

Nonverbal Behavior in Psychotherapy Research¹

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The importance of body movement and facial expression during psychotherapy has long been recognized by the practitioner; yet, until recently systematic study of this mode of behavior has been conspicuously absent from research in psychotherapy. Films of psychotherapy sessions or other interviews have more often served as a basis for generating interesting clinical hypotheses or as intriguing demonstrations than as a subject of systematic measurement.

At least three factors have led to this neglect. A long history of contradictory results in experimental studies requiring judges to determine the affect carried by a nonverbal stimulus has led to skepticism about whether this mode of behavior carries much reliable or valid information. These studies have been criticized elsewhere (Bruner & Tagiuri, 1954), and we (Ekman, 1965) have suggested that the positive results obtained in recent years have been due in part to a shift in focus from posed to spontaneous *interactive* nonverbal behavior, where the behavior is sampled during a verbal conversation. A second source of discouragement was the finding that judges derived little or no information

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from the silent film version of an interview, and that accurate postdictions about a patient depended upon hearing or reading the verbal interaction. Some of the methodological limits of these studies have been indicated (Ekman, 1965a), and new experiments have contradicted their results. A third, and perhaps the most crucial, obstacle to research on nonverbal behavior has been the problem of obtaining permanent records of the behavior, determining an appropriate unit of measurement, and devising analytic methods which will reveal the meaning of nonverbal activity. Film records have typically overwhelmed even the most industrious investigator—for the film record is not data, there is no obvious unit, and even viewing the film once consumes as much time as did the behavior itself. Progress has been made, however. A number of investigators have recently devised means of transforming film or observational records into data, based upon different views of the unit of analysis.

The tide apparently has turned; this is reflected in the inclusion of two articles on nonverbal behavior in this conference. Our paper is oriented towards persuading the investigator who studies psychotherapy that nonverbal behavior is a promising data source. We will summarize the recent studies of nonverbal behavior and our own work-in-progress, restricting our coverage to studies which have systematically analyzed nonverbal behavior during interviews. Four questions will be considered: Why study nonverbal behavior? What kinds of information may be derived from nonverbal behavior?

What is the behavioral unit in the analysis of nonverbal behavior? What methods are available for determining the psychological meaning of nonverbal behavior?

WHY STUDY NONVERBAL BEHAVIOR?

Most of the experimental studies of nonverbal behavior have not evaluated the importance of this data source by comparing it with other behavioral measures or communication modes. And, there has been little theoretical argument to suggest why measures of nonverbal behavior should be included in studies of psychotherapy process or evaluation of psychotherapy outcome. There has been no study, and little systematic exposition, of whether nonverbal behavior might be more or less important than verbal behavior with one or another kind of patient, or with one or another kind of therapeutic situation. Since most of those studying interactive nonverbal behavior were motivated, at least initially, by their interest in and commitment to psychotherapy research, and some have continued to practice as well as to do research, it is paradoxical that they have not attacked these questions.

Yet, the rationale for studying nonverbal behavior in research on psychotherapy must rest upon more than the conviction of the nonverbal enthusiast that Reik's famous third ear is located in the middle of the face, on both sides of the nose directly below the eyebrows. This rash claim is based upon a number of assumptions about the origin and function of nonverbal behavior. Each has its advocates; any one of them could provide a rationale for including the study of nonverbal behavior in psychotherapy; but none has been conclusively tested. We will specify these interrelated assumptions, illustrating them with examples of how they are reflected in psychotherapy practice.

Nonverbal behavior can be considered a *relationship language*, sensitive to, and the primary means of, signaling changes in the quality of an ongoing interpersonal relationship. While conceivably the verbal discourse may duplicate this information, usually such matters are too direct or too embarrassing to be easily stated. Attitudes toward the therapist may be inferred from the patient's movements toward or away, from other actions which seem symbolically to express intimacy, submission-dominance, etc., and from nonverbal expressions of affect. The therapist, at least initially, may rely in part on nonverbal cues to assess the transference. In a sense, one of the first lessons the patient learns in becoming a cooperative psychotherapy patient is to verbalize these relationship-relevant feelings.

A second assumption about nonverbal behavior is that it is the primary means of expressing or communicating *emotion*, either because of the physiology of the organism or because of the priority of nonverbal to verbal behavior in the formative years of personality development. While the patient may state his feelings verbally, the presence of nonverbal cues which support or belie the verbalization may sometimes be crucial to the therapist's determination of whether the patient really feels what he says. If the patient denies emotion verbally, but expresses emotion nonverbally, the therapist may question or reject the verbal denial. Thus, a second lesson the patient learns is that words alone are not convincing, and that his therapist may disregard usual social convention and explicitly comment on the nonverbal behavior which is usually not mentioned in polite conversation.

A third interrelated assumption is that nonverbal behavior has special symbolic value, expressing in *body language* basic, perhaps unconscious, attitudes about the self or body image. Feelings of worth, sexuality, ability to cope with the environment, etc., are thought by at least some

theorists to develop in the child's first interactions with his parents. The parents' attitudes towards the child's body and body functions are reflected in the child's emerging view of his own body. Such basic attitudes and affects about the body may throughout life be shown by certain types of body movements and postures. In that sense, these feelings about self, or clues to body image, are stored in nonverbal behavior, and at least certain psychotherapists emphasize the use of such cues to understand the patient's character structure and his self or body image.

A fourth assumption emphasizes the *metacommunicative* function of nonverbal behavior to provide qualifiers as to how verbal discourse should be interpreted. Nonverbal signs of emotion which accompany the patient's verbal statements can determine the therapist's evaluation of what the patient is feeling. Nonverbal signals regarding the interpersonal relationship provide the general context within which the verbal communications are evaluated. Nonverbal behavior also serves to regulate the communicative flow, furnishing feedback as to whether the other person is listening, is getting bored, is ready to speak, etc. Further, nonverbal behavior can relate more specifically to the verbal conversation, by repeating, contradicting, amplifying, adding new information, or accenting a particular phrase.

A final assumption is that nonverbal behavior is less affected than verbal behavior by attempts to censor communication. The authors (Ekman & Friesen, 1967b) have begun to formulate a theory to explain why and how nonverbal behavior might function as a *leakage channel* of communication, less susceptible than verbal behavior to either conscious deception or unconscious censoring. Socially learned defects in intrapersonal and interpersonal feedback may deprive a person of the information necessary to monitor, tune, disguise, or control his nonver-

bal behavior. Most people do not know what they are doing with their bodies when they are talking, and no one tells them. People learn to disregard the internal cues which are informative about their stream of body movements and facial expressions. Most interactive nonverbal behavior seems to be enacted with little conscious choice or registration, and efforts to inhibit what is shown fail because the information about what is occurring is not customarily within awareness. Focusing on this mode of behavior and thus inhibiting movements seems sufficiently unfamiliar or demanding as to interfere with conversation. Self-consciousness about appearance and movement is notable because it is the exception and, typically, results in awkwardness or muscular tension which itself leaks embarrassment or anxiety. Not only is it difficult to inhibit nonverbal behavior, but it is also difficult to deceive by dissimulating an experience not felt. Most people cannot remember the movements necessary to perform persuasively an emotional state or attitude. Paradoxically, such information must be stored somewhere in memory since experimental data, to be described later, shows internal agreement and external validity about the meaning of movements when observers are forced to attend visually to them. In more natural situations only the professional—the gifted actor, the smart psychopath, the experienced diplomat, the persuasive courtroom lawyer, the winning car salesman—is a convincing nonverbal liar.

The lack of attention to intrapersonal feedback about nonverbal behavior is paralleled by a defect in interpersonal feedback. During conversations others will comment on what we say or on our tone of voice, but it is rare that anyone will acknowledge the receipt of information or otherwise comment upon impressions gained from observing our body movements. If someone wanted to do so, there would be no easy language

for providing feedback about this mode of communication other than mimicry. This is less true for the face than the body. There is a vocabulary for referring to facial expression, and it is more socially acceptable to admit the receipt of information from the face. This is consistent with our impression that facial expressions, apart from the most fleeting, are more easily controlled, censored, or utilized in dissimulation than body movements. As mentioned earlier, during psychotherapy any form of behavior is fair game, and the patient learns that his body movements are not sacrosanct but open to the gaze and interpretation of the therapist. Certain schools of psychotherapy further emphasize teaching the patient to become reacquainted with his body movements.

The assumptions mentioned earlier may also account for leakage through nonverbal behavior. If nonverbal behavior is a primary means of expressing emotion, it would be difficult to control voluntarily, since such expressions would have developed into well established habits and/or be physiologically grounded. If nonverbal behavior is a body language, it would be difficult to control because the attitudes towards the body stored in nonverbal behavior would be deeply ingrained from childhood interactions with parents.

None of these five assumptions is a novel idea; all are either implied in current personality theories or have been discussed in the clinical literature. One need not subscribe to all of them in order to claim a role for the study of nonverbal behavior in research on psychotherapy. There is no direct, systematic, empirical evidence to support *all* of the reasoning in any of these assumptions; but, hypotheses could be derived from each which would specify the kinds of patients, the kinds of therapists, the kinds of therapy, and the points during therapy for which they might hold true. There is *partial* support for these five

assumptions about nonverbal behavior in recent experiments which have shown that nonverbal behavior provides information about interpersonal relationships, emotion, basic attitudes towards self and others, and psychodynamics, and that nonverbal behavior is interrelated with the concomitant verbal discourse.

WHAT KINDS OF INFORMATION MAY BE DERIVED FROM NONVERBAL BEHAVIOR?

Affect has received the greatest attention. Dittmann (1962), utilizing films from different psychotherapy hours of a single patient, has shown that the area of the body involved in movement (head, hands, or feet) is related to the independently rated mood. Dittmann (1965) has shown also that experts can reliably judge the gross affect distinction between *pleasantness* and *unpleasantness* from films showing either the head or the body, although the psychiatrically oriented expert relied more upon head than body cues when viewing the whole person. The authors (Ekman, 1965a, 1965b) have shown that naive judges can reliably judge affect from viewing the nonverbal behavior of normal individuals during stress interviews, and that some claim can be made to at least gross accuracy in the judgment of emotion without any contextual knowledge.

The type of affective information which can be judged from nonverbal behavior varies with the type of nonverbal cue observed. A previous study (Ekman, 1965b) showed that information about pleasantness was easier to judge than information about the intensity of affect when the head is observed, while the reverse pattern was found when the body was observed. Recently (Ekman & Friesen, 1967a) this difference between the information provided by head and body cues was reformulated to take account of distinctions between four types of nonverbal cues (body acts, body positions,

facial expressions, and head orientations) and two types of information about emotion (the nature of the emotion, including inferences about both gross affect state and specific emotions, and the intensity of the emotion). A central assumption in this new formulation is that the face is an affect display system while the body shows the person's adaptive efforts regarding affect, or pictorial illustrations of some aspect of an affective experience. Information about the nature of the emotion can involve only impressions as to gross affective state (e.g., pleasant versus unpleasant) or it can also include inferences about specific emotions (e.g., happy, sad, angry, disgusted, afraid, etc.). Specific emotions can frequently be perceived from facial expressions and from body acts, while both head orientation and body positions will most frequently only allow perception of gross affective states, and observers may not always agree about that. Since the rate of facial expressions usually far exceeds the rate of body acts, perceptions of specific emotions can more frequently be made from head than from body cues. Information about the intensity of emotion is available to the perceiver from both head and body cues. Facial expressions can convey the full range of intensity information, although in many interpersonal settings the facial expressions will not show the cues relevant to perceiving either extreme of intensity. Head orientations can also convey the range of intensity information. Body acts usually convey from moderate to high intensity, while body positions can convey the full range of intensity. The rules of conversation which may inhibit the drooping facial expression or grimace are not as stringently applied to body acts and positions, which may show the extremes of intensity which are not permitted in the face and thus at times these may be more relevant to perceptions of intensity than head cues.

A number of experiments have examined how nonverbal behavior might be related to different facets of the ongoing interpersonal relationship. Earlier research (Ekman, 1965a) found that naive judges could accurately determine whether nonverbal behavior came from the stressful or cathartic part of a standardized stress interview. Exline (Exline, 1963; Exline, Gray, & Schuette, 1965; Exline & Winters, 1965) found that the amount of interocular contact between normal subject and interviewer was related to the interviewer's inquiries about embarrassing themes. Rosenthal, Friedman, Kurland, & Rosenthal, 1965; (Rosenthal, 1963) has found evidence that the experimenter's bias about his expected results is often transmitted to his subject by nonverbal cues.

There has also been consideration of whether nonverbal behavior reflects psychodynamic themes or ego defenses. Mahl (Mahl, Danet, & Norton, 1959) tested the accuracy of his own judgments of the nonverbal behavior of a large number of patients who were interviewed by a colleague; many of his inferences about psychodynamics and ego defenses, drawn from the nonverbal behavior alone, were found to be accurate when verified against the patient's verbal behavior and past history. Haggard (Haggard & Isaacs, 1966) examined what he calls the micromomentary facial expressions, facial expressions which are extremely rapid and often not observable without slowed projection. He has found tentative evidence that such nonverbal behavior is related to the incidence of denial, and to the psychodynamics of the patient's relationship to the person he is discussing. Loeb (1966), working from the point of view of Birdwhistell (1952) and Scheflen (1964, 1965), found evidence that a specific type of hand movement shown by a single patient had specific psychodynamic meaning in terms of infantile fantasies.

A number of different approaches have been taken to study the relationship between the nonverbal behavior and the simultaneous verbal discourse. Mahl (Mahl et al., 1959) has described four ways in which nonverbal behavior can be related to verbal content: (a) the nonverbal act expresses the same meaning as the concomitant manifest verbal content; (b) the nonverbal act anticipates later amplifications of the concurrent verbal content; (c) the nonverbal act conveys meaning contradictory to the verbal content; (d) the nonverbal act is related to more global aspects of the interaction, rather than to the specifics of the verbal exchange.

Earlier research (Ekman, 1965a) has explained how nonverbal action portrayals, affect expressions, or instrumental acts can be utilized to accomplish each of the four verbal/nonverbal relationships described by Mahl, and has proposed five additional verbal/nonverbal relationships. (e) Nonverbal behavior can accent a specific part of the verbal message; (head shakes, shift in eye gaze, hand taps, or head swings can draw attention to the import of a particular word, functioning much like underlining). (f) Nonverbal behavior can fill or explain silences, communicating that the person has not finished speaking, or is reaching for words to continue his discourse, or is dumbfounded, etc. (g) Nonverbal behavior can function to maintain or regulate the communicative flow, informing one person that the other is still listening, is getting bored, is ready to speak, etc. (h) Nonverbal behavior can be a substitute for a word or phrase within a verbal message. (i) Nonverbal behavior can be a delayed registration of content that has already been expressed verbally.

We have suggested, and presume that Mahl would agree, that patients might be differentiated by the particular type of nonverbal/verbal relationships they manifest; but neither of us has systematically

studied as yet this question per se. We did find (Ekman, 1964) that judges could detect the specific nonverbal behavior which accompanied a short verbal statement, thus suggesting a very intimate moment-to-moment relationship between simultaneous nonverbal and verbal activity; and in a pilot study (Ekman, 1964²) we found that the extent of such nonverbal/verbal channel congruence varied with psychosomatic disorder.

Dittmann has been concerned with the relationship of nonverbal behavior to noncontent aspects of speech. Dittmann, Parloff, and Boomer (1965) were not able to show that body movements are related to filled pauses in speech or to speech rate, but in Dittmann's most recent study (1966) he found that head and hand, but not foot, movements occur towards the beginning of phonemic clauses, in interviews of 16 normal individuals.

Interrelationships between nonverbal and verbal content or noncontent aspects of speech, affective reactions, the nature of the ongoing interpersonal relationship, and dynamics and ego defenses, are all important phenomena encountered in psychotherapy. But psychotherapy research on process or outcome is more specifically concerned with changes in behavior over time associated with therapy, and individual differences between patients in their behavior during therapy hours. If we are to argue that research on psychotherapy should include measurements of nonverbal behavior, then two questions more directly relevant to the therapeutic process need to be answered. First, might nonverbal behavior reflect any of the changes over time associated with a change in psychological functioning resulting from therapeutic intervention? And second, might nonverbal behavior during interviews be sensitive to the individual differences between pa-

²p. Ekman. Communication through nonverbal behavior. Progress Report to the National Institute of Mental Health, September 15, 1965, for Grant No. MH 07527-03-S2.

tients, even though they share some of the same presenting problems, and the individual differences in the type of remission achieved? Our work in progress has been addressing these questions, and after briefly describing the nature of our sample, we will present some preliminary results.

NONVERBAL BEHAVIOR AS A SOURCE OF INFORMATION ABOUT CHANGES IN PSYCHOLOGICAL FUNCTIONING

During the last few years, we have been recording short semistandard clinical interviews at time of admission to a hospital, midway in hospitalization, and shortly before discharge, with female patients presenting depressive symptoms, and also for acutely schizophrenic patients. The interviewer is a psychiatrist not otherwise involved in the patient's life. The 16-mm. sound films show a head-on view of the face and entire body of the patient. Most of the patients are drawn from a research ward, where the nursing staff rates each patient daily on 24 scales describing their ward behavior (cf. Hargreaves & Blacker, 1967). Other sources of information, in addition to the usual history, psychological tests and doctor notes from the patient's chart, are obtained on each filming day: the ward psychiatrist's description of the patient on Gough's Adjective Check List (ACL), the patient's self-description on the ACL; the interviewer's ratings on the patient's affect during the interview. Patients receive medication and psychotherapy (individual, group, and family). All but one of the 40 patients we have filmed achieved a remission within 4 months.

Our research is organized around basic research problems regarding the types of information which can be derived from nonverbal behavior, and determining the specific cues which carry specific information, rather than around the question of how or whether psychopathology is re-

flected in nonverbal behavior. We now have indirect evidence to support our assumption that the nonverbal behavior shown by our depressive patients at admission is not unique to patients. The specific nonverbal movements and static body positions are not themselves peculiar to patients; rather, the rate of occurrence of certain movements, the repetitiousness and the intensity, or lack of modulation in movement or position may be more common among these patients than in normal populations. In attempting to chart nonverbal behavior, this greater repetitiousness and intensity is an advantage, causing at least some nonverbal actions to stand out in bold relief. As important in our decision to sample patients' nonverbal behavior were (a) the almost unique opportunity provided to measure nonverbal behavior over a period of time when life events of crucial significance occur (admission and then discharge from a mental hospital), and thus to acquire at least two nonverbal samples which can be expected to differ; and (b) the availability of systematic daily measures of what the patient is doing, to further verify the nature of the changes in psychological functioning which occur, and provide a basis for sorting patient subgroups on other than psychological test scores and nosological categories. Our time has been spent in gathering film records, in devising techniques for the systematic analysis of filmed behavior, and in conducting pilot studies to test our techniques and provide preliminary checks on our hypotheses. What we can provide now is not a substantive conclusion but a more tentative preview.

Let us now return to the two questions posed above, which were considered most relevant to evaluating the potential usefulness of measuring nonverbal behavior in research on psychotherapy. The first question was whether nonverbal behavior provides information related to changes in psychological functioning

which are associated with therapeutic intervention. In terms of our research this can be worded more specifically to ask whether a short sample of nonverbal behavior, 8 minutes of filmed interview, communicates³ information relevant to the patient's psychological functioning at the time of the filming, and whether comparison of the information communicated by the admission and discharge film would show any of the changes in psychological functioning which are known to take place over the course of hospitalization. It is possible that the nonverbal behavior in the admission and discharge films might be quite different, even systematically different, and yet the nonverbal behavior might not communicate any consistent information to the observer, or the information communicated by the 8-minute films might be irrelevant to what is independently known about the patient's psychological functioning. If, however, we can show that the naive observer of the nonverbal sample reliably decodes in-

³The term *communicate* refers to the fact that observers are able reliably to decode information from viewing a sample of nonverbal behavior. There is no implication that the person enacting the nonverbal behavior intended to communicate, nor any assumption that the communication is necessarily accurate (see page 196). Comparing this terminology with Mahl's, Mahl would use the word *informative*, reserving *communicative* for behavior which is consciously used to communicate. Behavior which Mahl considers to be autistic, we would consider to be potentially communicative, in that observers would be able to agree in their interpretation of its meaning. Although we would agree that some nonverbal acts are motivated by some expressive need and are concerned primarily with internal events, we feel there is no simple relationship between the origin of the act and its informative value. Moreover, we would propose several origins of an act: (a) intent to communicate, or (b) performance of a simple task or instrumental activity, or, more involuntarily, (c) neurophysiologically based stimulation, or (d) past learning. None of these origins would seem to bear any direct relationship to what information can be obtained while observing an act.

formation about the patient and that the information communicated from the admission and discharge films differs, and that this difference is relevant to the known changes in psychological functioning, then it is certain that something in the 8-minute film must have communicated a message, and that something in the nonverbal behavior at admission and discharge must be different; but the specific cues which communicated the message and any other nonverbal behavior which changed from admission to discharge regardless of whether it was communicative, would remain unknown.

The simple experimental design to answer this question involves comparing judgments by groups of naive observers who see a single 8-minute, silent film of a patient. Judgments of an admission film are compared with judgments of a discharge film, and both sets of judgments are compared with other sources of information about the patients. In our initial ventures we have utilized the ACL as the instrument on which judges record their impression about the patient; the judges are not told that they are viewing a patient or an interview.

Table 1 compares the judgments of six independent groups of naive judges (college sophomores) who viewed admission or discharge films of three female patients admitted with depressive complaints. Only adjectives which were salient for the judges (i.e., chosen by $\geq 70\%$) and which differentiated the two interviews of a single patient are listed; (if chosen by $\geq 70\%$ of the judges on one film, it must have been chosen by $\leq 50\%$ of the judges who saw the other film of the same patient).⁴ Table 2 shows a partial replication, for which a group of judges viewed the admission film of Mrs. C. but described her on

⁴There were no words equally salient for admission and discharge for Patients A and B, and only three words (emotional, nervous, and anxious) salient for the judgments of both interviews of Patient C.

TABLE 1
Salient Differentiating Adjectives from
the ACL Judgments of the Admission
and Discharge Films

Patient		
Mrs. A 12 Judges	Mrs. B 11 Judges	Mrs. C 24 Judges
Admission film		
pessimistic suspicious bitter defensive fault-finding gloomy worrying apathetic hostile intolerant irritable prejudiced resentful rigid tense wary	tense confused nervous dissatisfied inhibited interests narrow moody worrying	despondent worrying dissatisfied fearful self-pitying sensitive unstable complaining disorderly gloomy moody
12 Judges	12 Judges	26 Judges
Discharge film		
cooperative friendly calm gentle kind pleasant sentimental simple	talkative emotional restless sociable complaining excitable impulsive outgoing spontaneous	friendly talkative active impulsive immature cheerful cooperative energetic feminine informal

TABLE 2
Salient Items from the ICL Judgments
of the Admission Film of Mrs. C

self-punishing apologetic complaining frequently disappointed lacks self-confidence dependent touchy and easily hurt very anxious to be approved of able to criticize self
--

Leary's Interpersonal Check List (ICL) rather than on the ACL.

These results show that nonverbal behavior communicates reliable information to untutored judges, and moreover that the information communicated at admission differs from that communicated at discharge.⁵ We will use only the records of Mrs. C to determine whether the consistent information communicated by nonverbal behavior has any validity, since not all of the outside sources of information about the patients' extrainterview behavior are available for A and B, who were recorded in pilot study.

We have multiple sources of information about what the patient was like from different professional or role perspectives, based on access to different types of information. First, the patient's self-description on the ACL and her ward psychiatrist's description of her on the ACL were compared with the impressions derived by untrained judges from a short segment of her nonverbal behavior. Apart from the possibility that nonverbal behavior does not communicate accurate information, a number of other problems might limit the results of such comparisons. Accurate information might be available in nonverbal behavior, but only to judges trained like the doctor, or experienced like the patient, through first-hand knowledge and observation of other patients. Accurate information might be usually available from nonverbal behavior, but a sampling problem could inter-

⁵We have glossed over some of the limitations in the ACL, and of our method of data analysis which treats each word as a separate percept, not seeking word clusters. Parallel studies, which have had independent groups of judges view these same and other films but describe their impressions in a paragraph of writing, confirm the results in Table 1, but emphasize that the ACL or at least our use of it does not capture many of the impressions derived by the judge. Particularly, it does not capture the psychodynamic themes, attitudes toward self and others, and inferences about life situation which judges frequently mention when allowed to do so.

TABLE 3
Adjectives Salient for the Judges, and the Choice
of these Adjectives by Patient and/or Doctor

Chosen by judges, doctor and patient	Chosen by judges and doctor, but not patient	Chosen by judges and patient, but not doctor	Chosen by judges, but not doctor or patient
Admission			
confused despondent nervous tense	dependent disorderly anxious fearful self-pitying complaining	dissatisfied worrying	emotional sensitive gloomy moody unstable
Discharge			
nervous active impulsive excitable restless	-	anxious emotional friendly talkative cheerful cooperative informal	immature energetic feminine

tere: the 8-minute film interview might have been quite different from the rest of the patient's experience that day. The possible unreliability of the doctor and patient ACL's must also be considered; neither has a monopoly on truth; both may have a vested interest in seeing certain things and ignoring others, and for neither can a single check of an adjective have the reliability achieved when a group of persons check a single word.

Despite these possible limitations or sources of error, the results were quite encouraging. Table 3 shows how many of the words salient for the judges ($\geq 70\%$ checked the word) were selected by both doctor and patient, by doctor only, by patient only, and by neither; this is given for admission and for discharge. The majority (71%) of the 17 salient words conveyed by the nonverbal behavior were chosen by patient and/or doctor at admission; the majority (75%) of the salient words communicated by the discharge nonverbal behavior were chosen by patient and/or doctor at discharge. Bearing

in mind the limitations in these accuracy criteria and the factors which might mitigate against finding that the judges' perceptions had relevance to the patient's or doctor's description, we interpret these results as evidence that the nonverbal behavior communicates accurate information.⁶

Another comparison among patient's, doctor's, and judges' ACLs examines the comprehensiveness of nonverbal communication rather than its accuracy. Table 4 lists words which were *not* salient for the judges (checked by $\leq 30\%$) but which were picked by doctor and/or patient. This table shows that the nonverbal behavior did not communicate all of the in-

⁶There are other interesting problems raised by this table, such as the greater resemblance of judges to doctor at admission and to patient at discharge, which we will not discuss here. We are just beginning to analyze the doctor and patient ACLs across our total sample to determine if there are systematic differences between these two sources which can then be related to the judge impressions derived from nonverbal behavior.

TABLE 4
Patient and Doctor Adjectives, Not Salient for Judges

Chosen by patient, but not doctor or judges	Chosen by doctor, but not patient or judges	Chosen by patient and doctor, but not judges
Admission		
absent-minded adaptable irresponsible queer shy silent slow	apathetic careless conscientious conservative conventional distrustful efficient fussy honest hostile	intelligent loud masculine painstaking prudish quitting self-centered suggestible sulky
Discharge		
absent-minded adaptable conscientious fair-minded forgiving nagging thoughtful unaffected understanding selfish	argumentative assertive blustery bossy demanding forceful hostile rebellious	clever dependable industrious practical sharpwitted self-punishing tough loud

formation listed by doctor and patient, but it does not tell why. Perhaps not all of the words checked by the doctor or patient are really accurate descriptions; or there might be limits to nonverbal communication, either for this patient or in general. We think that most of the adjectives in this table could be communicated by nonverbal behavior, although they were not by this patient; conducting similar studies with our records of other patients should allow isolation of those adjectives which are never communicated by nonverbal behavior. Studies we have just begun show that more experienced judges might have perceived some of the concepts listed in this table. Perhaps the most important point for our purpose in this article is that only one word, "loud," checked by both doctor and patient was selected by less than 30% of the judges. This supports our interpre-

tation of Table 3, that nonverbal communication is accurate.

The other accuracy criteria support this interpretation, but will not be described in detail. Most of the adjectives salient for the judges appeared in the ward psychiatrist's admission and discharge notes, and in the interviewer's descriptions of the patient. Similarly, the factor analysis of the ward behavior ratings made by the nurses is congruent with the adjectives selected by the judges. In future work we plan to use a few independent experts to combine these accuracy criteria into a single more global multidimensional rating based upon all of the information we have available on each patient.

Before approaching the question of whether nonverbal behavior communicates information about individual differences between patients, let us first clarify

what we mean by the purposely vague "psychological functioning," which we used in referring to the change in behavior from admission to discharge from the hospital. This phrase refers at least to affect experiences, to the quality of interpersonal relations, and to attitudes towards self and others, all of which can be transient phenomena, but which for these people, in this situation, are relatively enduring behavioral patterns. It is the consistency in their behavioral patterns, the lack of variability across situations, which is in part responsible for hospitalization. Our assumption, confirmed by the prehospitalization history, ward behavior ratings, and chart material, was that the emotional, attitudinal, interpersonal patterns were relatively enduring at the time of admission, and that there was at least a partially stable amelioration to bring about the dispositional decision of discharge. This change from admission to discharge is not necessarily a change in content, but perhaps only in intensity or variability of affect, attitude, and interpersonal style. Even a change in the content of affect or attitudes or in the nature of interpersonal style need not itself indicate any more basic change in personality—the same psychodynamic themes and ego defenses may still be in evidence. Thus, what we have shown is that interactive nonverbal behavior communicates information which appears to reflect accurately two different, fairly durable patterns of behavior, incorporating affect, interpersonal style, and attitudes about self and other, which have changed over the course of time as a result of therapeutic intervention in the direction of more adequate personality functioning or adjustment. Other types of change may occur from admission to discharge, and other types of information may be communicated by nonverbal behavior, but these pilot experiments cannot tell us that. A serious limitation on what we have shown so far is that the three patients all have depressive complaints. We have not as yet deter-

mined whether comparable results might be obtained when there is no predominant affect disturbance.

NONVERBAL BEHAVIOR AS A SOURCE OF INFORMATION ABOUT INDIVIDUAL DIFFERENCES AMONG PATIENTS

One might argue that by selecting depressive patients we have taken the easiest means of demonstrating that nonverbal behavior communicates accurate information about a change in personality functioning. The depressed patient's behavior at admission and the change over time can be dramatic and visually potent. The very factors which make this sample of patients a simple, promising one for distinguishing between admission and discharge, makes it a difficult one for discriminating individual differences. The blatant, pervasive, psychomotor symptoms at time of admission may mask or obscure nonverbal signs of individual differences in personality. Also, possible selective factors, (e.g., that persons of a certain type will suffer a depression and that they may reflect in common the experience of the hospital and concern about return to family and home), may narrow the range of individual differences shown at time of discharge. Discriminating *among* patients at admission or at discharge will show that nonverbal behavior communicates considerably more than global information about sick or unhappy, versus improved or happy, patients.

If the nonverbal behavior communicates some of the more individual characteristics of these patients, then certain adjectives will be chosen by judges who see one patient's admission film which are not salient for judges who see either of the other patients' admission films, and the same should hold for comparisons among the discharge films. The data reported in Table 1 were reanalyzed to yield such salient, patient specific adjectives, following the rule that an adjective

TABLE 5
Salient Adjectives for Each Patient at Admission and for Each Patient at Discharge

Mrs. A	Mrs. B	Mrs. C
Admission		
suspicious fault-finding hostile intolerant prejudiced resentful rigid		emotional unstable disorderly
Discharge		
conservative	complaining outgoing spontaneous	immature energetic feminine

be listed only if it had been chosen by $\geq 70\%$ of those who saw one admission film and $\leq 50\%$ of the judges who saw the other two admission films; the same procedure was followed for the discharge interview films. The results are shown in Table 5. Both Patients A and C communicated unique messages, that is, which differed from each other and from Patient B at time of admission; Patient B's messages were shared with either Patient A or Patient C and thus were not unique. At time of discharge, patients B and C communicated unique messages, that is, which differed from each other and from Patient A; but Patient A communicated little that was not shown by the others. Interestingly, the messages specific to B and C at discharge seem quite similar; and their charts and other ward data

TABLE 6
Salient Adjectives for Pairs of Patients (Discharge Only)

B & C	B & A	A & C
talkative impulsive restless emotional excitable	cooperative	-

showed that both patients were considered euphoric or hypomanic at the time of the discharge films. If nonverbal behavior is sensitive to individual differences, it should also reveal such similarities.

A final comparison of the ACL results from the judges who viewed the discharge films was made, in which an adjective was listed only if it was salient ($\geq 70\%$) for a pair of patients and nonsalient ($\leq 50\%$) for the third patient. We should expect, from the history material and the results in Table 5, few such pair-salient words for A and B, or A and C, but a number of words for the B and C pair which connote their shared manic behavior. Table 6 shows results in the expected direction.

In summary, we have presented some preliminary evidence which we interpret as suggesting that spontaneous, interactive nonverbal behavior does communicate information which accurately reflects differences in personality functioning associated with therapeutic intervention, and individual differences between patients who have the same presenting complaint, and individual differences regarding the remission they achieve. The results are limited to three persons, but we have obtained comparable results on another three patients. We believe that our findings are not specific to this disorder, and we have the film records to learn, in the next 5 years, whether there would be generality to patients without depressive complaints.

In two respects, the results reported can be considered a conservative sifting of the information which may be communicated by nonverbal behavior. First, the ACL, or at least our use of it, does not capture many of the complex judgments about attitude, dynamics, and ego defenses which even untrained judges have provided when allowed to give an open-ended description of these films. Second, we have reported results only on what untrained judges can see or report. Two studies in progress have utilized medical students or psychology graduate stu-

dents as judges of the films; both groups of judges, despite small size, were significantly more in agreement with the psychiatrist's view of the patients than were the undergraduate students whose responses are reported here. It is reassuring to find, for once, the expert judge more "correct" than the naive judge, but of course we are comparing expert judge with the criteria of expert psychiatrist, not with the other criteria of patient behavior. In any case, a more appropriate judgment instrument, and the use of more sophisticated panels of judges should yield more substantial results than those presented.

These pilot studies do raise questions which they cannot answer, but which lead to our next topic. Studies such as these show that information is communicated, but do not reveal how the information is transmitted. What are the cues which the judges utilize; do they derive their impressions from one part of the body more than from another; do specific movements convey specific messages; what part of the total impression is conveyed by specific nonverbal cues?

WHAT IS THE BEHAVIORAL UNIT IN THE ANALYSIS OF NONVERBAL BEHAVIOR?

These questions focus upon the need to specify the actual communicative units of nonverbal behavior; from what level of detail, from what areas of the body, from what types of movements is information decoded? If the meaning of nonverbal behavior is studied by relating specific types of nonverbal activity to some other variable (e.g., patient characteristics) rather than by showing the nonverbal behavior to observers, a comparable question about the unit of behavior must be faced. Such a design must specify the unit of nonverbal behavior which will be measured.

The choice of unit depends upon assumptions about the origin and func-

tions of nonverbal behavior, the level at which meaning might conceivably be coded in nonverbal activity. The choice of unit may also result from compromises dictated by limitations in data recording equipment, or attempts to accelerate data processing. But, these are crucial decisions which radically influence the results obtained. One can get no more out of a judge of nonverbal behavior than what he is shown; if the judge is limited to seeing only one body area (most often the face) or arbitrary time slices (usually the still photograph or the 5-second or 2-minute movie burst), his inferences are limited and in part determined by how badly such selective processes mutilate the natural flow of nonverbal activity. If measurement of nonverbal behavior is limited to arbitrarily defined units, dictated by the imposition of standardized time segments, it is not likely that valid results will be obtained. If the nonverbal unit is based on the verbal content, then the results will be valid only if this definition of the unit is valid. Thus, the test of the validity of the unit of measurement is the result obtained. Unfortunately, too often negative or only modest results are interpreted as raising doubt only about the communicative value of nonverbal behavior and not about the possibility that the definition of the behavioral unit was not appropriate.

In gathering our first records of nonverbal behavior 7 years ago (for studies which have just been published in the last 2 years), we allowed limitations in equipment to define the unit of nonverbal behavior. Time-sample still photography defined a unit of nonverbal behavior in terms of one-hundredths of a second every 5 seconds.

There are two problems with time-sample photography. First, movement may be difficult to decipher: it may be shown only by a blur or falsely represented as a still, if awkward, position. The other problem resides in time-sampling procedures, and is just as pertinent to

time-sample, motion picture film clips. If the stimulus is determined by arbitrary rules (a photo every 5 seconds or a film clip of 5 seconds), sometimes the sample will coincide with the naturally occurring behavior, and the sample will be a reasonable representation and thus potentially meaningful; at other times the act will be caught in the middle, or at the end, and the impression gained may be one never encountered in real life. It is not the still photograph per se which poses the problem, but the predetermined sampling procedures which define the beginning and the end of the sample independently from the actual sequence and timing of movements and still positions.

In our early experiments we required judges to rate the affect shown in a still photograph, or match a still photograph with the concomitant verbalization, or determine whether a photograph was taken during the stressful or nonstressful part of an interview. Statistically significant agreement and accuracy were obtained; but the absolute level of both agreement and accuracy was disappointingly low: usually not more than 55-65% of the stimuli elicited consistent responses. In a replication and extension of one of our experiments, Hoffman (1965) used 5-second, motion picture film clips, and his judges achieved the same significant but disappointingly low absolute level of accuracy. Before we began working with motion picture film, we thought (Ekman, 1965a) Hoffman's study vindicated our use of still photography — for his results with movies were no better than ours with stills. Our view about how nonverbal behavior must be represented, if it is to be meaningful to observers, has changed, however, and now we believe that both studies suffered from the same error—that of arbitrarily plucking samples of nonverbal behavior according to a fixed time schedule, ignoring whether this coincided with the actual flow of the nonverbal behavior.

When we began to analyze the cue properties of the photographs which were accurately and inaccurately judged, we found some of the stimuli baffling, not clearly showing what was happening. After a brief plunge into minute ruler measurements to fathom this problem, we became convinced that we were missing the point of these judgment experiments: that information can be decoded without resorting to long detailed, minute inspection or measurement. At this juncture we received grant support and with this affluence began to collect motion picture film records. Our first trial film, intended to test exposure and focus, instead convinced us how readily our eyes could be used to detect similar and different movements and determine their beginning and end points. (The same applies to still positions.) Fortunately, at this time we had the opportunity for discussion with George Mahl; our discussion emphasized the importance of visually distinctive movement patterns.

The unit we now utilize, the nonverbal act/position, is based upon readily observable, visually distinct patterns of nonverbal activity, which determine both the unit boundaries and a taxonomy. The beginning and end of this unit is defined in terms of natural start and stop points. *An act* begins when a movement is first detectable, and ends when a movement is no longer apparent or when another visually distinctive type of movement commences. *A still position* begins and ends when movement stops or begins. A taxonomy of types of acts and types of positions is developed in terms of shared visual characteristics. Our level of analysis is thus geared to what can be observed and is distinctive to the unaided eye, although reliability in determining both the boundaries and classification of the unit is aided by repetition, magnification and slowed motion routines.

A nonverbal act is defined as a movement within any single body area (head,

face, shoulders, hands, or feet) or across multiple body areas, which has visual integrity and is visually distinct from another act. The beginning of an act is determined as the point at which the part of the body under scrutiny begins to move from the still body *position*; the end is the point at which the movement ends, either by return to the same or to a different position, or by the addition of another distinctive act. Acts which look alike, established through paired comparison procedures, are given the same classification label. Positions, when a body area or areas are still, are similarly classified in terms of visual appearance. An example of a hand act is the eyecover, where one hand is brought up to one eye, covers it, and then returns to the preceding position, or to another still position.

The classification of acts and positions is thus based upon what is easily recognizable to any observer. The classificatory scheme is built directly from the acts and positions found in the film records, rather than derived from a priori notions. No notational system or series of measurements is needed to distinguish between movements or to recall types of acts or positions; instead a simple verbal label is utilized, with filmed examples of each act or position type readily retrievable by use of a series of search tags.⁷

This act/position unit is, we believe, the same as that described by George Mahl, (Mahl et al., 1959), although our method of identification, measurement of duration, and classification differ. This unit of behavior focuses on the type of nonverbal behavior which may be *potentially* communicative between two interactants. It is geared to the type of cue

⁷We have developed a systematic routine for performing this film analysis, utilizing a pair of slowed-motion analysis film projectors; and we have designed a semiautomated system for performing this work, which interfaces videotape recorders with computer control and memory. (Ekman, Friesen, & Taussig, 1967).

to which each member of the dyad may be responding. Let us briefly summarize the units of behavior utilized by other investigators studying nonverbal behavior.

Loeb (1966) in what he calls his "macroanalysis" works with nonverbal units comparable to ours, as does Exline (Exline & Winters, 1965). In what Loeb⁸ calls his "microanalysis," based on Birdwhistell's (1952) kinesics, a very different unit is employed, where every measurable aspect of nonverbal behavior shown in every motion picture frame is quantified. It is not clear what defines the beginning and end of his unit in this microanalysis, other than each film frame, or what determines how fine a measurement is made, other than limits in what can be distinguished in single-frame scrutiny. Certainly, Loeb in this work is at times concerned with measuring activity which may not be observable by the unaided eye. Information may well be coded in nonverbal behavior in a way which could justify such a fine-grain analysis, although such information would not be interpersonally communicative. Haggard's (1966) report is not clear as to whether he is studying the most fleeting but still readily observable facial expressions, or just those facial expressions which can not be seen without slow-motion projection.

Dittmann (1962, 1966) is applying an entirely different definition of the unit of behavior. He is concerned with whether or not there is movement in a body area and utilizes a natural definition of the point at which movements begin and end. While distinguishing between body areas (head, hands, and feet), he has chosen, at least for now, to ignore distinctions among the types of movements shown within a body area. Dittmann's approach, although at the opposite extreme from microanalysis in terms of the level of detail involved in

⁸F. Loeb, personal communication, 1965.

the definition of the unit, shares with microanalysis procedures the use of a unit which is not concerned with what may be visually distinctive to the interactants or to an observer.

Differences in definition of the unit of behavior should not be confused with differences in whether an exhaustive or selective analysis is performed. Our work, Dittmann's, and Loeb's microanalysis are attempting comprehensive measurement of nonverbal behavior shown in all body areas, attempting to cover all that occurs during our prescribed samples of behavior; but we differ in how we define our unit of analysis. Exline and Haggard are selective, Exline analyzing a single type of act (interocular contact) and Haggard analyzing a single body area (facial expressions). Mahl, and Loeb in his macroanalysis, are selective in terms of choosing only critical or salient events from their sample, although considering all body areas.

We believe that in psychotherapy research naturally defined units based on visually apparent distinctions should be used, and that if possible the analysis should be exhaustive rather than selective. Psychotherapy is interactive; the patient's behavior can be considered as responsive to the therapist or an imagined other person; the therapist likewise is responding to the patient, or in countertransference terms, to an imagined other. In analyzing the nonverbal behavior of either patient or therapist, the unit of behavior chosen should allow study of cues which may be potentially communicative within the interaction. This is not to assert that all of the nonverbal behavior shown during psychotherapy has communicative value or is intended to communicate, but that it may have such value; it may be perceived and responded to by each member of the dyad. And the analysis of the interaction should include units on a level apparent to the interactants. Acts and positions in many body areas should be

considered, since multiple, sometimes conflicting, messages may be expressed through different nonverbal behavior occurring in different areas of the body at the same moment in time. As mentioned before, the ultimate check on the appropriateness of the unit of behavior will depend upon the results obtained, and in that sense there is as yet no definitive evidence to support one approach over another.

Determination of the unit of behavior is only the beginning of research. The problem of establishing the psychological meaning of any nonverbal unit remains.

WHAT ANALYTIC METHODS ARE USEFUL IN DETERMINING THE MEANING OF NONVERBAL BEHAVIORAL?

In other work (Ekman, 1965a) we have distinguished between two methodological approaches to the study of nonverbal behavior, the indicative and the communicative. The key differences are in what is measured and in the type of meaning examined. The indicative approach directly measures the nonverbal behavior, determining meaning in terms of how the nonverbal behavior varies systematically with other prescribed variables. The communicative approach measures observers' judgments, determining the meaning nonverbal behavior conveys to others.

An indicative study is designed to establish a relationship between some prescribed aspect of nonverbal behavior and some other class of event. One or more types of nonverbal activity are measured in relationship to setting, role, communication, or personal characteristics; the type of activity may be very broadly defined, such as the occurrence, of any movement in any part of the body or very specific, such as the occurrence of a particular nonverbal act in one part of the body. The frequency of foot move-

ments, or of the specific foot act of tapping, might be related, for example, to verbal themes of anger, or to the ethnic background of the person, or to his character structure. Once this relationship is established, the nonverbal act has psychological meaning in that it can be considered to indicate the other related variable. Such indicative studies do not determine whether the nonverbal behavior measured has any communicative value to those who observe it. Many indicators could have no communicative value until knowledge that they are indicators became widespread. For example, careful measurement might show that foot taps always occur with repressed anger, yet foot taps might not communicate any reliable information to an observer unless he knew of this finding.

A communicative study establishes whether observers agree in their interpretation of nonverbal behavior. A total sample of nonverbal behavior, or a limited segment of the sample (e.g., arbitrary time units or a single body area), or a specific nonverbal act is shown to judges, who are asked to describe their impressions about the setting, role, verbal communication, or personal characteristics. This use of the term *communicative* does not imply that the person who emitted the nonverbal behavior (the sender) necessarily intended to communicate, but merely that his nonverbal behavior elicits agreement among those who observe it. Such communication may be inaccurate or accurate. Observers' agreement about the meaning of nonverbal behavior may completely contradict the independently established meaning of the nonverbal activity. Discovering that nonverbal behavior has a given communicative value does not itself point to what within the sample of nonverbal behavior might have conveyed the message, unless the stimuli shown to the observers have been limited to a single type of cue.

Communicative studies permit the investigator to side step the problems of measuring the nonverbal behavior itself, as would be required in an indicative study, since typically a large undifferentiated sample of nonverbal activity is shown, and it is the response of the observers which is measured. On the other hand, the investigator must decide what to show the observers and what judgments to require. Negative results in a communicative study may be either because irrelevant judgments were required or the sample was too short, artificial, etc., or because the behavior has no communicative value.

Five indicative methods for the analysis of nonverbal behavior can be distinguished. Rate measures of nonverbal behavior can be found to be indicative of sender characteristics, either over time for a single sender or across groups of senders who share certain characteristics. For example, the nonverbal eyecover act might be found to occur with highest frequency among patients who share certain ethnic or social class backgrounds, or among patients whose ward behavior ratings stress guilt, or in the admission interview as compared to the intermediate or discharge interviews. The greater the specificity of the characteristics shared by those who show the act, the more it is possible to infer what may be indicated by the act.

A second indicative method analyzes rate measures of nonverbal behavior in relation to some feature of the situation in which the behavior occurs. For example, eyecover acts might be found to occur in the hospital but not in other settings, or when the role is *interviewee* but not when the role is *spouse*, or when there are bright lights, etc.

A third indicative method analyzes rate measures of nonverbal behavior in relation to the other interactant's characteristics or behavior. For example, eyecover acts might occur most frequently when the other interactant is an older male,

or expresses disapproval, or shifts his gaze to the sender's face, etc.

A fourth indicative method relates the occurrence of some form of nonverbal behavior to simultaneous other nonverbal acts, or to preceding and subsequent nonverbal activity. For example, the eyecover might be found to be accompanied often by a clenched fist, or followed by crying. If the coincident or sequential nonverbal acts are as obvious as the two examples, then this may be informative about the psychological significance of the nonverbal activity being studied. At the least, such interrelationships between types of nonverbal acts which occur simultaneously or sequentially suggest that the unit of analysis should be enlarged either over time or across body areas.

A fifth indicative method relates the occurrence of nonverbal behavior to verbal content or noncontent aspects of speech. The eyecover act might usually be accompanied by verbal themes about lack of pleasure, or by soft voicing, or by pauses.

Four communicative methods can be distinguished. The first method determines whether a single sample of nonverbal behavior, either all or part of a film record, communicates information about the sender's characteristics or situation. Those who view either all or part of a film might be asked to describe the affect, the attitudes, or the personality of the sender, or whether the behavior was from an admission or a discharge interview, with a friend or a stranger, etc.

The second communicative method focuses upon differential communication from simultaneous but different nonverbal cue sources. Different groups of observers might see the face only, or the hands only, or the feet only, from the same film record, and be asked to describe the sender or the situation. The analysis focuses upon the differential communication of any such infor-

mation as a function of the types of nonverbal cues observed.

The third communicative method focuses more specifically upon the information provided by a single nonverbal act or position. A number of designs can be utilized: the eyecover act could be studied by comparing judgments when only that act is seen with judgments of other types of hand acts; or by comparing judgments of the eyecover act with judgments of an edited version of the film where all eyecover acts have been eliminated.

A fourth communicative method compares the communicative value of different channels or modes of behavior. Interrelations between judgments of nonverbal behavior and verbal content or vocal behavior can determine the differences between these communication channels for given experiences, persons, or situations. In such designs separate groups of observers either see the silent film, or read a typescript, or hear filtered or unfiltered speech. Another design measures the extent of moment-by-moment relationship between what is communicated by different channels, by requiring judges to match the verbal and nonverbal samples which were simultaneously emitted.

The indicative and communicative methods, and the specific analytic procedures are complementary. Communicative studies can be utilized as a first assay, to gain an impression of what information may be contained in a sample of nonverbal behavior, suggesting what may later be isolated through indicative studies. Indicative studies may highlight certain salient nonverbal acts, which can then be selectively examined for their communicative value. If we are to learn about the meaning of specific acts or positions, or specify the types of nonverbal behavior relevant to deriving certain kinds of information, then both indicative and communicative methods should be applied to the same records. To determine the

meaning of an act or position, to appreciate what it may signify psychologically, to discover under what circumstances it appears and how it is usually interpreted requires application of more than one of the methods described.

Until now, most of the research on nonverbal behavior has not applied more than one technique to a given nonverbal record.⁹ Our own work, which we will discuss next, has been applying each of the methods described to the same film records.

THE INDICATIVE/COMMUNICATIVE ANALYSIS OF NONVERBAL BEHAVIOR

We will further explain and illustrate our unit of behavior and analytic methods, utilizing the records of Mrs. C (Tables 1-4) to demonstrate that the nonverbal act is a psychologically meaningful unit of behavior. We will show that specific acts (movements distinguished in terms of their visual appearance) have distinctive psychological meaning: they are systematically related to the patient's psychological functioning, occur regularly with specific verbal content themes, and communicate specific messages to observers.

The results of communicative experiments (Tables 1-4) showed that Mrs. C's nonverbal behavior in the admission and discharge interview films communicated information which varied with changes in psychological functioning over the course of hospitalization. These results can be considered only a first assay, establishing that the nonverbal records are meaningful, thus justifying further analysis of the films to determine what nonverbal cues might have communicated

⁹In a sense, Mahl's work can also be considered to use both communicative and indicative methods of analysis, since he himself was a single judge in a communicative experiment, and then applied rate measures to certain nonverbal acts which had been recorded.

the information and what nonverbal cues were indicative of either admission or discharge for this or other patients.

Our first step was to convert the film records into analyzable data. Our procedure, System for the Classification and Analysis of Nonverbal Behavior (SCAN) (Ekman & Friesen, 1965; Ekman, Friesen, & Taussig, 1967), applied to each body area separately, isolates each movement in terms of beginning and end points and then, through paired comparison procedures, groups movements similar in visual appearance into act types. The SCAN output for each body area lists the location, duration and classification of each act.

THE FEET

Table 7 lists the foot acts from the admission and discharge interview films, giving the frequency of occurrence and total time in movement for each act. The type of foot act and the visual quality of the foot acts shown in these two interviews differed radically. There was a limited repertoire of foot acts at admission: only a few different foot acts were shown and one of these was very repetitious. By their very nature, these foot acts (e.g., sliding the foot on the floor) would have little visual saliency: they would be in the periphery of the observer's visual field and would not demand attention since they lack emphatic qualities, speed, wide areas of excursion, and unusual appearance. A more varied repertoire of foot acts was shown at discharge: more different acts occurred, and no one act was as repetitious as the admission behavior. By their very nature, these foot acts probably had visual saliency: the feet are raised far off the floor, are central in the observer's visual field; the acts command attention by their unusual appearance.

For this patient, the foot acts—that is, their type and frequency—have the

TABLE 7
Frequency and Duration (in Seconds) for All Foot Acts
in the Admission and Discharge Films of Mrs. C

Act	Admission		Discharge	
	Frequency	Time	Frequency	Time
One-foot floor slide, forward and/or back	64	154	9	24
Two-foot floor slide forward and/or back	5	11	2	5
Torso change and two-foot-slide	2	17	0	0
Foot swing-up and slight-sole show, legs crossed or uncrossed	0	0	27	74
Leg swing up and pronounced sole show legs crossed or uncrossed	0	0	6	24
Ankle cross cross-uncross, or uncross-cross, or cross-uncross-cross, or cross-recross	0	0	13	38
Foot tap both- or one-foot, repetitious or one tap	0	0	5	14
Ankle lateral bend one- or two-feet	0	0	5	14.5
Total acts	71		67	

indicative meaning of being associated with the admission or discharge interview. This gross indication of meaning could be refined by determining (a) whether common psychological features (in terms of background, diagnosis, ward ratings, and psychiatric evaluation) are shared with other patients who showed these same foot acts; (b) whether there were any common verbal content themes for specific foot acts; (c) whether the foot acts occurred in conjunction with other nonverbal acts in other body areas, either simultaneously or sequentially. We have not yet pursued these approaches for foot movements; (such analyses will be reported for the hands). But we have taken the first step, using another approach which investigates what information may be conveyed by the feet.

Since the admission and discharge interviews did communicate differential information about this patient (Tables 1-4)

and since we have now found that the foot acts did differ in these two interviews, it is possible that the feet may have carried part of the information about the patient. A simple communicative experiment explored whether the feet alone from the admission interview had any meaning to observers, and whether this was related to the information communicated by the total admission film. A group of judges ($N=21$) described Mrs. C on the ACL after viewing the entire admission film which had been masked so that only the feet and lower legs were visible. The data was analyzed by selecting adjectives which were salient for both the judges who saw the feet film and those who saw the total film (adjective checked by $\geq 70\%$ of the judges in both groups), adjectives salient for the feet but not for the total film ($\geq 70\%$ for the feet but $< 50\%$ for the total film), and adjectives salient for the total film but not for the feet alone.

TABLE 8

Information Communicated by the Foot Activity in the Admission Film of Mrs. C as Compared to the Information Communicated by the Total Admission Film

Adjectives salient for feet film and total film	Adjectives salient for feet film, but <i>not</i> total film	Adjectives salient for total film, but <i>Not</i> feet film
anxious nervous awkward worrying	timid cautious interests narrow commonplace	despondent dissatisfied self-pitying unstable complaining disorderly gloomy moody

Table 8 shows that the foot alone acts in the admission film apparently did communicate information. The information communicated by the feet in part duplicates that communicated by total film, and in part is unique to the feet and not perceived by those who viewed the total film. And, there are messages communicated by the total film which the feet do not communicate. Each of these findings merits some discussion.

A single body area (actually a single act, since most foot acts at admission were repetitions of the foot slide) conveyed messages which were also communicated by the total film. This does not mean that these messages can be derived *only* from the feet, or that the judges who saw the total film must have based their impression that the patient was anxious/nervous/awkward/worrying on the foot acts. This could be determined only by examining judge interpretations of other body areas or acts. While it is conceivable that one of the messages or a group of messages conveyed by the total films can be traced to a single body area or act, in this case judgment data on the face showed the same messages as those reported here for the feet. One of our hypotheses, yet to be tested, is that when patients are acutely disturbed there is a greater repetition of messages conveyed by differ-

ent acts or different body areas than when they are in a state of remission.

The feet also conveyed messages — timid/cautious/etc.—which were not communicated to (or at least not recorded by) the judges who saw the total nonverbal behavior in the admission film. Does this mean that these messages are completely invalid, resulting from artificially limiting judges to viewing a single body area? We think probably not; other messages communicated by the feet *were* duplicated by the total film. Although, strictly speaking, we do not think that nonverbal behavior is like verbal language, an analogy between *act* and *word* may be helpful. Taken out of context, an act, like a word, has a standard meaning, or, more often, a group of distinct but related meanings. A context may reduce the range of meanings to one, and modify or deemphasize even that single meaning. But this does not signify that taken alone the act, or word, lacks a set of meanings, and thus we may infer that timid/cautious is part of the range of meanings of this act, although in this particular context it is deemphasized or contradicted. Five contextual variables can serve to qualify the meaning of an act: (a) the other simultaneous, preceding, or subsequent behavior in the same or other body areas; (b) the concomitant verbal behavior, and the more

general characteristics of the verbal output; (c) the setting, that is, the physical environment and expectations associated with it, the definition of roles, interaction objectives, etc.; (d) the physical characteristics of the sender, that is, the body size, sex, age, skin color of the person showing the act; (e) the verbal and nonverbal behavior of the other interactant.

The fact that certain of the foot messages were not recorded by the judges of the total film can be most parsimoniously attributed to the lack of visual saliency of these foot acts and/or the tendency of judges not to attend to such cues unless forced to do so. Another explanation would be that contradictory messages were sent by other body areas; the timid/cautious message of the foot acts was overwhelmed by other nonverbal cues which showed this message to be inappropriate. A final possibility, probably not relevant in this instance, is that the timid/cautious message was an important message, expressing part of this patient's conflict, and that the contradictory messages should not have cancelled it, but revealed the presence of conflict. This is an old problem in person perception; judges usually react to conflicting information by simplifying their impression into a single, internally consistent picture. If there are conflicting messages, trained judges, who know that people can be consistent yet in conflict, would be more likely to record all messages.

Of course, the feet did not communicate all of the messages carried by the total nonverbal behavior in the admission film. Common sense suggests that feet communicate a more limited range of information than either hands or face, although we can not yet specify what the limit is. We do think that the feet can furnish limited information about affect, about attitudes, and about the verbal discourse. About affect, foot acts are informative of anger, annoyance, and

irritation, and of the intensity of a wide range of affects; about attitudes, foot acts are informative of seductiveness, for example, or the wish to end the interaction; in regard to the verbal discourse, the main function of foot acts is to accent any word or phrase.

Let us summarize our findings. For this single patient, the type of foot acts, their visual quality and their repetitiveness were associated with the two different levels of psychological functioning at admission and discharge. Further evidence that foot behavior is meaningful is that foot acts communicated reliable information to untrained observers, information which can make a claim to relevancy, if not also to accuracy, in the sense that part of the information duplicated information perceived by observers who viewed all of the nonverbal behavior. While these foot acts were shown by only one person, Mrs. C, this meaning must be more general, or judges who have never met her would not have agreed in their independent assessments. Our evidence about the communicative meaning of the feet would be strengthened if we could compare judgments of the admission feet with judgments of the discharge feet, or compare judgments of different types of foot acts. These are next steps which we have not had time to take. But let us turn to the hands, where we have made some of these comparisons.

THE HANDS

Our purpose, let us remember, was twofold: to illustrate the methods of analysis for our unit of behavior, the nonverbal act; and, to show that movements distinguished in terms of their visual appearance can convey specific psychological meaning, in that rate of occurrence is related to psychological functioning, specific acts occur with specific verbal themes, and specific acts have distinctive communicative value to observers. We will consider the hand be-

TABLE 9
 Frequency and Duration (in Seconds) for the Most Frequent
 Hand Acts in the Admission and Discharge Films of Mrs. C

Act	Admission		Discharge	
	Frequency	Time	Frequency	Time
Hands toss one or two hands are thrown up to shoulder or head area space and fall or bang down; palms partly open	9	16	0	0
Hand-shrug rotation one or two hands rotate palm down to up in space, go up but not tossed laterally or upward; hesitate or not	16	37	0	0
Eye cover fingers or palm of one hand rub, pick or hold eye; soft return	4	9	0	0
Chair-arm-rub one or two hands rub back and/or forth on chair arm	37	281	0	0
Open-hand reach palm up hand reaches laterally and out toward interviewer	2	3	9	14
Hand-rub hand finger only or finger and palm, hands folded or partly closed or on top of each other	0	0	14	88
Microphone-wire-play toss, wave, twitch or coil wire	0	0	9	71
Hand-alternate-in-space two hands alternate reaching out in space to right and left lateral space beyond chair arm	0	0	4	16
Totals	68 acts (of the 95 which occurred)		36 acts (of the 84 which occurred)	

havior in the admission and discharge films, showing how the hand acts differed in these two interviews, and studying the meaning of some specific hand acts.

The SCAN procedure was applied to the hands, isolating each movement, measuring duration, and then classifying by paired comparisons those which were visually similar. At admission 20 different types of hand acts were shown, and 34 at discharge. Thus, as was noted for the

feet, there was a greater variety of non-verbal acts at discharge than at admission. Because of space limitations we have listed (Table 9) only the four most frequent hand acts for each interview. Figures 1-7 illustrate the acts listed in Table 9; the film was shot at 24 frames per second, so that each frame represents 1/24 of a second; because of space limitations, the figures do not show all of the frames for every act; but if there

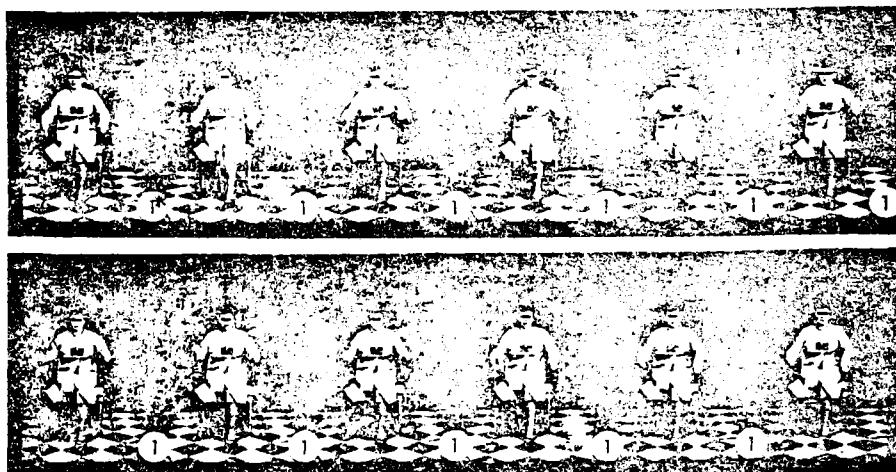


Fig. 1. Hand toss. *Indicates number of movie frames (at 1/24 second) omitted between each photo.



Fig. 2. Hand-shrug rotation.

are any gaps, the number of missing frames is indicated.¹⁰

There was practically no overlap in the type of hand acts shown in the two interviews.¹¹ One of the admission acts,

¹⁰The hand-rub hand act in Table 9 is not illustrated by a figure, since it is so small that it would not be visible unless larger illustrations were used.

¹¹There was no duplication between admission and discharge interviews in the other hand acts not listed in Table 7.

the chair arm rub (Figure 4) was highly repetitious; no single act was repeated as often in the discharge interview. This difference in repetitiveness also parallels the findings for the feet. Perhaps the more restricted range of different acts and the presence of a single highly repetitious act, shown in both the hands and feet in the admission interview, parallels the restricted range of alternatives open to the patient at this point in her life as compared to discharge.

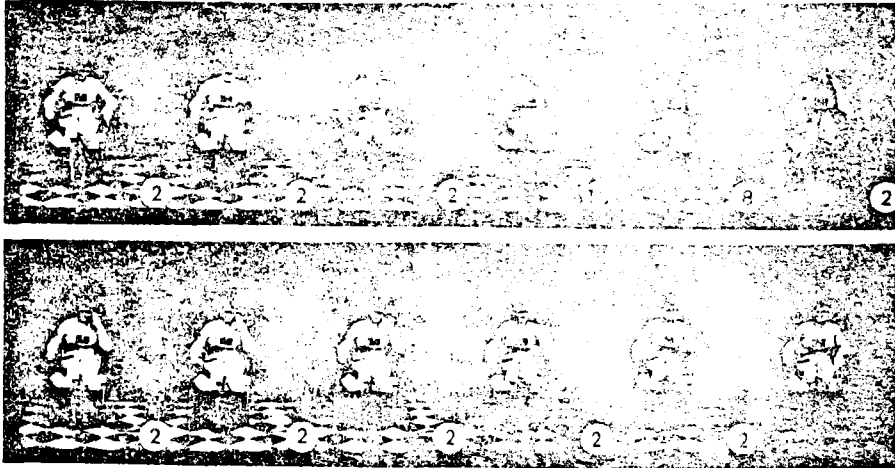


Fig. 3. Eyecover. **Subject sustained this position until assuming the position in the next photo.

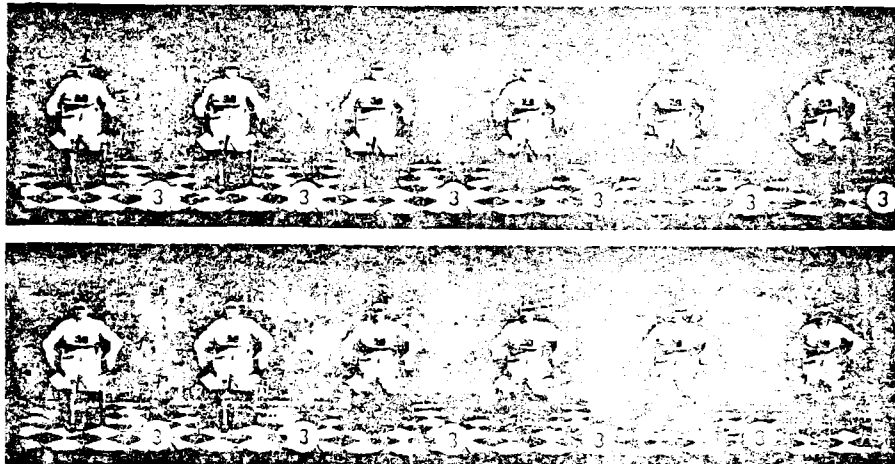


Fig. 4. Chair-arm rub.

Apart from the merits of that conjecture, we can at least specify that, as with the feet, the nature of the hand acts, and the frequency of occurrence of specific acts have the indicative meaning of being associated with the two different levels of psychological functioning at the time of the admission and the discharge interviews. This is, of course, only a very gross indication of meaning, which could be further delineated by determining the characteristics of other pa-

tients who showed these same acts. If we found, for example, that the hand-shoulder rotation was shown only by patients whose ward ratings showed feelings of helplessness and lack of worth, or who were described by their ward psychiatrist as passive-aggressive, we would have a better idea of the possible meaning of this act. Although we have found that some of these acts does appear in our other patient records, we have not included in the analysis of simi-



Fig. 5. Open-hand reach.

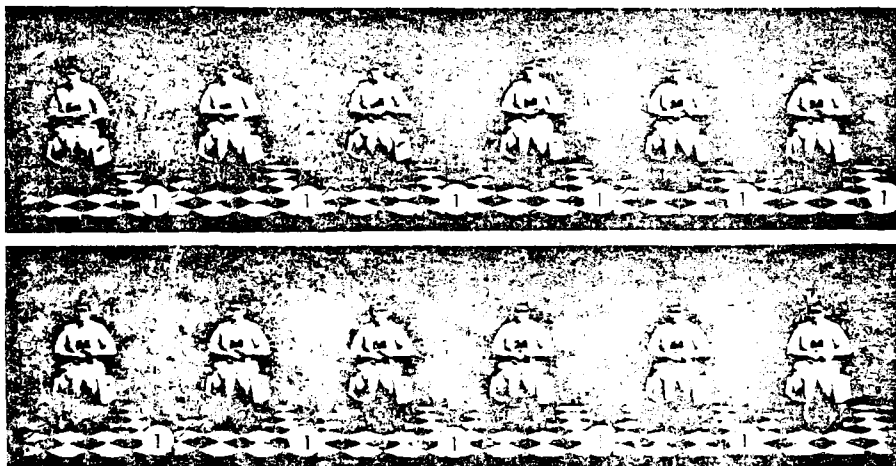


Fig. 6. Microphone wire play.

larities among patients who show the same acts.

We have begun another approach to studying the meaning of an act: to isolate the verbal content themes which occur whenever an act is shown and search for similarities in the verbalizations accompanying each act.

Since at least some nonverbal behavior has communicative value, it is reasonable to expect some systematic relationship between what is done with the

body and face at a particular moment and what is being said verbally. This is not to suggest that all nonverbal behavior simply repeats what is said with words, but that an interrelationship between the two channels of communication can be expected, such that certain types of nonverbal behavior occur with certain types of verbalizations. Finding consistencies in the type of verbalizations which accompany a type of nonverbal act requires, however, that the distinctions

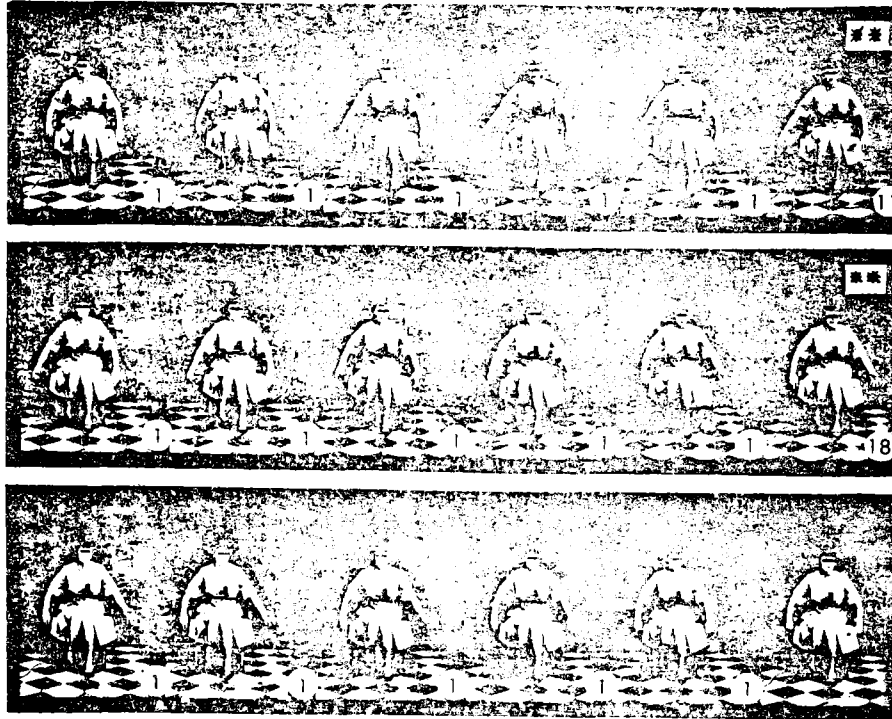


Fig. 7. Hands alternate in space. **Subject sustained this position until assuming the position in the next photo.

between types of acts have some claim to validity. If nonverbal behavior were to be classified in a random fashion, or by some arbitrary principle which had little to do with the psychological meaning of the behavior, then there would be little chance of discovering similarities in verbalization which accompanies types of acts.

Table 10 gives the verbal themes which accompanied each hand act shown in Table 9, including parenthetically our *subjective* interpretation of the meaning of each act and the functional relationship of the act to the verbal content. Disregarding for the moment this parenthetical information, the table shows that, with only one exception, each hand act was accompanied by a specific type of verbal content theme. Such similarities in the verbal content lend credence to our taxonomy of acts.

The verbal theme analysis is most illuminating if we can specify how the nonverbal and verbal behavior are related — whether the nonverbal act repeats, contradicts, amplifies, adds to, comments on the verbal content theme, or shows any of the other functional nonverbal/verbal interrelationships which were described earlier (Pp. 183-184). Specification of the nature of this relationship requires independent knowledge about the meaning of the nonverbal act itself. Such knowledge can be based upon the type of indicative studies we have already described. Here it has been found that an act occurs most frequently with certain types of patients in certain phases of their adjustment, or based upon studies which have isolated the communicative value of each act (which we will describe shortly) or based upon guided inferences made independently of know-

TABLE 10
Verbal Content Theme Analysis of the Admission and Discharge
Hand Acts Listed in Table 9

Hands toss	Seven times the verbal theme was lack of control; e.g., inability to stop crying, inability to articulate, inability to accept responsibilities. Twice the verbal theme was ambivalent feelings about family members. (The hands toss has the quality of throwing the hands up in the air, and flailing the arms, as well as the emphatic pounding down of the hands, all communicating, we believe, frustrated anger, with some overtones of desperation, aimed primarily at the self. We think the hands toss is not repeating the verbal theme, but that the verbalized lack of control and ambivalence is the occasion for the hands-toss expression of frustrated anger.)
Hand- shrug rotation	Ten times the verbal theme was verbal uncertainty; e.g., phrases such as "I mean," "actually," "it's as if," "I guess." Four times the verbal theme was confusion: phrases such as "mixed up," "can't see," "don't know." (The hand-shrug rotation looks as if something is being picked up or measured with the hands, but can't be held; it also has the quality of showing that the hands cannot do anything, suggesting helpless inability to cope. We think that this act is essentially repeating the verbal message of uncertainty and confusion, acting it out with the hands.)
Eyecover	Crying always occurred with this act, twice when stating she should not be in the hospital, twice when talking about her aggressive impulses. (The eyecover blocks the interviewer from view, so the patient can not see his reaction, and also partially covers the patient's face; both suggest shame. We think the eyecover shame expresses her main affective reaction to the two verbal themes, being hospitalized and having aggressive impulses.)
Chair-arm-rub	There was no consistent verbal theme. (The chair-arm-rub most strongly connotes agitated restlessness; the movement seems to have some self-reassuring qualities as well, vaguely reminiscent of stroking or being stroked. The sheer frequency of this act mitigates against its being related to any one verbal content theme.)
Open- hand reach	The act occurs early in attempts to answer a direct question, or on encouragement by the interviewer to complete an answer. The verbal theme is uncertainty: phrases such as "I don't know," "probably," "I mean," "I suppose," or phrases which attempt to involve the interviewer in helping her with the answer, such as "if that's what you mean," "whatever you want to call it." (The open-hand reach goes out toward the interviewer, palm up as if he is to put something in the hand. The meaning we ascribe to this act is an asking for help; thus it amplifies by acting out part of the verbal request for interviewer reaction.)
Hand- rub- hand	Seven times the patient was discussing fear about the future, and conflicts about decisions she must make. Seven times the verbal theme was difficulty in sitting still or staying in one place. (This act does not convey a specific meaning to us, other than nervous agitation, and possibly some self-assuaging massage. The nonverbal nervousness would thus be repeating part of the verbal theme of not being able to sit still, or expressed in conjunction with the fear about the future.)
Microphone- wire-play	Four times the theme referred to being "upset"; four times the need to keep moving or the word "active" was mentioned. (The microphone-wire-play connotes little more than restless activity, and we believe it has only a vague relationship to the verbal theme.)
Hands alternate in space	A conflict between taking sides with husband or father was verbalized, with one hand used with the word "father", the other hand with the word "husband." (This act looks as if two objects are being balanced or compared and considered, one in each hand. In this sense the act illustrates the verbal choice between the two men the patient has on her hands.)

ledge of the verbal content.¹² All three methods were utilized to arrive at the meaning attributed to each act: we know the frequency of occurrence of each of these acts at admission and discharge for this patient; for three of the hand acts we have independent evidence about the meaning they communicate to judges; and we inferred the meaning of the acts as well. We do not rest our case upon in-

ferred meaning alone; inference plays a part in forming hypotheses, but it is subject to test. Not all of the inferences about nonverbal meaning in Table 10 have yet been tested, but if they can be accepted for now, the use of the verbal theme analysis can then be shown.

Certain nonverbal acts essentially repeat the verbal content theme which accompanies them, by acting out part

¹²Thorough description of how the meaning of nonverbal behavior may be inferred, and comparison with the methods utilized by other writers (Deutsch, 1947, 1949, 1950, 1951, 1966; Mahl et al., 1959) would require a separate article. For now, we will be more vague, attempting only to convey our general approach.

To infer the meaning of a nonverbal act, each of us separately views the act repeatedly, without knowledge of the concomitant verbal behavior. Often, an interpretation will be immediately obvious—usually when the act is clearly similar to an act we have seen before. If no immediate reaction is forthcoming we utilize one of the following three explanatory routes.

1. If the act involves one part of the body touching another body part, we will very concretely try to determine what is being accomplished physically by the act, and then on a more figurative or symbolic level attempt to infer what may be accomplished in body language terms. For example, if the fingers are picking at the leg, we will consider the possibility of self-directed aggression; if the fingers linger in the area of the crotch we might consider self-stimulation or protection, etc.

2. If the act involves any movement of any part of the body toward or away from the interviewer, we mentally close the space between the patient and interviewer, imagining what the act would be doing to the interviewer; again we try to be both concrete and symbolic in our interpretation. For example, kicking a foot out toward the interviewer, if we close the space, might suggest kicking the interviewer in the shins; or, some of the raised foot and sole showing in the discharge interview of Mrs. C invites inspection of her legs and is flirtatious; or, on the open-hand reach, since it is palm-up, is suggestive of asking or expecting someone to put something in your hand; if it were palm-out, it might be caressing the interviewer's body.

3. If the movements do not touch the body, and do not in any way seem to be reactive to

the interviewer, we try to imagine that some instrumental act is being performed, and try to figure out what it might be. For example, foot movements might look as if the person is abortively trying to get out of the chair, or the hand-shrug rotation looks as if the hands are failing to hold a box. With all three explanatory routes, usually we magnify or exaggerate the act, assuming that its meaning was not more immediately obvious because it has been aborted or miniaturized rather than fully expressed. Often more than one of these explanatory routes is applied to the same act. Essentially the same ideas are relevant to inferring the meaning of a still position, with the following additions. We have impressions of the normative body positions for the particular chair and seating arrangements in our interview; these are fairly relaxed, composed, frequently shown arrangements of the total body. If the still position deviates from a normative position toward being more tense, appearing to require considerable effort to maintain, then we attempt to infer what act is being inhibited by that still position, or what act is frozen by that position, and interpret the position accordingly. If the still position deviates from a normative position toward being more relaxed or informal, we interpret it much like an act, and consider what the more relaxed position may be accomplishing in terms of response to the interviewer, or self-directed communication. Generally, still positions seem to convey less information than acts, as we have explained elsewhere (Ekman & Friesen, 1967a).

One other approach we use in trying to infer the meaning of an act is to act out the movement, checking on the subjective feeling, the words which come to mind, the facial expression and other movements which naturally may accompany the performance, and the way it looks to an observer. We have been amazed how often, without apparent intent, if we repeat an act a few times, our face will take on a particular expression, and a particular verbalization will almost force itself out.

of the verbal message, expressing the same affect, and/or performing an instrumental act. The hand-shrug rotation (Figure 2) is an example of a nonverbal repetition of the verbal content; the rotating hands show a nonverbal inability to use the hands to do something, which parallels the verbal statements of uncertainty. Repetitions signify that the two communication channels, verbal and nonverbal, are in harmony; frequent nonverbal/verbal repetitions should lead to clarity of communication and the general impression that the person is expressive and outgoing.

Often the nonverbal act does not repeat the verbal theme. One of the justifications for studying nonverbal behavior is that it may provide new information not expressed verbally; or it may provide supplementary information which emphasizes, illustrates, extends, or in other ways illuminates the verbal theme. Nonverbal behavior can occur regularly with a specific verbalization, and express a feeling regarding the verbalized theme. The eyecover (Figure 3) did not repeat the verbal theme, but expressed shame which was probably most acutely felt about crying and being in the hospital. The hands toss (Figure 1) did not repeat the verbal theme, but added information not in the verbal content; her anger and frustration, shown nonverbally, was probably in regard to feeling a lack of self-control and ambivalence about family members. The fact that anger was not verbalized, but only shown nonverbally, could further suggest that this patient had conflicts about her own hostile feelings, which in this instance is corroborated by her history and course of psychotherapy.

The nonverbal act may not repeat the verbal content but illustrate part of that content, by drawing attention to or emphasizing part of the verbalization. The open-hand reach (Figure 5) emphasized the wish for help from the interviewer, which is only implied by the

verbal content. The hands alternate in space (Figure 7) illustrates the need to choose between the two men which she had spoken of, perhaps emphasizing that she has her hands full.

Of course, not all nonverbal behavior will be related to specific verbalizations. If an act occurs with great frequency, like the chair arm rub, it may be related more generally to the emotional tone of the conversation. Or, an act may be communicating a message which the patient cannot say or is not aware of; for example, flirtatious exposure of the legs might be unrelated to the words spoken, but instead occur whenever the interviewer averts his eyes. The fact that a nonverbal act expresses a message the patient cannot say, or is unaware of, does not necessarily entail that it be unrelated to the verbalization. The flirtatious leg display might occur, for example, when the patient speaks of her disinterest in her doctor.

It is not clear whether the same verbal content theme would always appear with the same act for a given patient, or across patients. If the verbal theme is a specific topic, such as husband drinking or patient leaving the hospital, and the nonverbal act is an affect expression such as anger, then it is likely that when different life circumstances prevail for that or another patient, a different verbalized topic will be related to the nonverbal act of anger. If the verbal theme specifies a feeling state or attitude, such as uncertainty, fear, inadequacy, etc., and if the nonverbal act repeats, extends or illustrates the verbalization, then it is more conceivable that the same verbal/nonverbal relationship will be shown by the patient at other times, and by other patients. These questions, about stability over time for a given patient and consistency across patients, are yet to be resolved.

To summarize, the verbal content theme analysis provides three kinds of evidence. First, simply the discovery

that there are similar verbalizations when specific acts occur lends credence to our taxonomy of nonverbal behavior. Second, the nature of the relationship between nonverbal act and verbal content can help specify the meaning of the act, if there is some independently based knowledge about what the act may signify. Third, the examination of the nonverbal/verbal relationship shows that the nonverbal behavior can provide material which

the patient has not expressed verbally, that examination of the nonverbal behavior in conjunction with the verbal content can suggest inferences about the patient's psychodynamics which might not necessarily be revealed by the verbal content alone.

The next method of analysis utilizes a communicative design, examining what the nonverbal act alone may convey, determining whether different acts com-

TABLE 11
Comparison of Adjectives Salient for One Cue Source
and Not for Other Cue Sources

Selected by less than 50% of judges	Greater than 70% selection by judges			Total admission film
	Hand-toss	Chair-arm-rub	Hand-shrug rotation	
Hand-toss	-	fearful withdrawn restless	(no adjectives)	fearful unstable dependent gloomy moody
Chair-arm-rub	argumentative	-	(no adjectives)	self-pitying sensitive complaining disorderly gloomy moody
Hand-shrug rotation	argumentative emotional excitable	emotional restless		despondent emotional sensitive unstable complaining dependent disorderly gloomy moody
Total admission film	argumentative	withdrawn	(no adjectives)	-
Chair-rub-and-hand-shrug	argumentative	-	-	sensitive complaining disorderly gloomy moody
Hand-toss and Hand-shrug	-	restless	-	unstable dependent gloomy moody

municate distinctive information. Three admission film hand acts were selected for this additional study: The chair arm rub, because it was the most repetitious admission hand act; the hand-shrug rotation, because it was the next most frequent hand act and appeared to repeat part of the verbal message; and, the hands toss, because it added new information to the accompanying verbal content.

The design involved three separate groups of untrained judges, each viewing a separate film composed of all instances of one of the three acts. The chair arm rub was seen by 23 judges, the hand-shrug rotation was seen by 22 judges, and the hands toss was seen by 28 judges. The face was blocked out of the film, but we neglected to eliminate the feet. After viewing the specific acts, the judges recorded their impression of the patient on the ACL; they were, of course, not told they were judging a patient. The data analysis involved comparing adjectives which were salient for a particular act (selected by $\geq 70\%$ of the judges of that act) but which were not salient for one of the other acts or for the total film (selected by $< 50\%$ of the judges who viewed one of the other acts or the total film). Table 11 summarizes the results; the column listings show the adjectives which are salient for each act as compared to the other acts or the

total film; the row listings show the adjectives which were not salient for an act as compared to other acts.

The results were positive for the hands toss and chair arm rub acts; these two acts have a delimited group of messages in accord with our expectations and distinctive from each other, from the hand shrug rotation, and from the impression conveyed by the total film. No such distinctive communicative information was found for the hand-shrug rotation. This failure we believe to be due to a limit in the ACL; the two words which we expected this act to suggest, *helpless* and *uncertain*, do not appear in the ACL, nor do synonyms. A similar limit in the ACL may have been responsible for the failure to find the *frustrated* message which had been expected for the hands toss—this word also does not appear in the ACL. To remedy this limitation a new group of 12 psychology graduate students were shown the hand-shrug rotation acts, which they described in their own words, and then the hands-toss acts, which they also described in an open-ended fashion. The results of these open-ended descriptions are shown in Table 12. While the judge group was small, the results were remarkably consistent, and as expected.

The results given in Tables 11 and 12 show that hand acts taken out of context have distinctive communicative value;

TABLE 12
Open-ended Descriptions of Two Hand Acts 12 Judges
(Graduate Psychology Students)

Hand-shrug rotation	<p>Three related messages were mentioned. The first message noted by all judges was <i>uncertainty</i>; e.g., she is saying "how would you explain it," or she is saying "what can you do." The second message mentioned by most judges was <i>defensiveness</i>; e.g., "she is excusing herself," "she is denying." The third message mentioned by half the judges was <i>helplessness</i>; e.g., "a plea for help."</p>
Hands toss	<p>One interrelated message was mentioned by all judges: <i>frustrated</i> or <i>exasperated anger</i>. Judges differed as to whether they thought she was angry at herself or at someone else.</p>

each of the three acts communicates a different message. While these acts were shown by a single patient, the fact that judges agree in the interpretation of the acts shows that the meaning of the acts must have some generality; the judges must have seen the acts before and learned their meaning. These results are our most clear-cut evidence that specific acts have specific meaning; they do fit with what our other analytic methods have shown about these acts.

Mrs. C was interviewed a year after discharge from the hospital, and free-associative material was sought regarding specific hand acts. Her interpretations of the hand-toss and hand-shrug rotation agree with the judges' interpretations reported here. She was much less certain about the meaning of the chair arm rub; it was less familiar to her and connoted both a wish to leave the situation and a searching for security.

The hand toss (Figure 1), which communicates frustrated anger, is shown only at admission, not at discharge, and is expressed when loss of control and ambivalence about family members is verbalized.

The hand-shrug rotation (Figure 2), which communicates helpless uncertainty, is shown with considerable frequency at admission, not at discharge, and seems to repeat the verbal statements of confusion and uncertainty which accompany it.

The chair-arm-rub (Figure 4), which communicates that the patient is restless and withdrawn, is a highly repetitious act at admission, and does not appear at discharge; but it is not related to a specific verbal theme.

In summary, in this section we have presented work in progress illustrating the use of our unit of analysis, the act, applying two indicative methods of analysis and two communicative methods. We started with the evidence that the total nonverbal behavior in the interviews communicates information which distinguishes

this patient from other patients, at both admission and discharge, and conveys at least some of the changes in psychological functioning which occur over the course of her hospitalization. The type and frequency of hand acts and foot acts was found to be almost entirely different in these two interviews. There was greater diversity in the type of acts and less repetitiveness in the discharge interview than in the admission interview for both hands and feet. The admission foot acts had communicative value, in part duplicating the information communicated by the total nonverbal behavior in the admission interview. Three hand acts from the admission film were shown to have distinctive communicative value, and a number of both admission and discharge hand acts were related to the verbal content themes, repeating, amplifying or adding information to the verbal behavior which occurred whenever a particular act was shown.

Thus, we have shown that nonverbal behavior can be systematically analyzed, that when a number of different analytic methods are applied to the same records, it is possible to isolate the specific psychological meaning of specific acts. Further, our comparisons of the nonverbal behavior and the verbal themes suggested that the nonverbal behavior sometimes carries information which is not verbalized at that moment, and that the examination of the relationship between what is done nonverbally and what is said verbally can suggest very specific inferences about the patient.

CONCLUDING COMMENTS

Four questions raised in the introduction served as the outline for this paper. First, *why study nonverbal behavior?* Five assumptions about the origins and functions of nonverbal behavior were discussed: it is a relationship-language expressing matters difficult to verbalize; it is a primary means of

expressing or communicating emotion; through body language it expresses attitudes toward the self or body image; it provides metacommunicative cues about how to interpret verbal discourse; and, as a leakage channel, it is less susceptible than verbal behavior to conscious deception or unconscious censoring. While the importance of measuring nonverbal behavior during psychotherapy would be obvious if we knew that for certain patients or at certain points in therapy there was more information available from nonverbal behavior than from verbal behavior, such comparative evaluations have not been systematically made. Our own work in progress and Mahl's study (Mahl et al., 1959), while not designed for that purpose, do show instances where the information communicated nonverbally does not duplicate the verbal content, and provides new information which, when compared to the verbal behavior, forms the basis for specific inferences about personality.

The empirical evidence for studying nonverbal behavior in psychotherapy research comes not from findings that this is the *only* way to learn about aspects of the patient's experience, but from more modest, but still impressive, findings about the diverse information it can furnish. In answering the second question, *what kinds of information may be derived from nonverbal behavior*, studies were summarized which have shown that information about affect, the on-going interpersonal relationship, and psychodynamics and ego defenses, are provided by nonverbal behavior, and that there are complex interrelationships between nonverbal behavior and content or non-content aspects of speech.

Directly relevant to the question of whether measures of nonverbal behavior would be sensitive to the phenomena crucial in the study of psychotherapy process or outcome were two findings from our research in progress: that nonverbal behavior reflects the changes over

time in psychological functioning resulting from therapeutic intervention, and that it is sensitive to the individual differences between patients, even if they suffer from similar presenting complaints.

The third and fourth questions posed problems which confront the investigator if he decides to measure nonverbal behavior: *what is the behavioral unit in the analysis of nonverbal behavior?* And, *what analytic methods are useful in determining the meaning of nonverbal behavior?* The choice of a unit of analysis is critical to transforming either observational or film records into analyzable data. We argued for a unit of analysis which assumes that meaning is coded in nonverbal behavior on an easily observable level, focuses on the behavior potentially communicative to the interactants, and is geared to visually distinctive patterns of movement or still body positions. Two broad approaches to the study of nonverbal behavior, the indicative and the communicative, and separate analytic methods subsumed under each were described.

We have attempted to show that visually distinctive movements or positions have distinctive psychological meaning. The isolation of such meaning requires the application of multiple procedures using both communicative and indicative approaches. Work in progress has shown that specific nonverbal acts have specific psychological meaning: the type and frequency of foot and hand acts were found to change radically from the beginning to the end of psychiatric hospitalization; specific foot acts were found to communicate specific messages; a number of hand acts were found to occur consistently with specific verbal content theme; and, visually distinctive hand acts were found to convey distinctive messages.

It would be beyond the scope of this paper and our competence to describe in detail just how research on psychotherapy might best include measures of nonverbal

behavior, for we are neither psychotherapists nor psychotherapy researchers, and our research on nonverbal behavior is still in its early stage. It does seem likely that measures of nonverbal behavior taken from the spontaneous behavior of the patient during different therapy hours could be utilized for "in-therapy outcome measures" of change (Kiesler, 1966), and that initial interview nonverbal behavior might serve as part of the basis for classification and assignment of patients to treatment conditions.

Most of the chapters in this volume show that the basic data used to study the process and outcome of psychotherapy are the verbal and vocal behavior available from the tape recording or typescript. The evidence and argument presented in our chapter and Mahl's will not change this trend. It is not enough to show only that nonverbal behavior is rich in information and can be measured, for clearly it is difficult and expensive to record and laborious to analyze. Research in psychotherapy will not suffer these additional burdens unless it can be shown that measures of nonverbal behavior will provide crucial information not more easily obtained from tape recordings of the interview or therapy hour. The need for such evidence focuses attention upon a more basic question, fundamental to any theory of interpersonal communication: are the verbal and nonverbal channels of communication redundant; what is gained by study of nonverbal behavior which is not yielded by analysis of the concomitant verbal behavior?

Only a few past studies have directly approached this question, and they conceived of the relationship between verbal and nonverbal behavior in such a simple fashion as to produce the finding that nonverbal behavior has almost no informative value relating to clinical problems—a finding amply refuted by our chapter and Mahl's. While we cannot yet answer

this question, we can describe what an adequate answer will need to consider.

Situational factors, individual characteristics, message saliency, and the type of information sought must all be considered in any determination of whether nonverbal behavior provides information different from verbal behavior. Three are a number of situations in which the nonverbal behavior may provide information different from the verbal behavior, or where the information seeker will not be content with the verbal message alone, either because (a) the informant is not willing to verbalize the information, or because (b) he cannot be directly asked for the information, or because (c) he does not know the information, in the sense that it is not within his awareness, or because (d) there is reason to doubt what he says verbally.

Individual differences are also crucial determinants of whether differential information will be provided by the verbal and nonverbal channels. Some people are more turned-on or turned-off in the nonverbal channel than others, or in the verbal; social class, ethnicity, and perhaps personality or temperamental factors may be related to such individual differences. For any given individual, both variations in his ego state and consistent trends as to his expectations about specific situations and roles will also influence the nonverbal and/or verbal activity displayed.

Message saliency in either channel must also be considered. Certain messages are so salient (because they are inappropriate to the situation, have a low base rate of occurrence, or for other reasons command attention) that other messages emitted through the same or a different channel will be ignored. If the patient verbally hallucinates in florid detail, it matters little what he does nonverbally; the diagnostic and dynamic implications will be clear. If the patient smears feces, or openly masturbates, at least part of the impression regarding psychopathology will

be determined, no matter what he says verbally. More typically, however, the information sought is not so readily provided by a single salient message, and both channels of communication must be scanned. This leads to the last factor to be considered, the type of information sought.

The number of classes of information are best provided by verbal behavior (e.g., IQ) or by nonverbal behavior (e.g., coordination or grace). Most of the classes of information relevant to interpersonal perception, diagnostic assessment, and psychotherapy (information about affect, interpersonal style, ego defenses, etc.) can be decoded from both channels. When there is conflict within the individual, either about communicating or about the topic of communication, it is likely that the two channels will be discrepant. Which channel will have more information, how to weigh or evaluate the information from each channel, will depend upon the definition of the situation and the type of person and his ego state at that moment.

This is one of the central problems we will address in the coming years. This discussion should demonstrate both how we cast the problem of the difference in information communicated by nonverbal and verbal behavior, and our belief that an extensive sample of persons, of ego states for each of those persons, and of situations, and a control for message saliency are crucial to determining when actions speak louder than words.

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