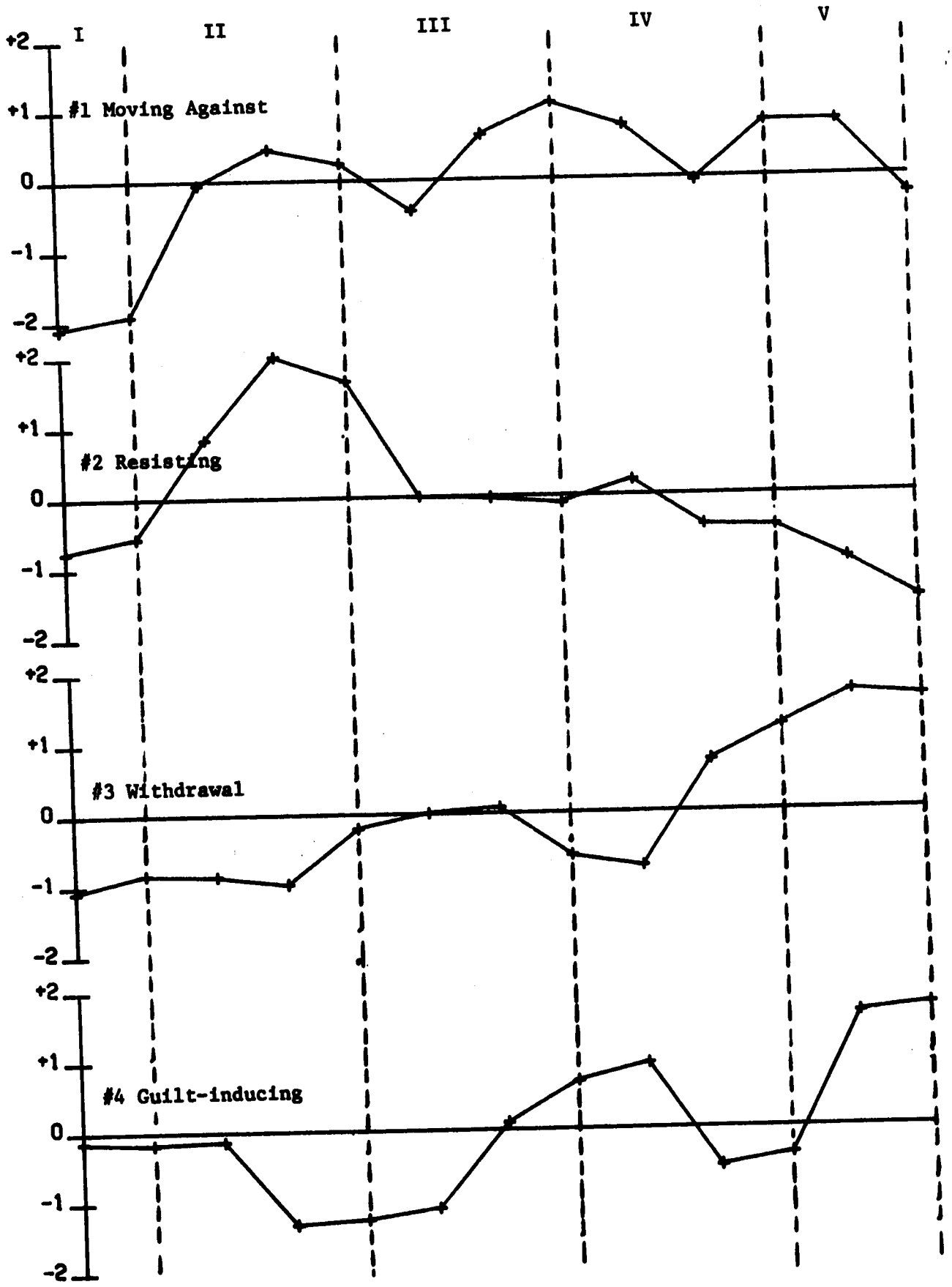


Fig.5.14 Plots of Z-score values of Mann's Affection Categories across Thirteen Repeated Measures on DCT2

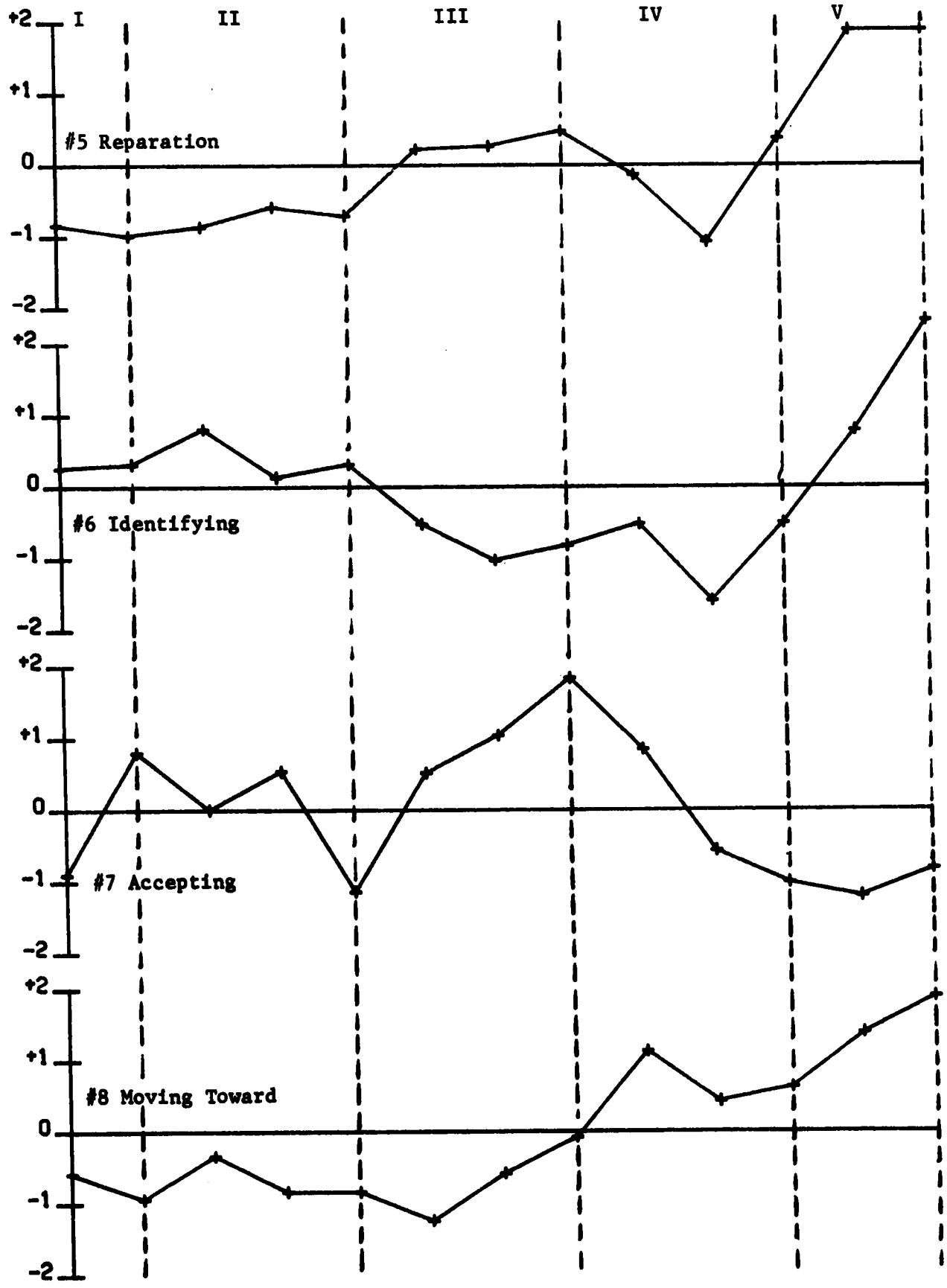


Fig.5.15 Plots of Z-score values of Mann's Authority Relations Categories across Thirteen Repeated Measures on DCT2

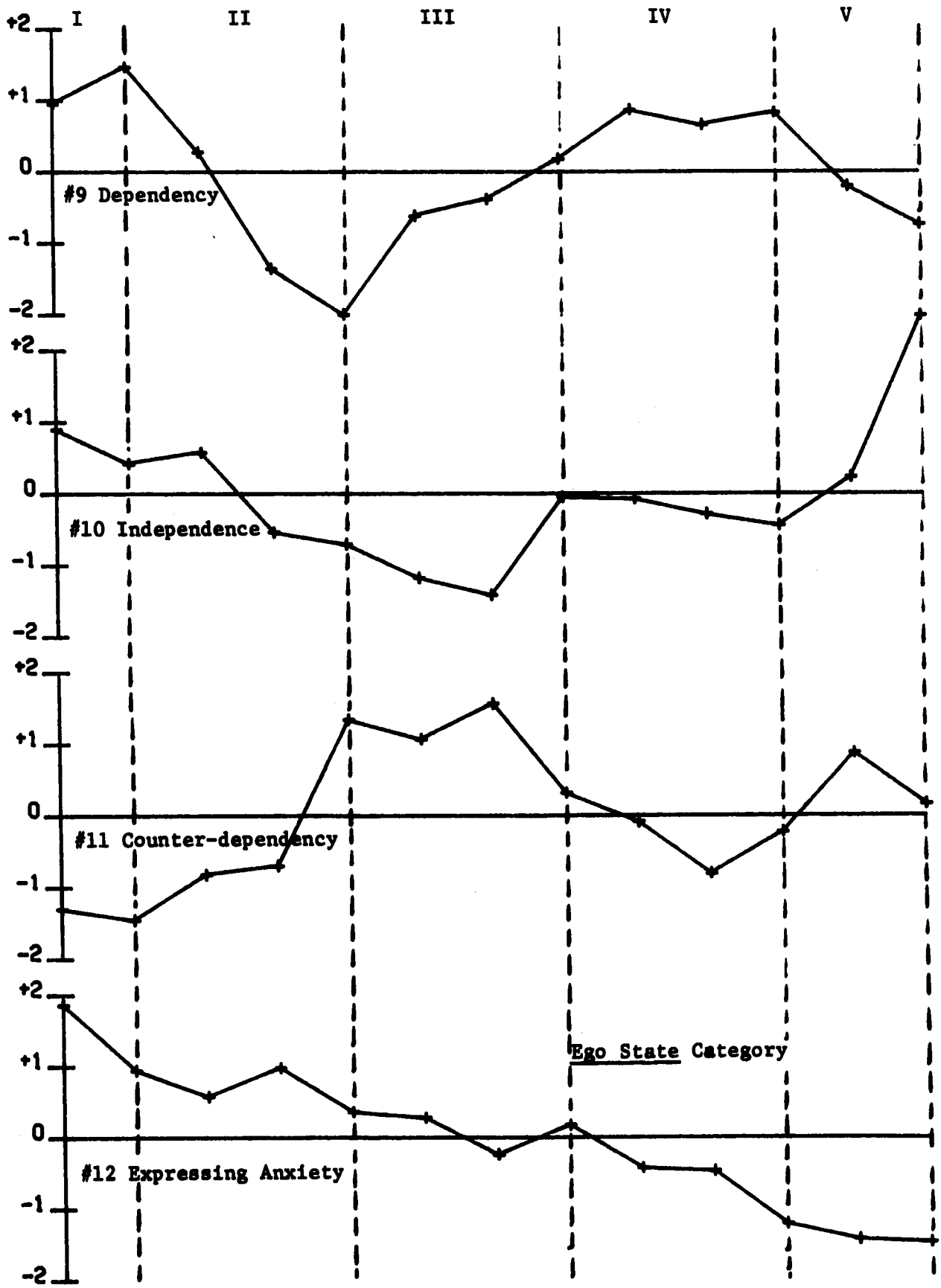


Fig.5.16 Plots of Z-score values of Mann's Ego State Categories across Thirteen Repeated Measures on DCT2

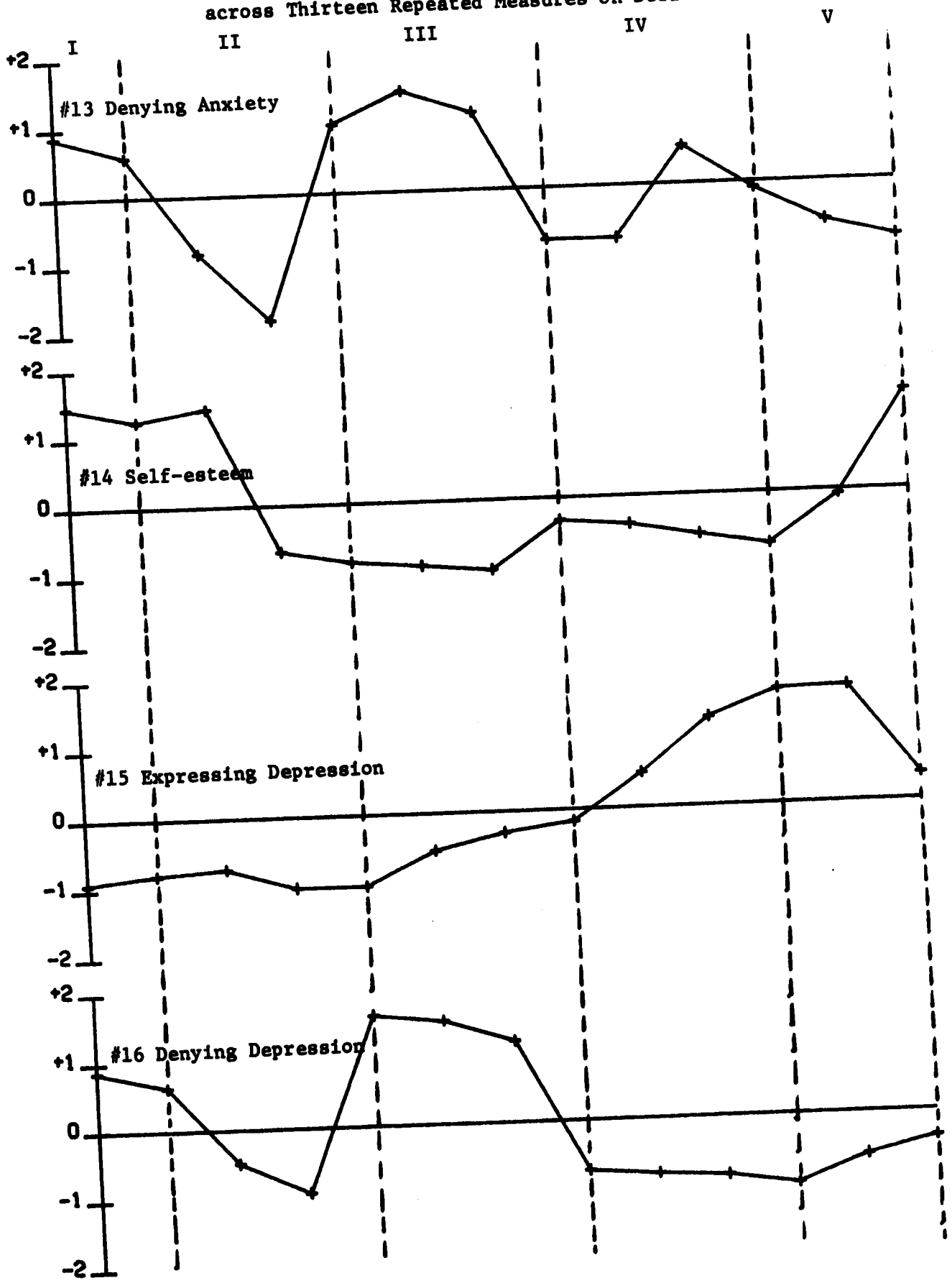


Fig.5.32

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT2 (Positively Correlated)

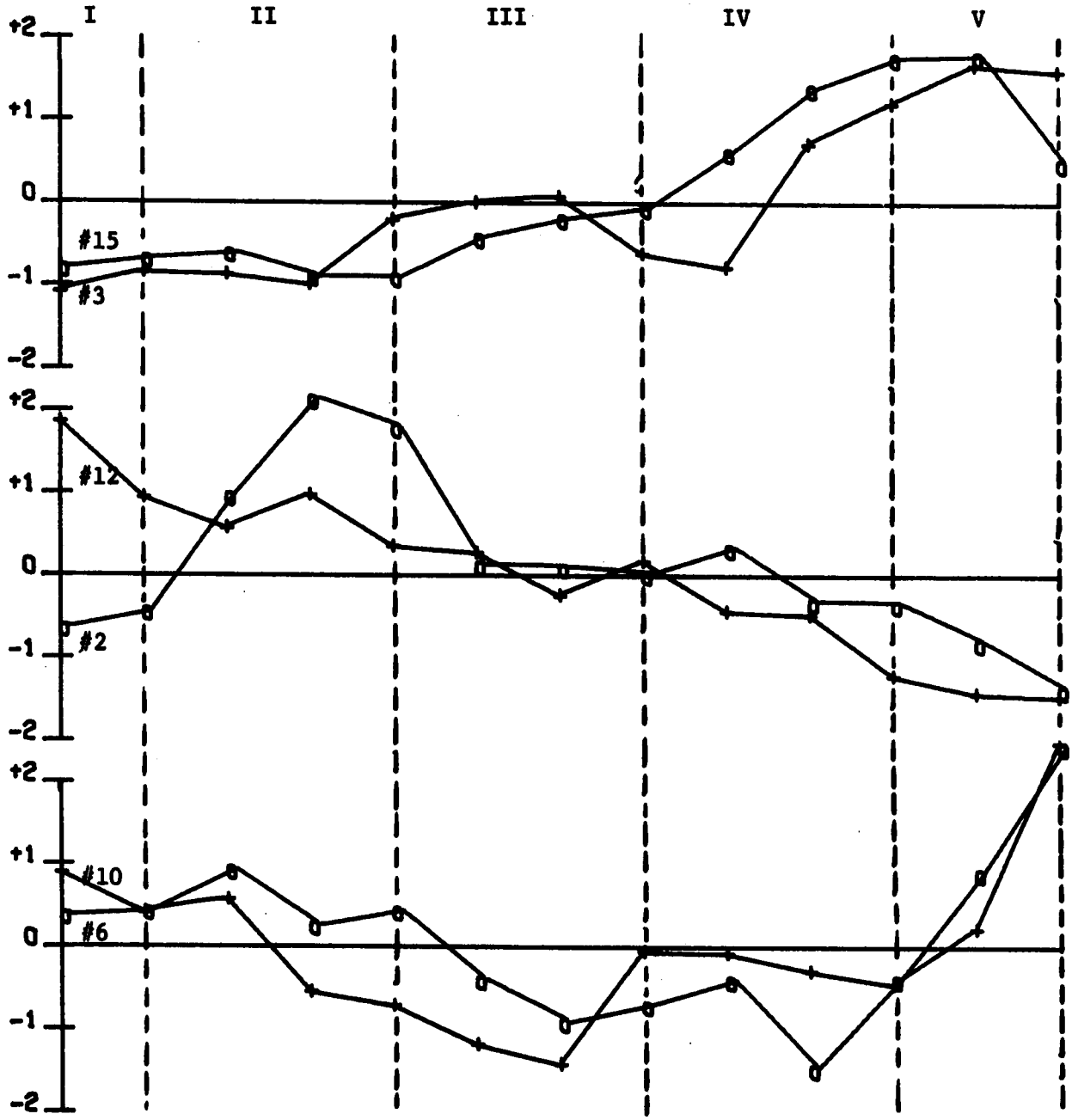


Fig.5:33

Plots of Z-score values of Mann's Sixteen Categories
across Thirteen Repeated Measures on DCT2
(Negatively Correlated)

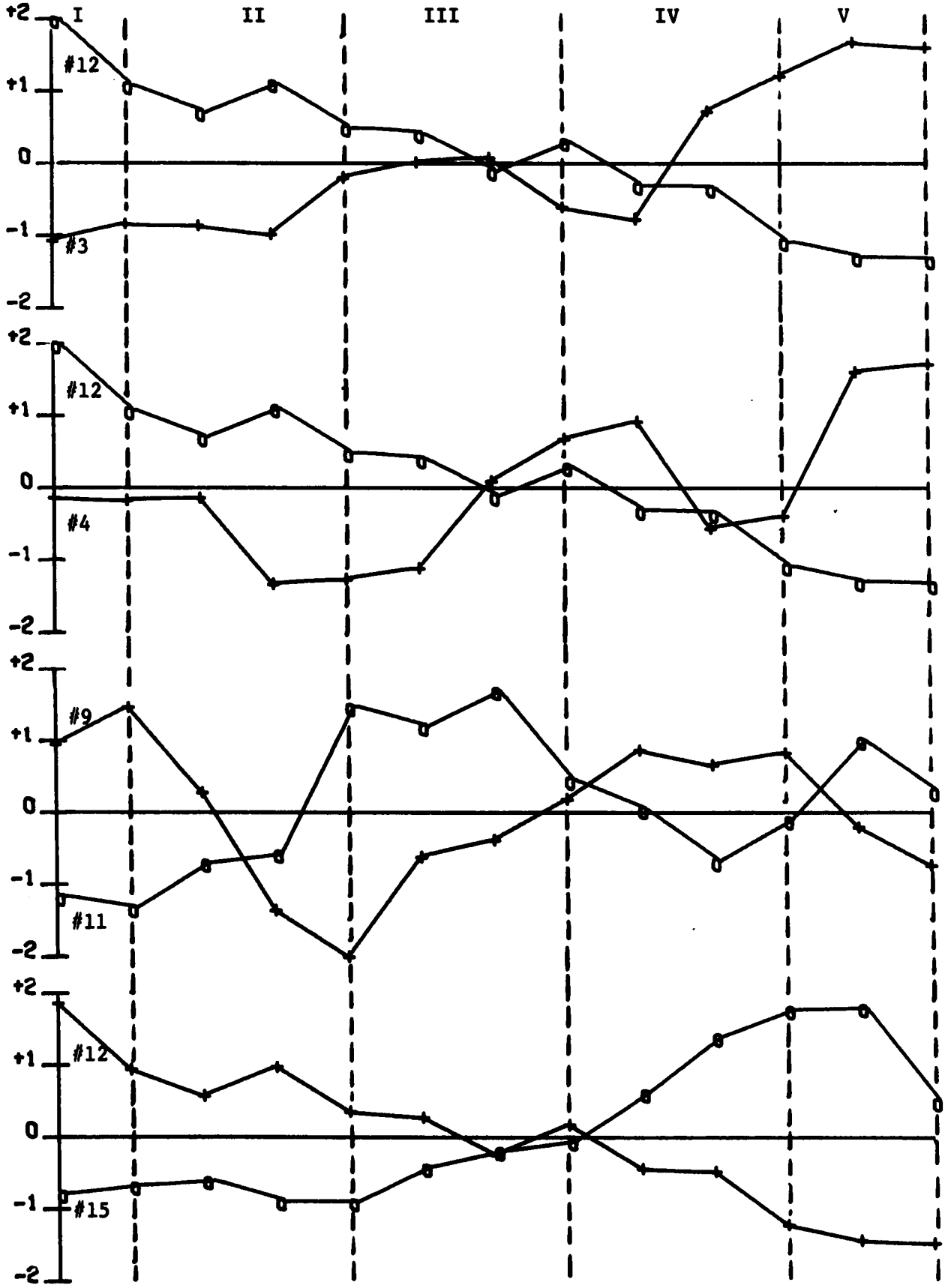


Fig.5.34

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT1 & DCT2 (Negatively Correlated)

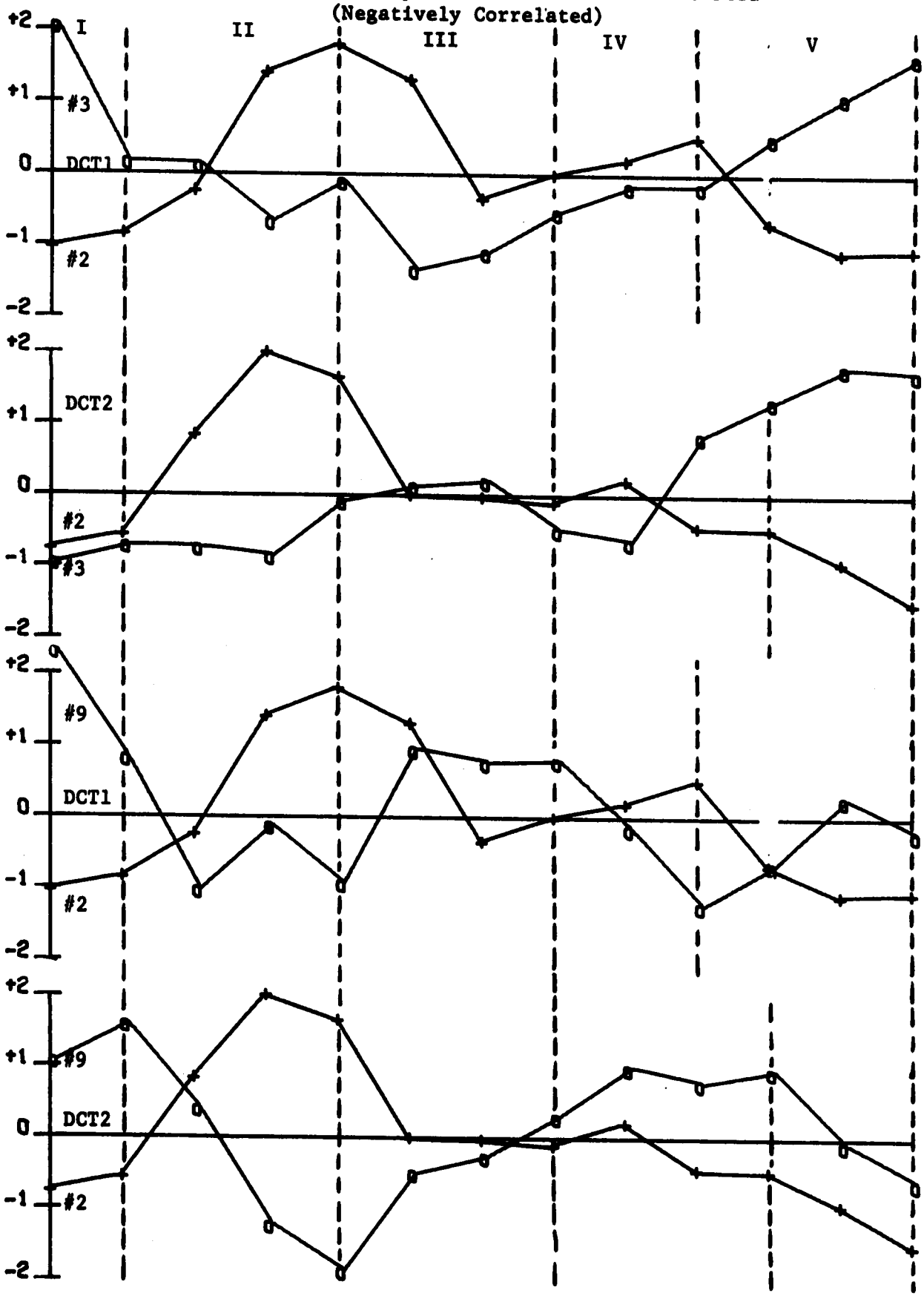


Fig.5.35

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT1 & DCT2 (Negatively Correlated)

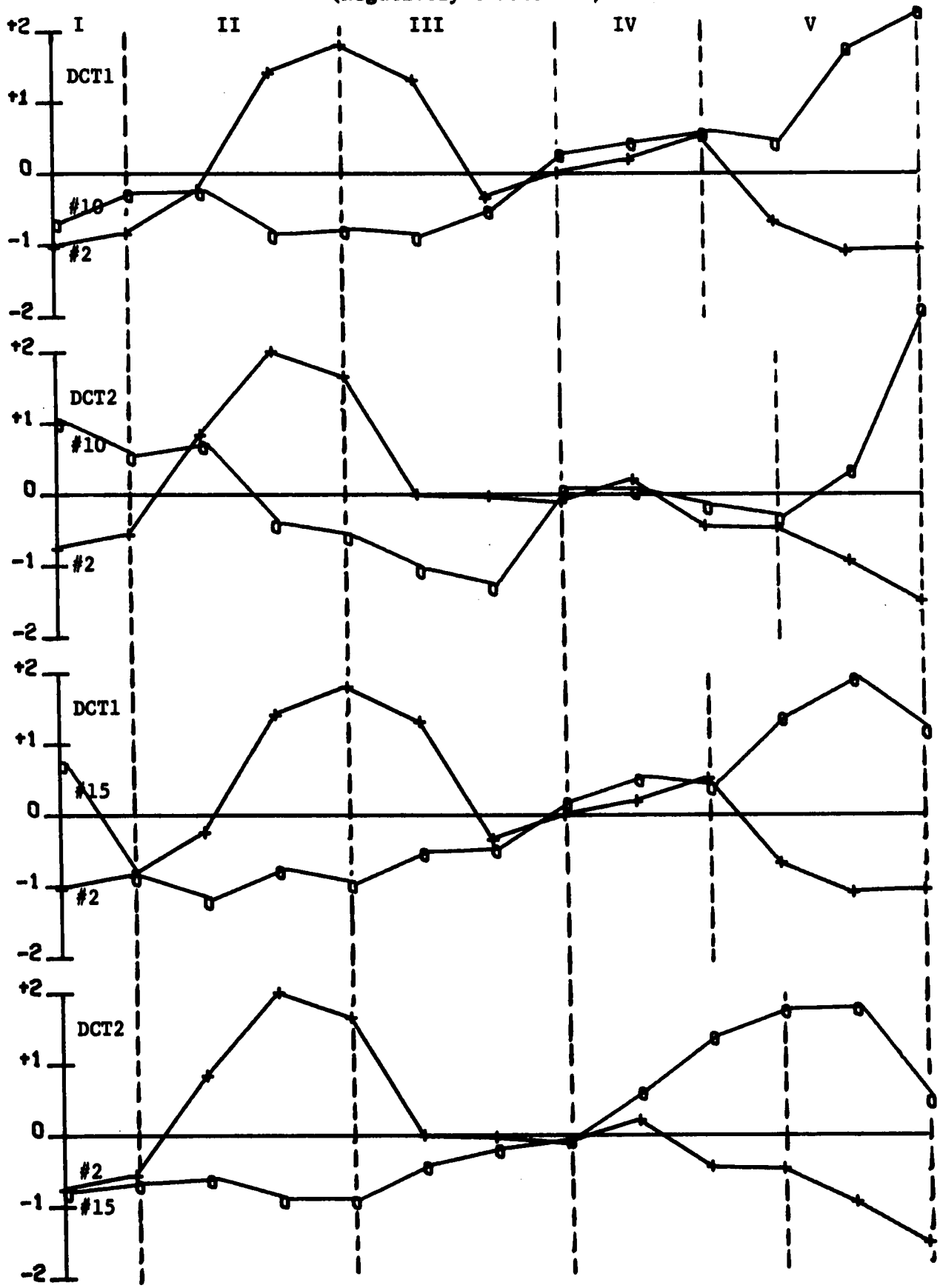


Fig.5.36

Plots of Z-score values of Mann's Sixteen Categories across Thirteen Repeated Measures on DCT1 & DCT2 (Positively Correlated)

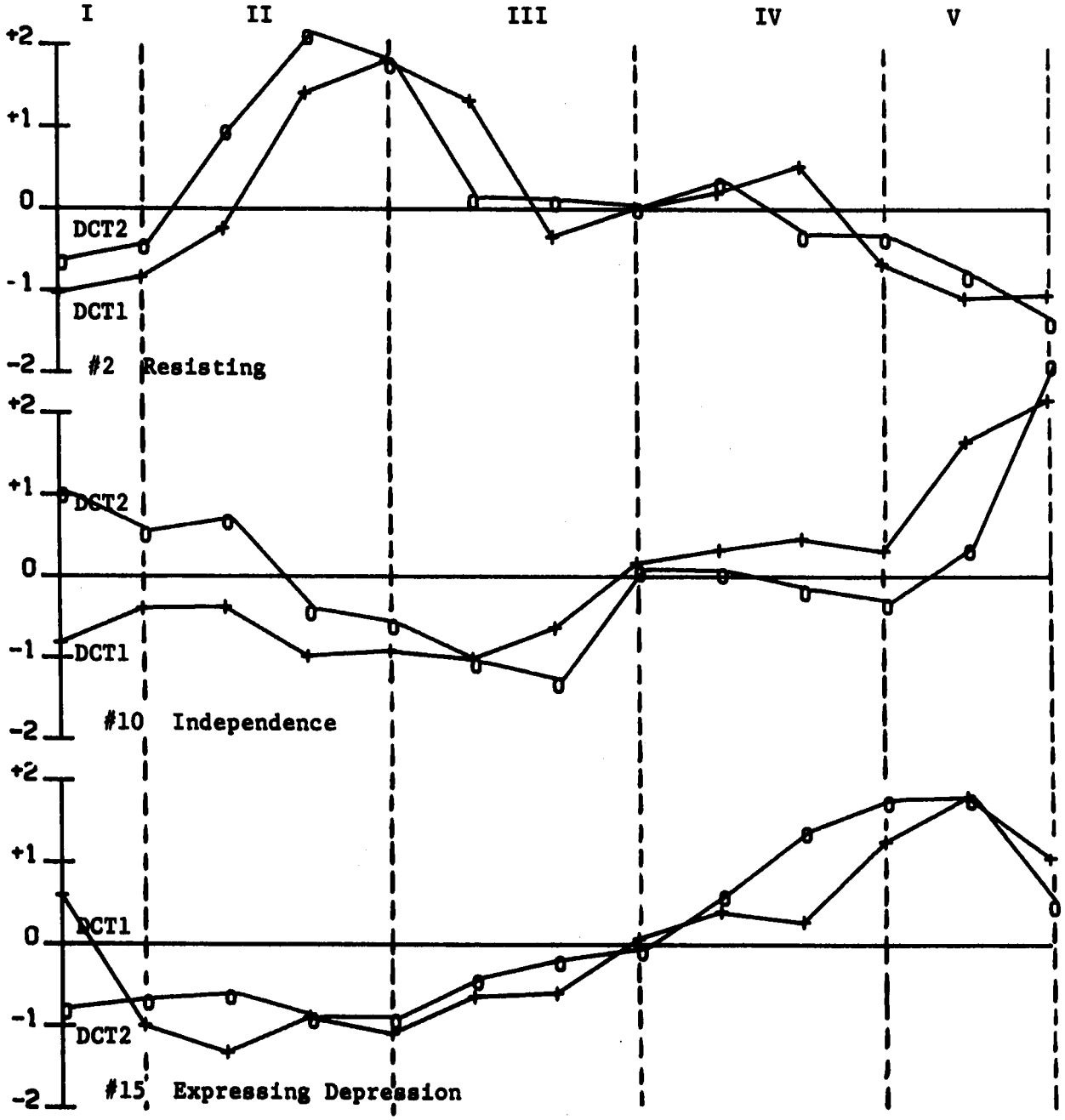
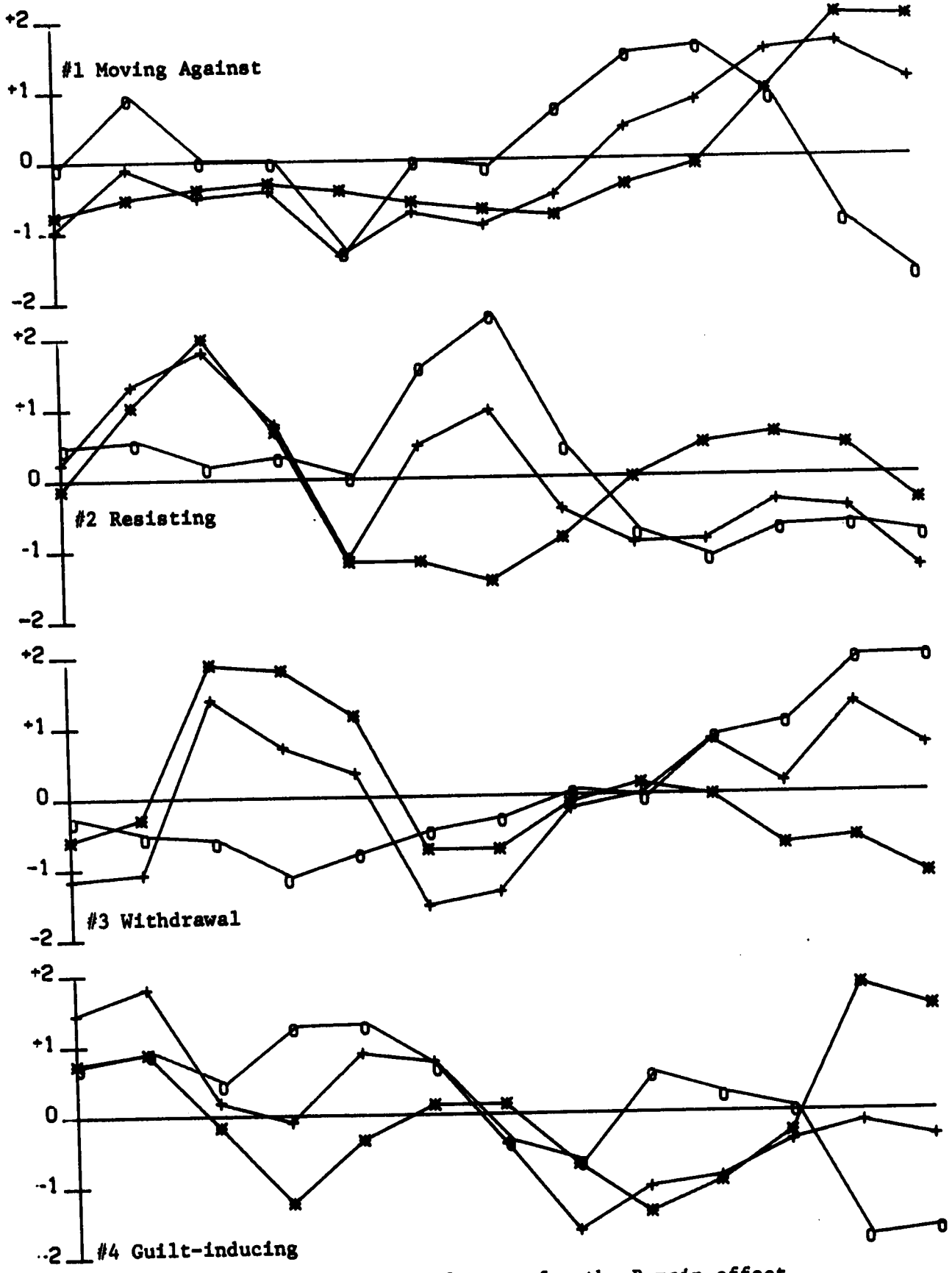
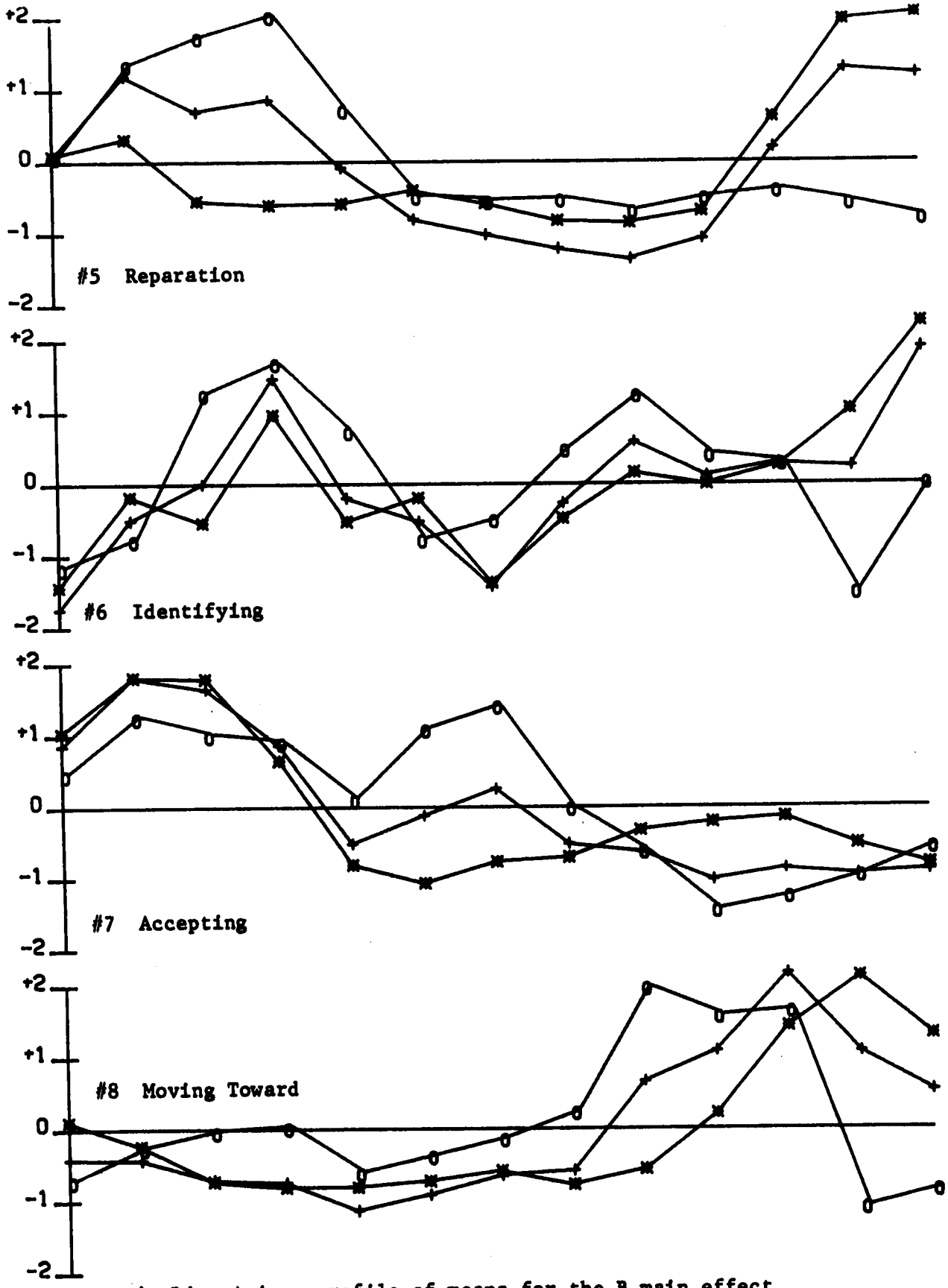


Fig. D5.1 Plots of Z-score values of Mann's Hostility Categories across Thirteen Repeated Measures on SAT1 and SAT2 *Profiles of AB interaction and B main effect



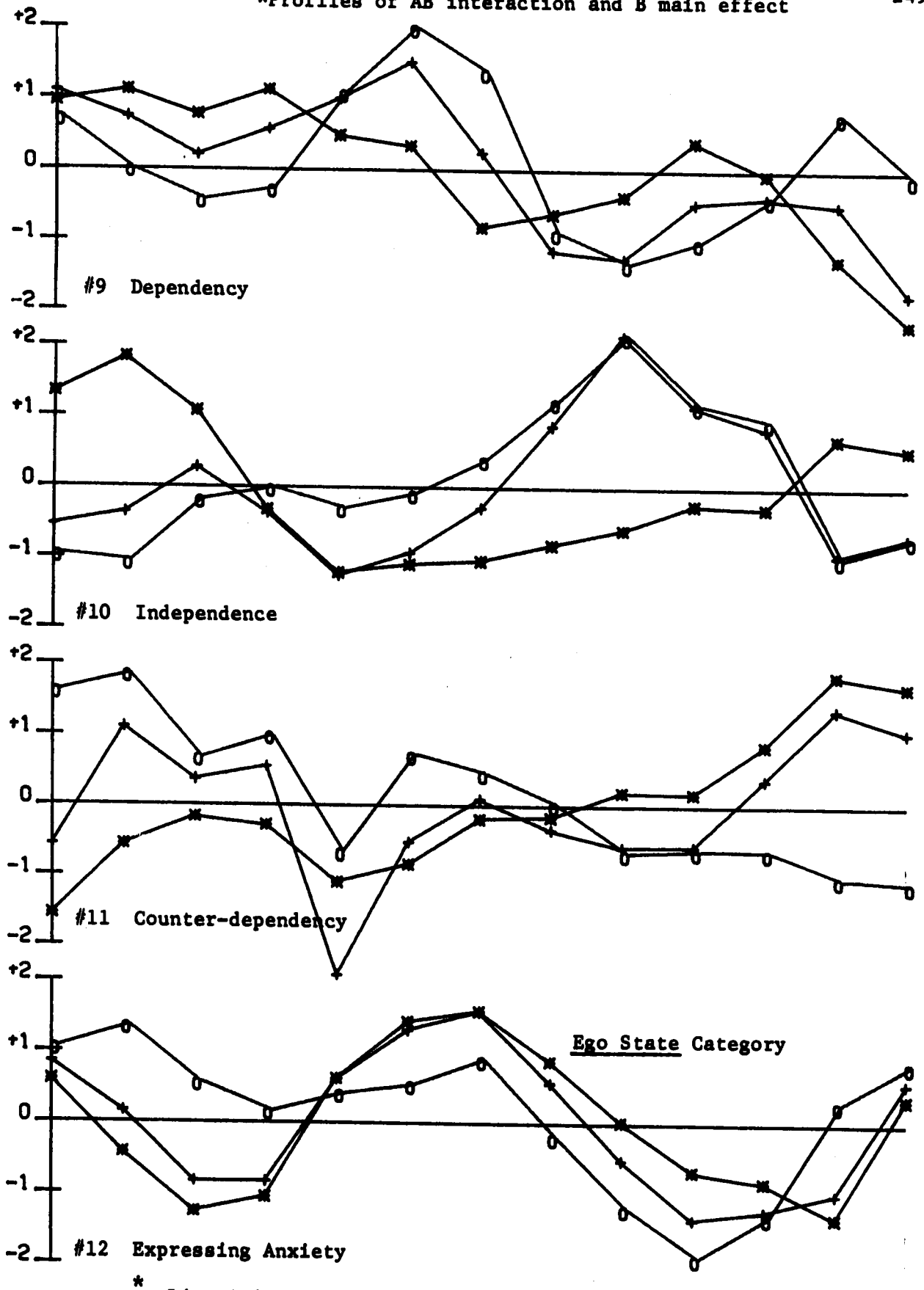
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2

Fig. D5.2 Plots of Z-score values of Mann's Affection Categories across Thirteen Repeated Measures on SAT1 & SAT2
*Profiles of AB interaction and B main effect



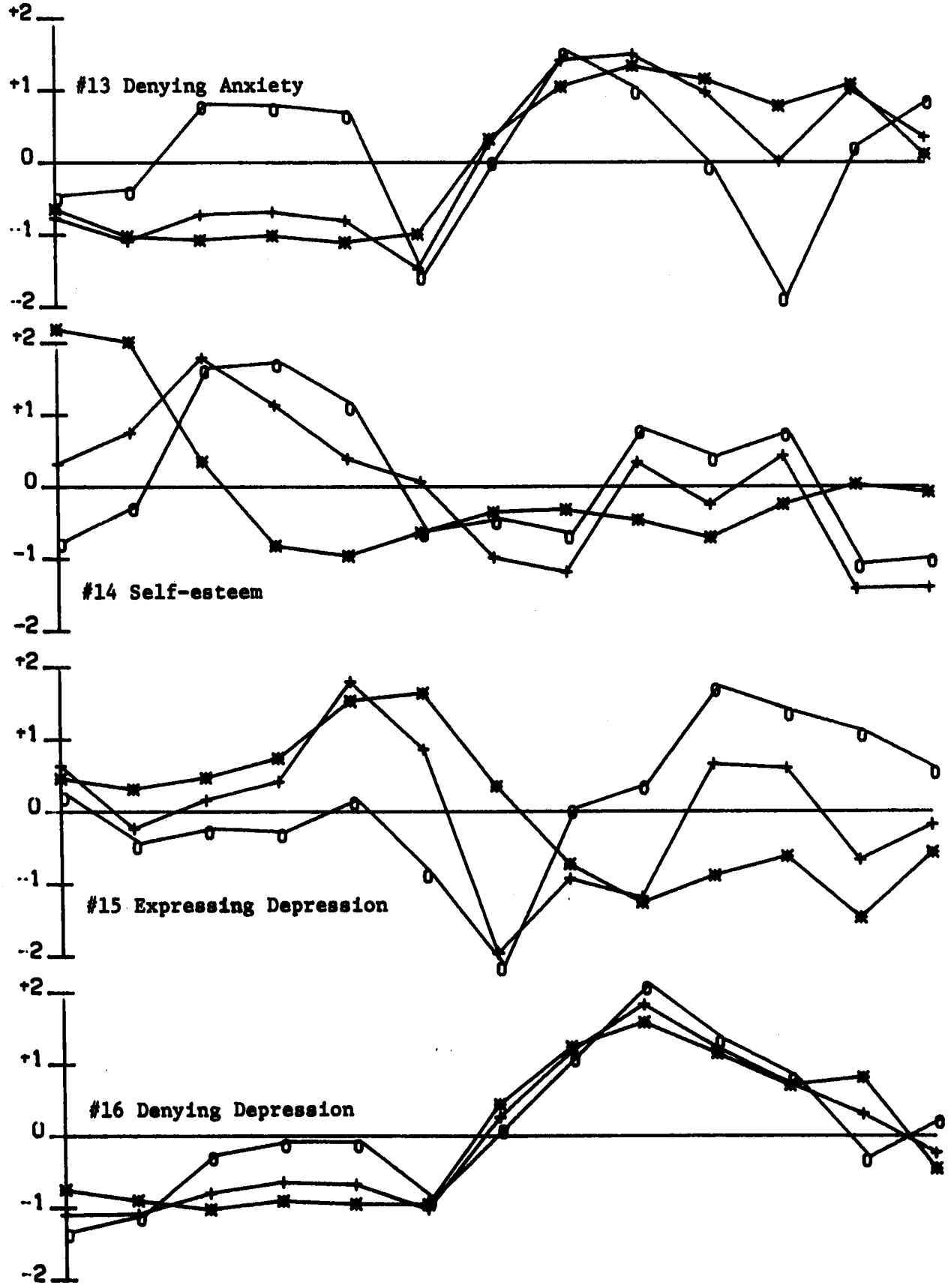
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2

Fig. D5.3 Plots of Z-score values of Mann's Authority Relations Categories across Thirteen Repeated Measures on SAT1 & SAT2
*Profiles of AB interaction and B main effect



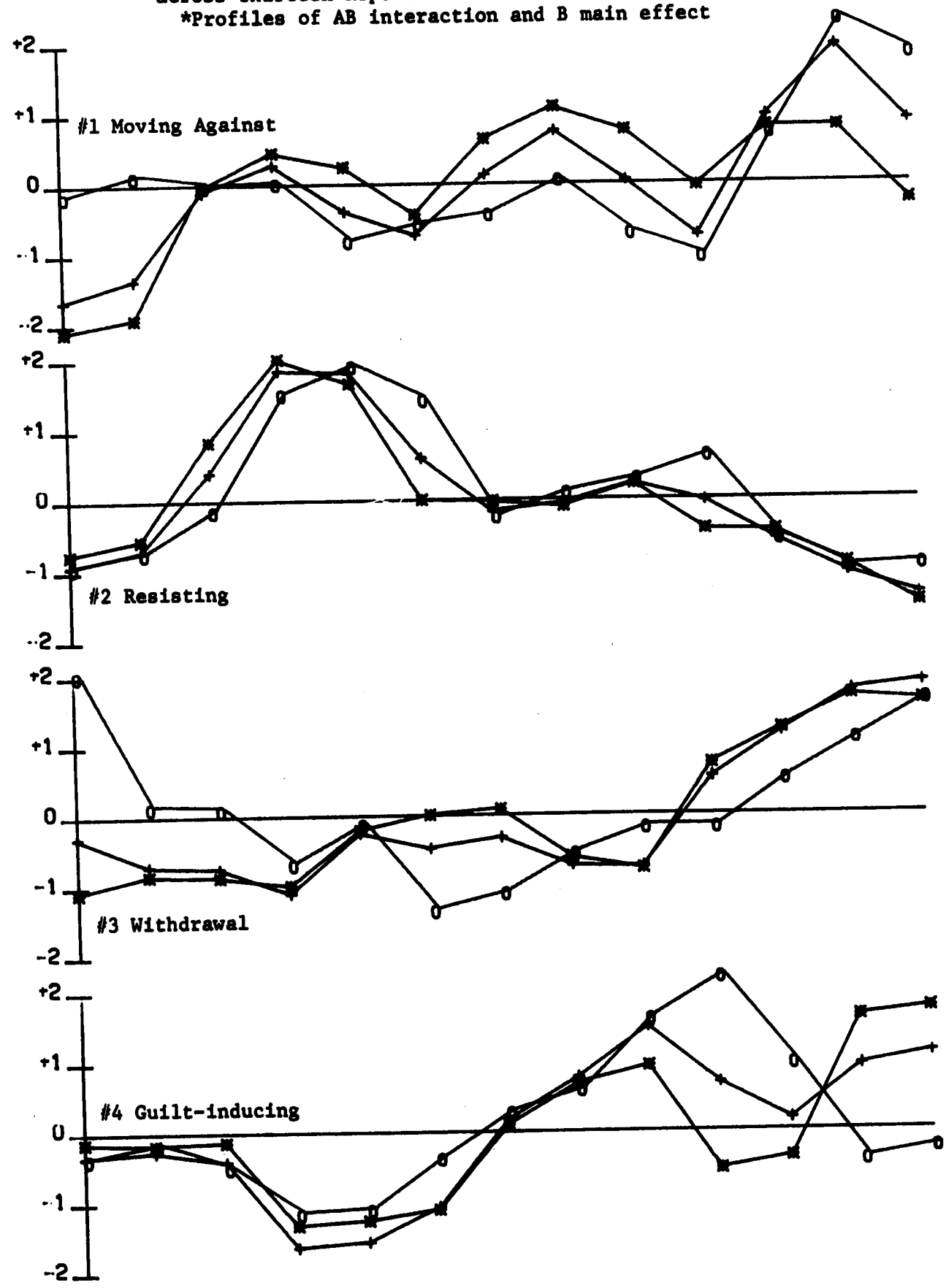
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2

Fig. D5.4 Plots of Z-score values of Mann's Ego State Categories across Thirteen Repeated Measures on SAT1 and SAT2
*Profiles of AB interaction and B main effect



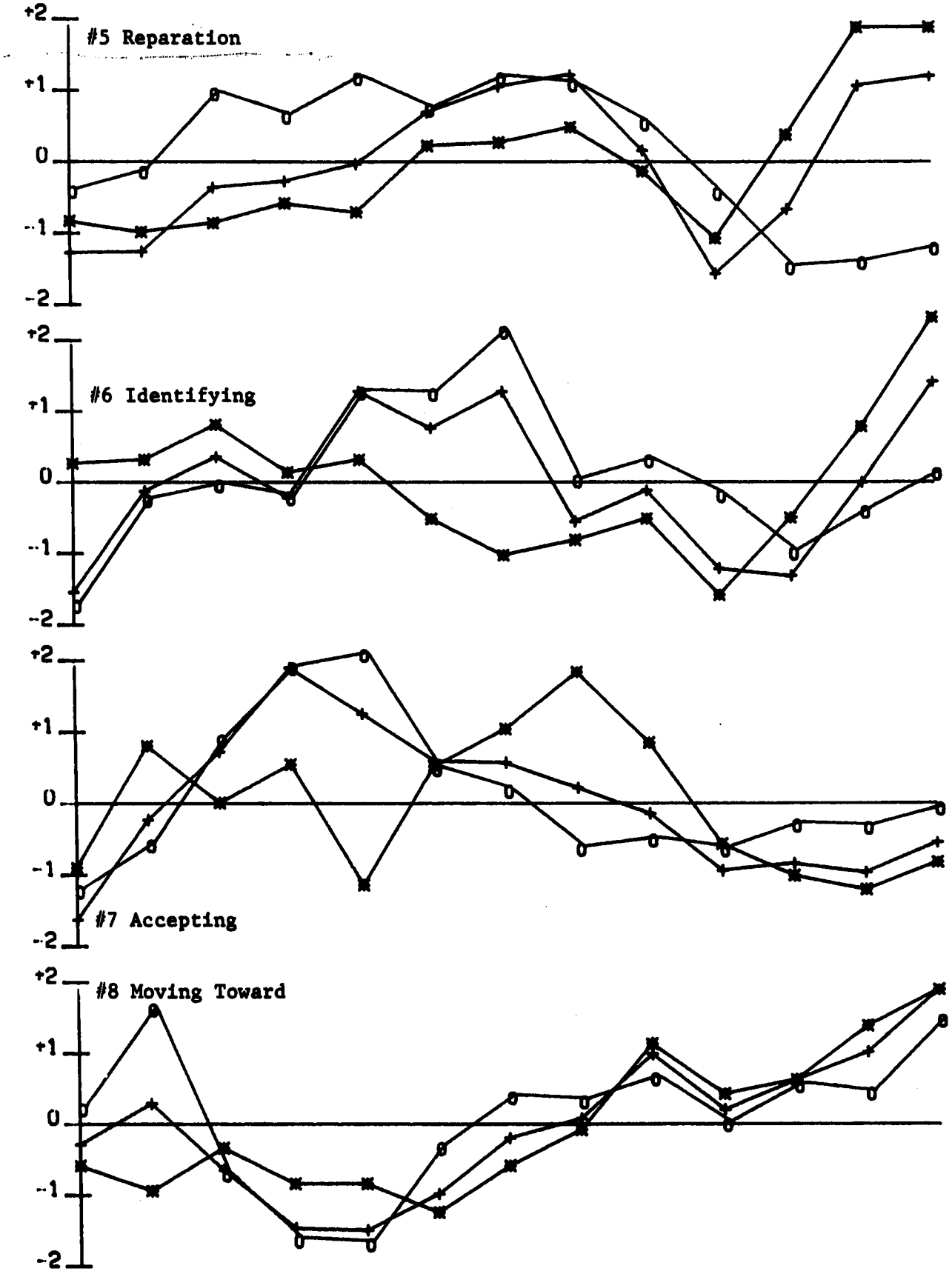
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2

Fig. D5.5 Plots of Z-score values of Mann's Hostility Categories across Thirteen Repeated Measures on DCT1 and DCT2
*Profiles of AB interaction and B main effect



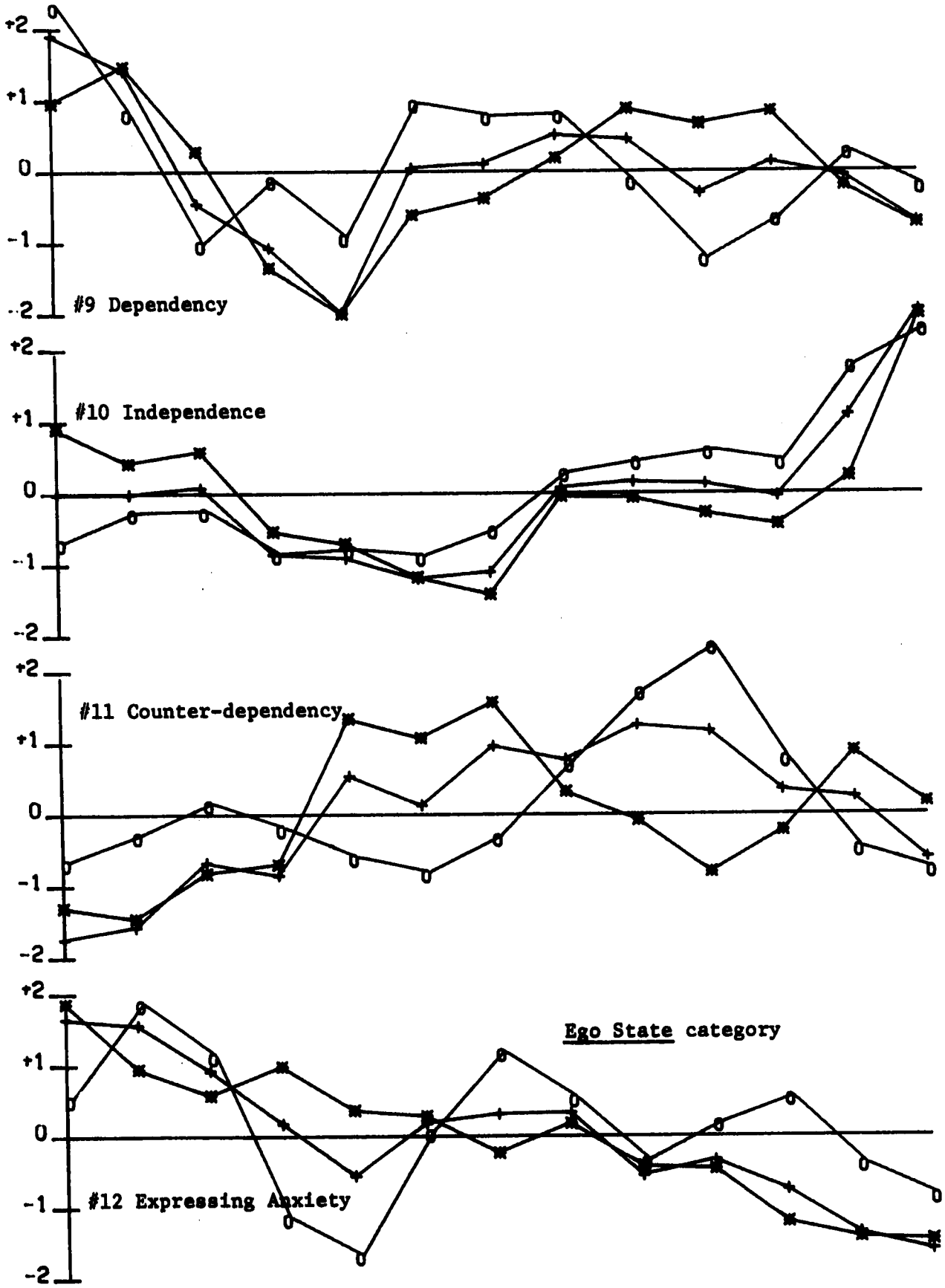
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for DCT1
Line * is the AB interaction profile of means for DCT2

Fig. D5.6 Plots of Z-score values of Mann's Affection Categories across Thirteen Repeated Measures on DCT1 and DCT2
*Profiles of AB interaction and B main effect



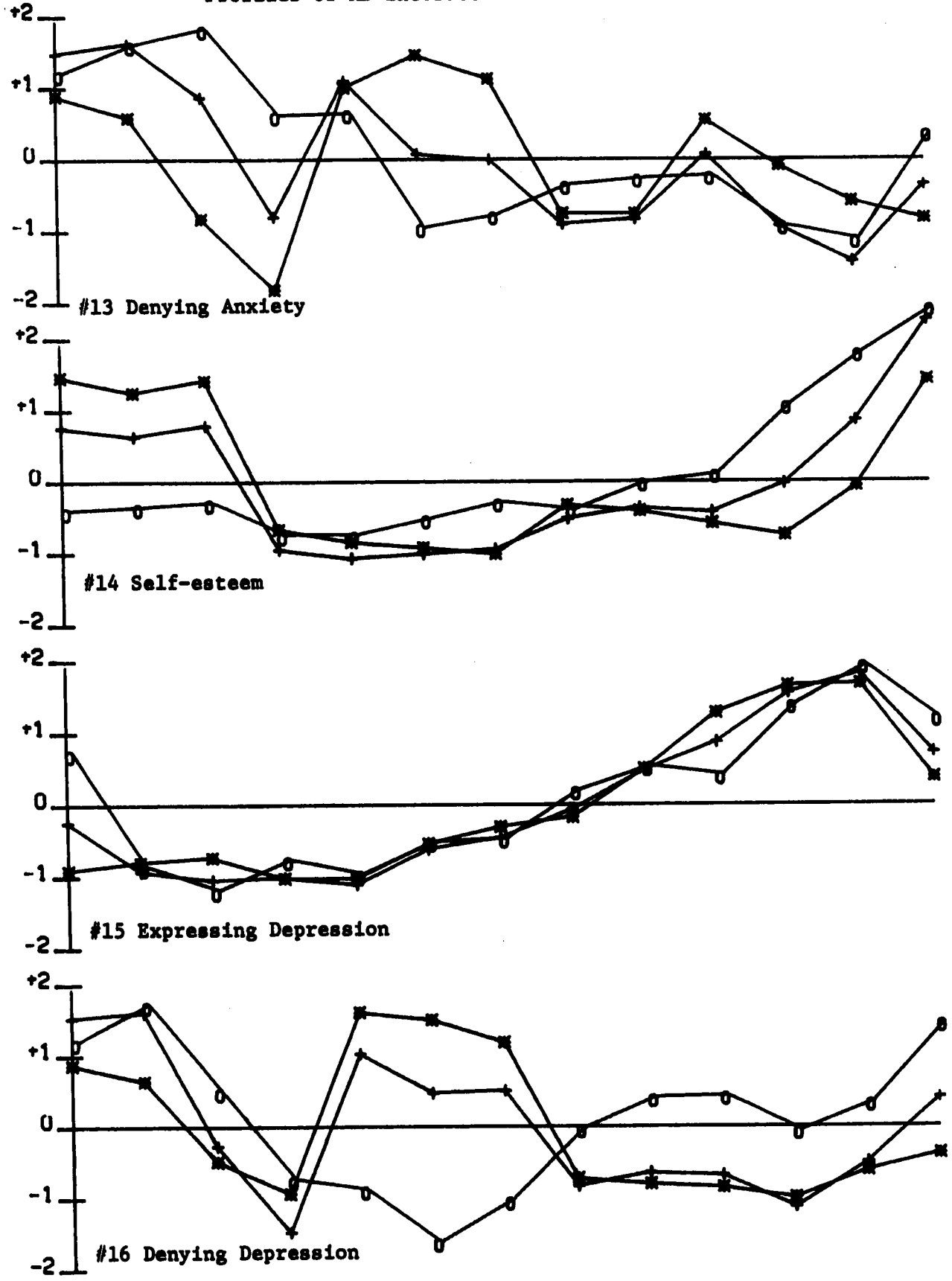
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for DCT1
Line * is the AB interaction profile of means for DCT2

Fig. D5.7 Plots of Z-score values of Mann's Authority Relations Categories across Thirteen Repeated Measures on DCT1 and DCT2 *Profiles of AB interaction and B main effect



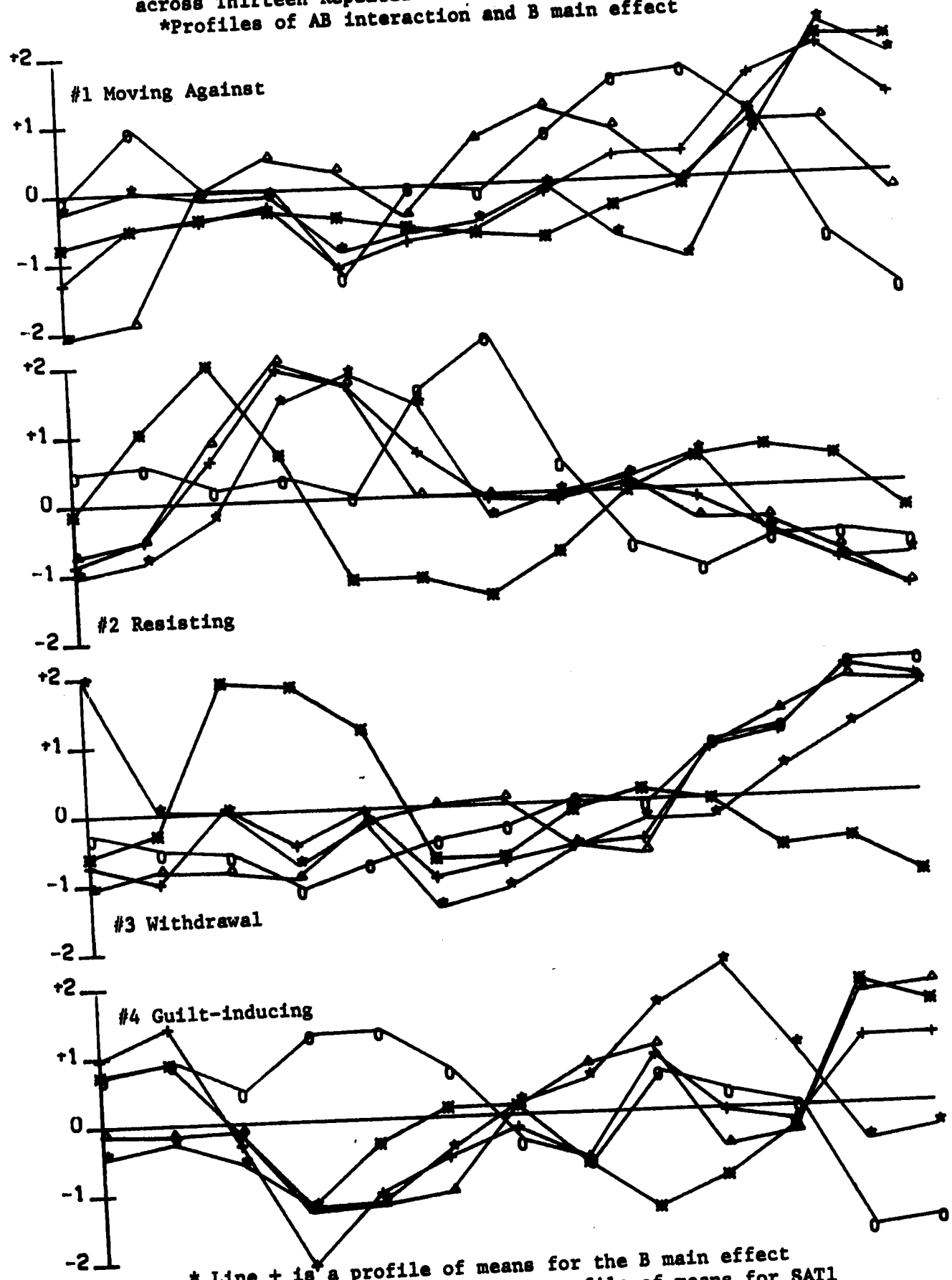
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for DCT1
Line * is the AB interaction profile of means for DCT2

Fig. D5.8 Plots of Z-score values of Mann's Ego State Categories across Thirteen Repeated Measures on DCT1 and DCT2
*Profiles of AB interaction and B main effect



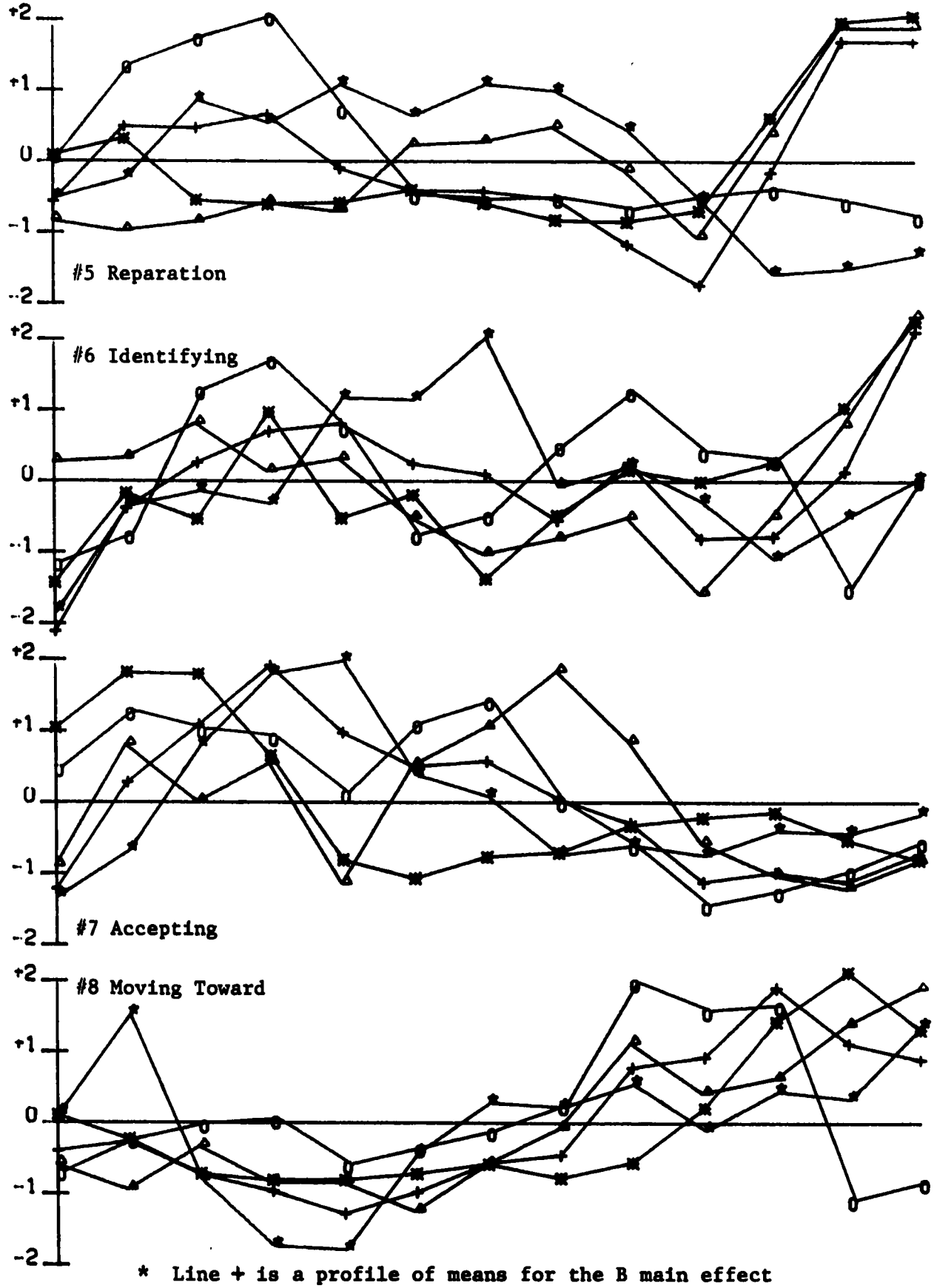
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for DCT1
Line * is the AB interaction profile of means for DCT2

Fig. D5.9 Plots of Z-score values of Mann's Hostility Categories across Thirteen Repeated Measures on SAT1&2 and DCT1&2
*Profiles of AB interaction and B main effect



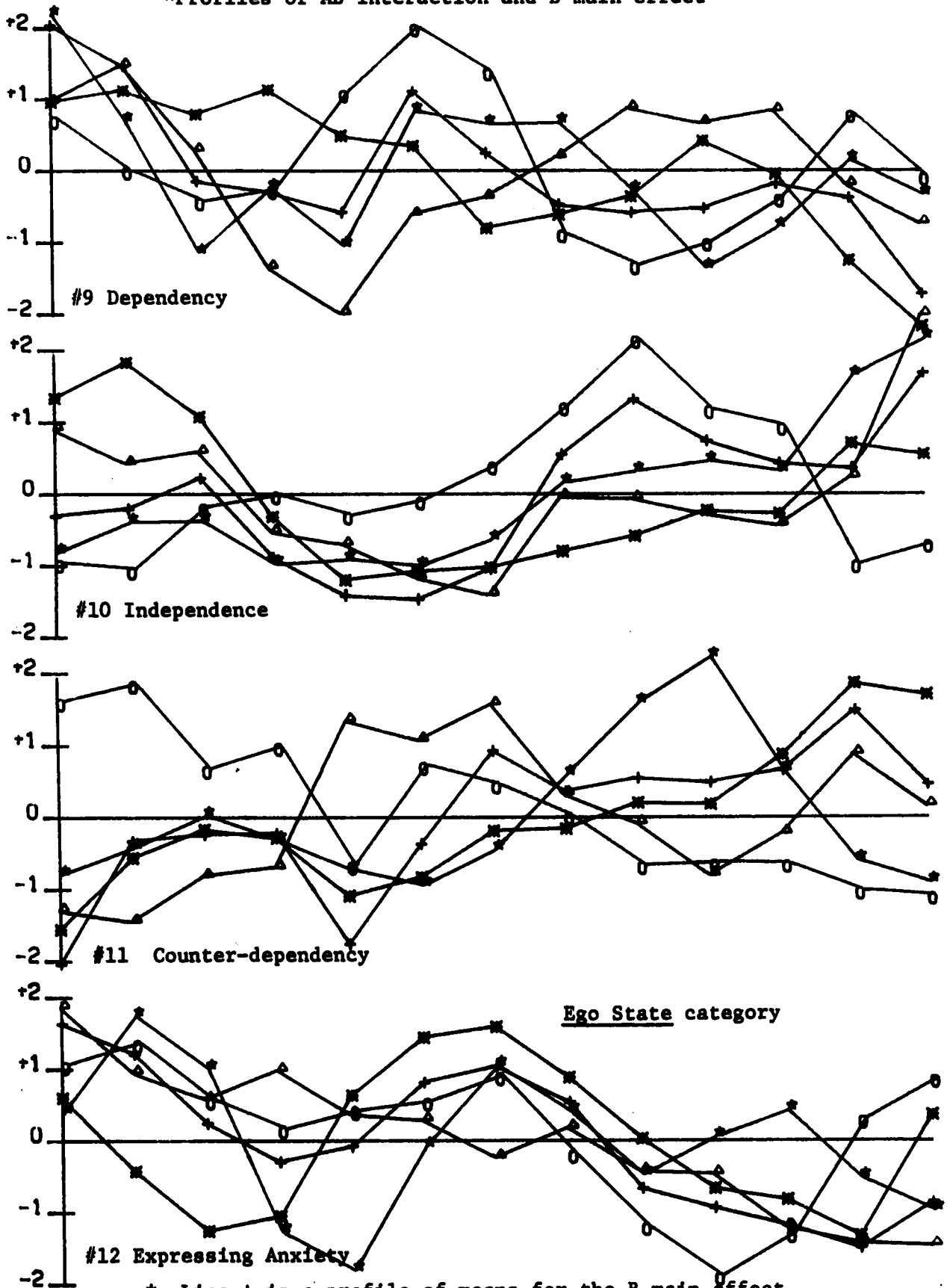
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2
Line ⋆ is the AB interaction profile of means for DCT1
Line ▲ is the AB interaction profile of means for DCT2

Fig. D5.10 Plots of Z-score values of Mann's Affection Categories across Thirteen Repeated Measures on SAT1&2 and DCT1&2
*Profiles of AB interaction and B main effect



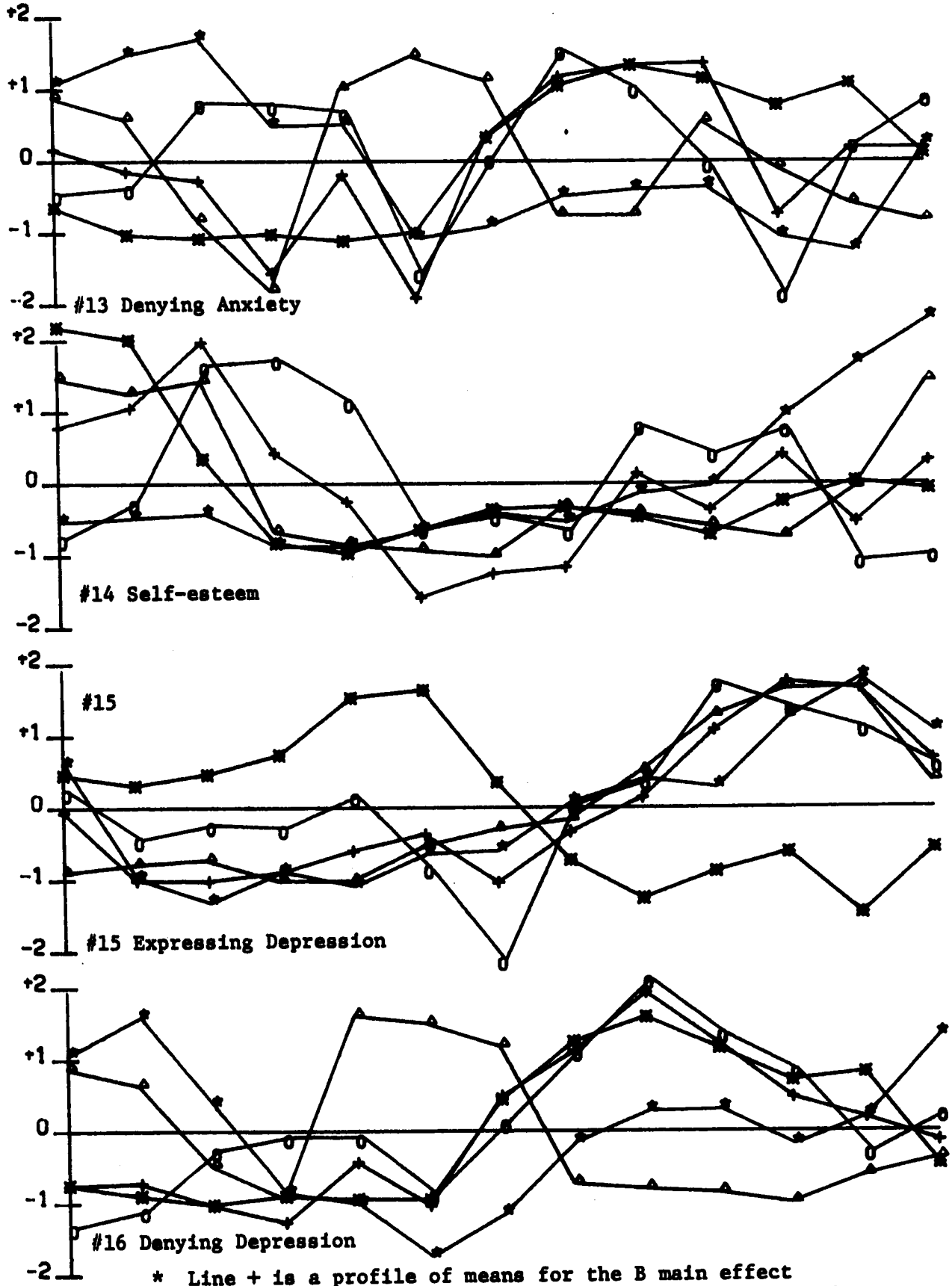
* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2
Line ▲ is the AB interaction profile of means for DCT1
Line ▲ is the AB interaction profile of means for DCT2

Fig. D5.11 Plots of Z-score values of Mann's Authority Relations Categories across Thirteen Repeated Measures on SAT1&2 and DCT1&2
*Profiles of AB interaction and B main effect



* Line + is a profile of means for the B main effect
Line 0 is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2
Line ♣ is the AB interaction profile of means for DCT1
Line ▲ is the AB interaction profile of means for DCT2

Fig. D5.12 Plots of Z-score values of Mann's Ego State Categories across Thirteen Repeated Measures on SAT1&2 and DCT1&2
*Profiles of AB interaction and B main effect



* Line + is a profile of means for the B main effect
Line O is the AB interaction profile of means for SAT1
Line * is the AB interaction profile of means for SAT2
Line ✱ is the AB interaction profile of means for DCT1
Line ▲ is the AB interaction profile of means for DCT2