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Converging Evidence for Emotional Structures: Theory and Method

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1. Introduction

The task of the psychoanalytic researcheris in part to verify what the clinician already knows. For much of what the researcher finds the response of the clinician must be, "I knew that all along." But the goal of research must also be to discover what we have previously had no access to, and what we seem to know, but wrongly. You can see that the work of the researcher is in some respects like that of the patient as well as the therapist. All participants in the psychoanalytic enterprise are attempting to detect psychic structures that have previously been unrecognized. At all levels, the achievement of new knowledge, the "surprise", depends on the articulation of connections and associations so that gaps can be uncovered and ambiguities resolved.

Psychoanalysis is essentially a theory of mental representation or in Freud's terms, of psychic structure. In contrast to behaviorist theories, which are concerned with regularities of external and observable events, theories of mental representation deal with internal and private phenomena that can be known directly only by their experiences, and are sometimes unconscious and inaccessible even to them. The necessity for research, and the difficulty of doing such research, both arise from this epistemological focus.

The observation of structure requires a Structure Detecting (SD) device. The only adequate SD device for detection of psychic structure in oneself or others is the human mind. However, the mind is also the quintessential Structure Constructing (SC) device. In clinical intuition the detection and construction processes are intertwined. The problem of suggestibility – the patient's vulnerability to the analyst's interpre

tations – is a special case of this general epistemological issue. The responsibility of the researcher is to find the level of meaning at which the detection of structures may be distinguished from the construction of them. For this purpose, consensual validation is not sufficient; consensus is itself subject to the problem of suggestibility. A system of propositions with well-defined, *testable* implications, which may be evaluated by independent observers, is required.

The psychoanalytic researcher can lead rather than follow the clinician by looking at clinical material in the context of a systematic theory that gives meaning to observation, and by providing an observer, a third "eye," on the psychoanalytic dialogue. The theory provides the context that defines the domain of "facts." Subjective experience and objective events alike derive their meaning, and their status as fact, from this theoretical network. Private experience can have the status of fact, existing prior to and distinct from its representation in some observable form such as language or behavior, but characterized in terms of a network of observables. The impact of the observer, and particular characteristics of the observer, can be included as variables in the network. Through a complex interaction of theory and monitored observation, it becomes possible to escape the pitfalls of both the hermeneutic and positivist positions.[1] The interlocking systems of propositions of the theory, their observable implications, and definitions based on these implications, are formalized in "manuals." In these terms, manuals go far beyond a static "cookbook" role, and constitute the core of this research approach, i.e., manuals determine the meaning and direct the identification of "facts."

This paper will present a brief outline of the dual code model of mental representation that provides the theoretical context of our approach, and will describe two types of systematic evaluation procedures, or "manuals" that permit us to develop converging evidence for nonverbal structures and for structural change. We will then briefly describe several preliminary studies that have been generated in the context of this research program.

[1]The position taken here, as to the espistemological status of the concept of psychic structure and the possibility of empirical testing of psychoanalytic theory, is at variance with the position of Schafer (1980), Spence (1982), Gill and Hoffman (1982b) and others. For a critical discussion of the positions of the former two authors see Bucci (1985). The spurious identification of positivism with science, and the implications of this for the hermeneutic argument have been discussed by Leeds, J. (1986).

2. Outline of the Dual Code Model

The dual code model of mental representation provides a theory of the mental apparatus that is compatible with psychoanalysis, but that is informed by the new perspectives on mental functioning brought in by the cognitive revolution of the late sixties. The model rests on an extensive body of experimental evidence developed by Paivio (1971, 1978) and others. The supporting evidence for dual coding over alternative theories of mental representation, and the application of dual coding to psychoanalytic theory have been discussed by Bucci (1985).

According to the dual code model, verbal and nonverbal representations are registered in symbolic form, in separate systems of schemata in the mind. The two codes have their own intrinsic and independent organization, but are connected by a complex body of referential links. There are both separate schemata within each system and interconnections between the systems, in development and throughout life. Both codes are capable of representing a wide range of information in symbolic, structured form.

Verbal Representations

The verbal system is the abstract code of language and logic, generally accepted as the optimal mature representational form by developmental psychologists such as Bruner (1967) and Piaget (1952). Theories of mental representation based on verbal mediation entirely dominated experimental psychology for half a century, from the advent of Watsonian behaviorism (1913) until the cognitive revolution of the middle sixties. In language, we attribute properties, assign entities to categories, and apply logical distinctions; we also develop systems of associations based on the sounds of speech. The elements of the verbal schemata are lexical items, which may be registered in the form of both phonological and semantic features. Examples of semantic schemata include hierarchical tree structures or other types of network structures, which represent the shared knowledge of the culture, as investigated by Collins and Quillian (1972) and others. In a very different domain, the systems of rings postulated by Lacan (1968) would constitute another format of the verbal system. Through such verbal structures the meaning of words *in terms of other words* is derived.

Nonverbal Schemata

In contrast to the verbal system, which is specialized for representing abstract properties and category membership, the nonverbal system is specialized for representing *concrete properties of things.* The nonverbal schemata are made

up of representations of all manner of imagery and perceptual experience, including sights, sounds, tastes, and smells; somatic and visceral experiences, and motoric representations. Representations of somatic experience may include bodily states such as thirst and hunger, and feedback of functions such as heartbeat, muscle tension, and respiration. Representations of movements include facial expressions as well as other actions, and may be in the form of motor programs to direct action, kinaesthetic feedback from action, or more formal structures that are abstractions of operations on objects.

The schemata of the nonverbal systems are built on experience, reflecting shared perceptual properties of things, or sequence of events as they occurred. Many, but not all, of the nonverbal schemata are unique to an individual life. Representations of things are connected because they occur in the same place at the same time, because they play interacting roles in the same functions or events, or because they look or feel or taste alike; and one image will evoke another through such connections. Ice and glass are associated because they are perceptually similar – both shiny and clear. The sights and sounds of autumn leaves and the feel of cool air, may be connected in a schemata which also includes the return from vacation and the feelings associated with shortening days. The visual experiences of a tennis ball moving in particular direction at different speeds, the sight of the net, the lines of the court, and the movements of one's opponent are entered into complex computations which also include representations of movements of one's entire body, including eyes, hands, shoulders, feet and knees. Other memory schemata may include stored imagery, bodily experiences of pleasure or pain, and representations of characteristic behaviors, e.g. to approach or avoid certain persons (or categories of persons); these schemata may be associated with (or constitute) emotional states. The nonverbal schemata may play themselves out without the intervention of language, but may also interact with the verbal schemata in complex ways. The formation of schemata in the nonverbal system begins before language is acquired, and continues, with varying degrees of interaction with language, throughout life.

Emotional schemata are structures in the nonverbal system, made up of the elements of that modality, including imagery, representations

of movement, and representations of bodily experience. This aspect of the model is derived from the psychoanalytic theory of the emotions developed by Dahl (1978), based on Chapter Seven of "The Interpretation of Dreams" (Freud 1900a). Thus, for example, the emotional schemata that characterize wishes are made up of images of the desired or feared or hated object; representations of consummatory acts; and bodily sensations – what we feel when we love or hate. The organization of the emotional structures are determined by the interactions of early life; these are the underlying structures that are activated in the transference.

Referential Connections

The two coding systems, based on different organizing principles, are joined and affect each other through the referential links. This must be so because we can name what we experience, and we can identify what has been named.

The referential connections are most direct for concrete and specific words and the entities to which they refer, and less direct for abstract concepts and words. Thus referential connections would be most direct for words like 'orange' or 'apple', less direct for supercategory terms such as 'fruit' or 'food' which do not have specific referents, and still less direct for words such as 'truth', 'beauty' or 'goodness'. Such words can be connected to imagery indirectly through other words, or may be interpreted entirely in the verbal networks without reaching the nonverbal system at all. Similarly, there may be representations on the nonverbal side that are difficult or impossible to put into words, e.g. perceptual, motoric or emotional representations that have never been verbalized. These would include representations laid down early in life before language has been acquired. Nonverbal schemata that do not themselves have referential connections to language may interact, via the associations within the nonverbal system, with those that do.

People differ in the strength of their referential connections as a matter of competence. An individual may also show fluctuation in activity of the referential process as a function of interpersonal context or somatic or emotional state. The fluctuation in activity of the referential process affects capacity to translate nonverbal experience into words, or to bring the words of others to bear on the nonverbal schemata. Where referential linkage is sparse or inactive, the two systems retain the modes of organization intrinsic to their own schemata.

Where referential linkage is active, the schemata of the two system will interact. Thus the schemata of language and logic and the experiential and episodic structures of the nonverbal system will each be reflected in and lead to reorganization of the other.

3. Application of the Dual Code Model to Psychoanalytic Theory

The psychoanalytic account of the mental apparatus is inherently a dual code approach. The basis for the division of the mental apparatus, and the characteristics associated with each part, have shifted with the evolution of the theory; however the premise of dual representation remains inherent throughout. On the one hand, the mental representation of material that has never been verbalized, or where the links to words have been lost, is a fundamental tenet of psychoanalytic theory, present in all its forms. The system of private nonverbal representations is associated with dreams and regressive mental functioning, and not with conscious thought. On the other hand, verbalization is viewed as a necessary condition for rational, productive thought. This view may be traced throughout Freud's writings, from its basic formulation in "The Interpretation of Dreams" (Freud 1900a), to the posthumous statement in "An Outline of Psychoanalysis" (Freud 1940a).

What the Freudian model lacks and the dual code theory contributes is the concept of nonverbal representation as a structured and organized system in normal, rational adult thought, existing alongside the verbal representational mode. Imagery is encoded and organized in its own special format in the mind. We may not be aware of our nonverbal structures, just as we may not be aware of many important facets of our verbal thought; nevertheless, we perform complicated mental operations by generating images and comparing them; by moving ourselves and the objects of our world in imagination through time and space.

Psychoanalytic treatment takes place primarily in words, but the structural change that is sought is in the nonverbal system, particularly the emotional schemata that determine what we perceive and how we feel and act. The nonverbal structures may be known through words, but exist independently of them. Given the system of dual coding of mental representations outlined here, the primary danger is not that the words spoken in the session will penetrate and rearrange the patient's memory schemata, as Spence (1982), Schafer (1980) and others have argued, but rather that the verbal communications will not reach the nonverbal

schemata at all – will leave them untouched and unchanged. Where the psychoanalytic dialogue does bring about a change it is all too likely to be in the verbal schemata alone. It follows that the effectiveness of therapy depends on the operation of the referential connections, which link words that are spoken in the session to the nonverbal, particularly the emotional structures. Anything that facilitates the referential process will facilitate change in the nonverbal schemata; this is what we mean by structural change.

Within this theoretical framework, we have begun to develop two types of manuals that I will describe briefly here. One manual outlines procedures for detecting nonverbal, particularly emotional, structures that emerge as repetitive patterns in language and behavior. The other outlines linguistic measures that reflect the activity of the referential connections between verbal and nonverbal systems, and the degree to which nonverbal material is being retrieved and expressed.

4. Procedures for Detection of Emotional Structures

The detection of significant emotional structures has generally been seen as the domain of clinical intuition. This is a core challenge for research. Here we directly confront the question raised above, of whether the detection of structures (SD) can be distinguished from the construction of them (SC). This challenge has been addressed by Luborsky (1984) in the development of the concept of the "Core Conflictual Relationship Theme " (CCRT), and by Gill and Hoffman (1982b) in the concept of the "*Jxr*", i.e., the implicit manifestation of the transference relationship as inferred by judges in communications not manifestly about the relationship. Each of these concepts refers to underlying patterns represented in the manifest content; however these concepts involve a particular systematic organization; thus involve imposition of structure to that extent. In contrast, Teller and Dahl (1986) have sought to identify repetitive patterns in the free association of an analytic patient, without imposing structure in any sense. Their assumption is that significant emotional structures, schemata of the nonverbal system, are manifested repeatedly with many different objects and in many contexts. Such structures could be found in observations of behavior, i.e., by following individuals through the varied contexts of their lives. They can also be detected by a pattern matching procedure in the "free association" of an analytic patient. "Free" association is of course determined rather than free – determined by the structure of the nonverbal schemata, although the

connections may not be reflected in the logical structures of the verbal system. Building on the approach of Teller and Dahl, two related pilot studies have been carried out: one to detect patterns in the free association of an analytic patient; the second to detect similar patterns in the behavior of young children at play.

Detection of Repetitive Patterns in Free Association

Leeds and Bucci have carried out an experiment to see if it is possible to detect repetitive structures in the text of an analytic session by following a system of rules specified in a manual (Leeds 1986). The method involves successive stages of simple judgments, made by different sets of judges. The multi-judge, multi-stage method precludes imposition of an interpretation on the sequence, thus disabling the SC device. The judgments involve stepwise increases in level of generalization, i.e., a process of categorization applied to the output of the preceding stage. Reliability is assessed at each judgment stage. The procedure is as follows:

1. One set of judges divides the text into idea units. The boundary of an idea unit is marked where the focus of the narrative shifts or a new idea is introduced. In some cases, the division into units follows the natural divisions of speech in a dialogue. In other cases long utterances may be subdivided or shorter ones combined; this is of course necessary for the long continuous narrative flow of free association in psychoanalysis.

2. The idea units are taken out of the context in which they appear in the hour and rearranged in random order, for presentation to the second set of judges.

3. The second set of judges translates the sentences in the idea units into propositional statements, each containing at least a subject and an action, with qualifiers and nonsubstantive words removed.

4. These judges also remove all references to specific actions, times, and people and replace them with coded category terms. These are general categories, e.g. "act," "object," numbered to distinguish between them, e.g. "act 1;" "act 2." This coding is not applied to experiential terms, i.e., those that refer to the patient's reactions and reflections, such as "I felt terrible," "I was confused," "I was surprised;" these are retained in their specific surface form.

5. A third set of judges then looks for repetitions of structures in the output of Stage 4, the generalized propositional sequences. A number of

different types of analyses can then be carried out as part of the pattern matching procedure at this stage.

The method of step-wise generalization and categorization outlined here was applied to the text of the Specimen Hour (see page 15), the fifth hour of the psychoanalysis of a young married woman. Good reliability was achieved by the judges at each stage. The procedure may be illustrated by comparing the manifest content of the text with the coded output of Stage 4.

The following excerpt is an example of an idea unit, as segmented by the judges, in the format of the manifest content of the text. The patient is describing an experience as a teacher in an elementary school:

(#20) ... And I never like talking to parents then because it was just too confusing. But of course I just said something to her that was, you know, chatty. And then, and then I suddenly found myself starting to talk about this problem, which I hadn't intended to at all. And I, I was kind of surprised at myself when I was talking and, then I just couldn't keep quiet (chuckle). I couldn't stop it, or say well, we better talk about this another time or anything. And I just seemed to get in deeper and deeper and I'm always doing this.

The following is the same unit in generalized propositional form, the output of judgment stage 4:

I never like doing (act 1) (time 1)

It was confusing.

I (act) to (object 1).

I start to (act 1).

I hadn't intended to.

I was surprised at myself.

I couldn't stop (act 1).

I couldn't say we'd better (act 1) (time 2).

I seemed to get in deeper and deeper.

I'm always doing this.

For purposes of this pilot study, the Stage 5 analysis, i.e., the search for repetitive structures, was then applied to a subset of the idea units from the session. We selected idea units that began with a reference to the patient's performing some action, or reflecting upon it, e.g. "I (act)," "I like to (act)" or the negation of such statements, as in the excerpt above. There were seven such units. We then looked for regularities in patterns associated with the

general category of action. In 6 of the 7 cases, we found essentially the same general pattern: The patient begins with a negation of action or a negative reflection on action; then progresses from negation to starting to act, to acting, to an expectation of not being able to stop. This pattern is illustrated in the example above. In only one passage (#55, see page 26; lines 328 to 337 in Figure 1, page 44) was there an instance of an action taken without a preceding negation and the accompanying negative expectation. The patient's experience of this deviation was very clear: "I was horrified; I've never done anything like this before; I'm sure the other person was horrified too."

What we found then in this pilot study was a clear pattern of negative attitude or ambivalence over action, and an expectation of being unable to stop once an action is undertaken, repeated in different contexts, and with different objects. This study was very important in demonstrating that it is possible to identify significant repetitive patterns reliably in the text of a therapy transcript, while stringently precluding the operation of "intuition" and the imposition of structure on the text, i.e., disabling the SC device. Patterns detected by this approach are *there* to be found; not constructed by the observer in any sense. In future work, we will attempt to go deeper in plotting more intricate schemata of the nonverbal system by this means; here the numerical coding of specific subtypes within a given category becomes crucial. Different patterns can emerge based on specific constellations of actions, times or objects, i.e., the patient does this but not that, here but not there, with one person but not another.

Once these repetitive patterns have been identified, the next step is to demonstrate that they reflect structures in the nonverbal system, rather than verbal schemata. This position has been supported by several different kinds of converging evidence, including observation of emotional structures in the behavior of young children; and comparison of the incidence of emotional schemata to fluctuations in level of Referential Activity in the patient's speech.

Detection of Repetitive Patterns in Children's Behavior

It is a fundamental postulate of psychoanalysis that significant emotional structures can be laid down in early childhood long before full linguistic competence is acquired. We would expect these structures to be manifest repetitively in sequences of behavior of children seen in different interpersonal contexts, as well as in language.

In one pilot study, Davies and Bucci have explored the feasibility of detecting structures in the behavior of young children, which are similar to those detected in the free association of an analytic patient, using a similar method. The children were seen in two peer play situations, and in interactions with their mothers.[2] Procedures were developed for the coding and transcribing of behavioral sequences. The step-wise judgment and categorization procedures outlined above were then applied to the coded observations.

Repetitive patterns were first identified in the mother-child interaction. These patterns were then shown to be repeated or reflected in the peer play context, with the child assuming either corresponding or complementary roles in the two contexts. This study is of considerable interest in showing the emotional frame structures in formation, i.e., in the interaction of early life in which the schemata consisting of images, actions and somatic experience are formed. In principle, the repetitive patterns detected in the behavior of children would be expected to relate, in a complex but systematic manner, to the repetitive patterns detected in behavior in adulthood, and even to the structures detected in free association, if such continued observations were possible for an individual's life. The results of this study support the theory outlined here in showing emotional structures in pure culture, i.e., directly in behavior, rather than inferred to the nonverbal system from verbal representation. In these terms, the study provides evidence that emotional schemata of this sort are *there* to be found, i.e., present in the nonverbal system, not constructed in the psychoanalytic dialogue.

5. Linguistic Indicators of Emotional Structures

Another source of evidence for the presence of emotional schemata as representations in the speaker's mind lies in the nature of language itself.

[2]This study is based on data previously collected by J. Kagan, J. S. Reznick, J. Davies and J. Smith at Harvard University in 1982.

According to the dual code model, the degree to which the referential connections between the verbal and nonverbal systems are activated, and emotional structures are expressed is reflected in linguistic features and qualities of language style. In our basic experimental work during the past several years, we have discovered a number of measurable linguistic features and qualities that are likely to be used by individuals with active referential connections between language and imagery statements, i.e., individuals characterized as high in Referential Activity (Bucci and Freedman 1978; Bucci 1984). These include qualities of language style measured by rating scales, counts of specific content items, and other measurable and quantifiable features. The linguistic analysis serves as a verification procedure for the presence of nonverbal structures. The measures are defined in the manual for scoring Referential Activity (RA) language style,[3] and will be described briefly here:

Qualities of Verbal Expressions: the RA Scales

Scales reflecting the linguistic qualities of "Concreteness", "Specificity", and "Clarity" have been developed as measures of Referential Activity:

1. *Concreteness* is defined in terms of degree of perceptual or sensory quality – the degree to which a verbal expression refers to properties of actual things or events, in any sense modality, rather than to abstract concepts.
2. *Specificity* refers to amount of detailed description of persons, objects, places, or events.

3. *Clarity of Expressions* refers to quality of focus of the narrative. The outlines of the ideas or imagery as expressed in the speech are clean, not blurred of fuzzy. Clarity does *not* refer to logical or grammatical organization. Texts can be rated as high in clarity even if the speaker moves from idea to idea without the basis for the connections being evident, if each "shot" is well-focused.

The choice of these dimensions is based on both experimental research and literary criticism, as discussed in detail elsewhere (Bucci and Freedman 1978; Bucci 1984). The referential connections are more direct for concrete and specific entities and the words which refer to them; less direct for abstract concepts and terms (Paivio 1971; 1978). Language that is high on these dimensions has a quality of immediacy, as if the speaker is reliving the experience in imagination; such language makes the experience come alive

[3] Bucci, W. *Instructions for scoring Referential Activity (RA) in transcripts of spoken narrative texts.* Manuscript, Derner Institute, Adelphi University, 1985.

for the listener or reader as well (Strunk and White 1972).

The three dimensions are conceptually distinct but generally highly intercorrelated. They are interpreted as manifestations of the same underlying dimension, the closeness of the connections between language and the nonverbal representational system.

In addition, a measure of overall imagery level is used which provides a global rating of the degree to which the rater feels imagery (in any sense modality) is present in the speaker's mind, and the extent to which the text evokes corresponding imagery in the rater. This measure also correlates highly with the average of the three scales described above.

All dimensions are rated on a scale of 0 to 10. No clinical expertise is required of the judges, and good reliability is obtained after brief training.

Other Measurable Features of RA Language

In addition to the scales, a number of linguistic features have been identified that are associated with active referential connections and more direct access to imagery. These include: lesser use of first person singular pronouns, greater use of direct quotes, stylistic use of the present tense in describing past events, and use of figures of speech such as metaphor, in which concrete images represent complex ideas. The various RA language style indicators may be combined, in a weighted function, to yield an overall measure of activity of the referential connections in any segment of text.

RA as an Indicator of Clinical Process

The model implies that high RA language will be associated with greater ability to express emotional experience, and with more effective analytic work. This implication has been supported in several studies in which fluctuations in RA in patient speech were compared to independent assessments of the clinical process in psychotherapy and psychoanalysis.

1. Increase in patient RA level following "plan compatible" interventions

In one study, in collaboration with Fretter, Silberschatz, and Curtis at the Mt. Zion Hospital in San Francisco, RA level was rated for approximately 300 excerpts drawn from three completed short term psychotherapy cases conducted at Mt. Zion. Segments of patient text were selected that preceded and followed therapist interventions independently rated as to their "plan compatibility," i.e., their pertinence to a patient's problems, needs and goals (Sampson and Weiss 1986). The clinical evaluation of the therapist's interventions and the selection of text segments were carried out by the Mt. Zion group; scoring of the RA rating scales was carried out by us. All segments were presented in randomly rearranged form for RA scoring. Residualized gain scores were calculated representing the variance in post-intervention RA not predicted by the pre-intervention RA level. Significantly higher residualized gain scores on all RA scales were associated with plan compatible vs. non-compatible interpretations. That is, interventions that were plan compatible, in the terms of the Mt. Zion approach, facilitated access to nonverbal structures as measured by pre to post-intervention change in level of patient RA. In this sense, we would also argue that the change in patient RA level serves as a verification of the correspondence of the intervening interpretation to the patient's underlying nonverbal representations, and thus serves as verification of the validity of the "plan" itself.

2. Higher RA level in "work" over "resistance" sessions

In another study, RA level of language was found to be higher in analytic sessions characterized primarily as "work" than in those classified as "resistance" hours. This study was carried out jointly with Hartvig Dahl at Downstate Medical Center. In previous work, Dahl (1972, 1974) had selected ten *work* hours, ten *resistance* hours, and five *middle* hours from transcripts of 363 hours of a single analytic case. The classification was made on the basis of computer content-analysis techniques, and was confirmed by judgments of three experienced psychoanalysts with a reliability of .90. In this study, RA level was scored using a different computer-aided content analysis procedure. This involved matching words in the texts of the sessions with a list of words independently rated for semantic dimensions relevant to RA and generating a score on these dimensions for each session. For this study, we used a word list constructed by Toglia and Battig consisting of 2,854 words scaled along the dimensions of concreteness and imagery (as well as five other semantic dimensions that will not be discussed here). The results

showed the use of both concreteness and imagery words to be highest in the work sessions, and lowest in the resistance sessions ($F=18.31$, $p < .001$ for concreteness; and $F=17.64$, $p < .001$ for imagery). In addition to its theoretical and clinical significance, this study is also important in demonstrating that linguistic qualities relevant to the RA dimension can be carried by individual lexical items independent of syntactic structure. Thus it supports the possibility of obtaining automatized or partially automatized counterparts of the RA measures, for future larger scale clinical applications.

6. Converging Evidence for Nonverbal Structures in the Specimen Hour

These two studies provide background for our application of this approach to the Specimen Hour, Hour 5 of a young woman's psychoanalysis. Fluctuations in RA level were compared to incidence of emotional structures in the course of the hour. The typed transcript was divided into idea units, following the procedure outlined in the Leeds and Bucci study above. Referential Activity level was scored for each unit. Graphs of this sequential variation were constructed for patient and therapist separately. An independent clinical evaluation was carried out to identify the incidence of emotional structures in the text.

Analysis of RA Level

The patient's speech in the course of this hour was segmented by the judges into 38 idea units. Referential Activity level for each unit, scored on a scale of 0 to 10, is shown in Figure 1, according to line number in the typed transcript of the hour.[4] The horizontal line, at 5, marks the midpoint of the RA language style Index.

The first result that emerges is a predominance of low RA utterances in this session; 24 of the idea units or 63% were scored as below the midpoint of 5 on the RA scale, and 14 above. We would expect that the relatively low RA level seen in this session relates to high resistance levels at this early stage of the analysis, and that RA level will increase with clinical progress in successful therapy. (We have verified this in another study which includes ratings of RA level in later sessions of this treatment.)

References see Dahl et al. 1988

[4]The segmentation into idea units by the judges is a distinct process from the paragraphing of a text by a transcriber; numbering of the idea units and the text paragraphs do not necessarily correspond.