TOWARDS AN INTEGRATED THEORY OF
NONVERBAL COMMUNICATION

John Laver

Institute for Advanced Studies in the Humanities, University of Edinburgh, Scotland

ABSTRACT

This paper reviews the methodological structure of paralinguistic research as a field, identifying significant contributors over the past fifty years, with illustrative references to influential books, and looking ahead to research methodologies where further progess may be made. It proposes that there were two waves of research in the last half-century, from 1950 to 1975, and 1975 to the present. Since 1975, multidisciplinary research into nonverbal communication has accelerated greatly, to the point where it forms a new interdisciplinary field. A promising paradigm for further development lies in the experimental manipulation of individual features of multi-channel syndromes of paralinguistic behaviour. A number of research agendas enabled by this paradigm are then characterised.

1. INTRODUCTION

Nonverbal communication involves both paralinguistic and extralinguistic interaction. The distinction between these can be framed in terms of their manipulability within the course of a single conversational interaction. If language is made up chiefly of verbal features, the nonverbal features of communication typically manipulated within a single face-to-face interaction include the visible features of gesture, facial expression, eye-contact and gaze-direction, body-orientation, posture, proximity, physical contact, and the audible features of tone of voice and non-linguistic vocal signals with specific communicative meanings. These features of nonverbal communication can be called 'paralinguistic features'. Other nonverbal features of behaviour such as hairstyle and style of dress are potentially manipulable, but not normally within a single conversational face-to-face interaction. These can be called 'extralinguistic features'.

2. EARLIER WORK

There were some notable fore-runners in the field of paralinguistic research, including Darwin [16] and Sapir [56]. But the main thrust has come in two waves. The first group, in the quarter-century from 1950 to 1975, played a catalytic role in launching the field as a significant area of multidisciplinary research, with the earliest emphasis coming from anthropology, linguistics, sociology, psychiatry and psychology. Important books included those by: Birdwhistell [6-7]; Trager [70]; Sebeok, Hayes and Bateson [64]; Dittmann [18]; Hall [37-38]; Goffman [33-36]; Pittenger, Hockett and Danehy [48]; Argyle [1-3]; Kendon [40]; McQuown, Bateson, Birdwhistell, Brosin, and Hockett [45]; Mehrabian [46]; Key [41]; Sommer [69]; Scheflen [57-58]; Siegman [68]; and Ekman [21].

The second wave, in the last quarter of this century, consolidated the field as a stable research endeavour. Leading figures in this second group, with major books and/or extensive numbers of articles, include Argyle [4-5]; Ekman, especially but not only with his colleague Friesen [22-32]; Siegman [65-67]; Scherer [59-63]; DePaulo [17]; Burgoon [13-15]; Rosenthal [54-55]; Patterson [47]; Key [42-44]; Kendon [39]; Poyatos [49-53]; Buck [11-12]; and Bruce [8-10].

A bibliographic search of the literature published since 1950 on paralinguistic features of nonverbal interaction identified more than 3,000 publications, including articles in over 130 journals. The large majority of these were published in the second wave, after 1975. The publications reflect contributions from a yet wider range of disciplines, such as linguistics, phonetics, speech pathology, neuroscience, cognitive science, communication, anthropology, ethology, psychology, psychiatry, sociology, semiotics, and education. Predominant amongst these disciplines now taking a professional interest in nonverbal interaction is social psychology, with a number of new journals addressing this field.

3. THE STRUCTURE OF THE FIELD

The majority of research on paralinguistic communication has been carried out on a single channel of nonverbal behaviour. The most frequently chosen channel is facial expression, followed by gesture, gazing behaviour and proximity. The least investigated channel has been tone of voice. Much analytic progress has been made by methodologies focusing on the use of a single paralinguistic channel. Typical of this approach have been the following: differences of behavioural patterns in different cultures, and the consequential difficulties for cross-cultural communication; age-related, sex-related and personality-related variation

of behaviour; situation-related variation of behaviour; dependence versus independence of use of the channel on simultaneous linguistic behaviour; and studies of the communicative function of behaviour using the channel in question.

One example of such research is a study of the communicative meanings of facial expression. Facial signals of happiness, surprise, anger, fear, disgust, sadness (and sometimes contempt and embarrassment) have been claimed to be universal [25], though one should be beware of the culturally-specific role of linguistic labels. The perception of emotion is suggested to be categorical between such emotions and scalar within them. The ability to encode and decode emotion is suggested to be positively correlated, but there seem to be sex-related differences of ability: socially competent, extroverted women are said to be better at decoding negative facial expressions, but their male counterparts better at decoding positive expressions [13, 71].

Fewer researchers have taken an integrated view of the full multi-channel complex of communicative interaction in face-to-face conversation, describing and explaining the functions of mutual interaction of all the paralinguistic and linguistic features together. Yet ordinary conversation is virtually never restricted to a single channel, normally consisting of an extremely intricate, dynamic complex of both audible and visual signals, with linguistic and paralinguistic activities showing a highly interactive relationship. Paralinguistic communication serves multiple functions in conversation, and is involved either dependently or independently in all the following roles: supporting, complementing (and sometimes contradicting) spoken language, as part of the overall message; acting as a surrogate for spoken language; serving to emphasise parts of the linguistic utterances; signalling attitudinal aspects of messages; expressing emotion; negotiating and consolidating the nature of the social relationship with the other participant; managing the time-sharing of speaker and listener roles in the interaction; and managing the transitions between the greeting, main business and parting phases of the interaction.

4. FUTURE RESEARCH

There would now be much value, of benefit to many disciplines, in trying to build an integrated theory of face-to-face communication. The beginnings of this enterprise can be seen in recent research into the patterns of multi-channel paralinguistic behaviour. Part of this research is focused on the way that verbal and/or nonverbal resources are marshalled for signalling particular types of information, such as emotional communication. Substantial research by many disciplines has been directed towards identifying the physiological and psychological antecedents of emotion, the ability of people to express and perceive individual emotions, the nature of the signalling behaviour on the channels used, and the cultural relativity versus universality of emotional communication [11, 12, 13, 14, 16, 18, 23, 25, 31, 59, 61, 63, 71].

Combinations of facial and vocal cues seem to be primary signalling devices for most emotions [13].

Part of an integrated approach to research has explored the communicative priorities between different paralinguistic channels, in situations of competition between the channels, including conflict between the paralinguistic and linguistic strands. Burgoon et al. [13] surveyed nearly 100 studies on situations where language and paralanguage conflict. They were able to conclude that, in situations where the verbal and nonverbal strands are convergent, adults typically rely more on verbal information. When the two strands send discrepant messages, as in unsuccessful deception -- which Ekman characterised as situations of 'nonverbal leakage' [24], adults rely more on the nonverbal strand. In such circumstances, children, by contrast, apparently rely more on verbal information. Within these generalisations, people are said to vary in their reliance on one strand versus the other [13].

The situation where discrepant messages are being sent by different communicative strands, or by different channels within the paralinguistic strand, offers a promising methodological paradigm for further progess to be made towards the development of an integrated theory of nonverbal communication. As a methodological point of departure, a relatively small number of relatively stable 'syndromes' of multi-channel paralinguistic behaviour can be identified, the communicative meanings of whose individual channels converge to signal simple prototypical messages of affect and attitude (happiness, anger, etc) to the perceiver. More complex messages may be anticipated to result from scalar variations on individual congruent channels -- e.g. signalling irritation, or threat, rather than anger, etc. Yet more complex messages, such as a perceived intent to deceive, or a display of embarrassment, then result from discrepant relations between the communicative values of individual channels.

Paralinguistic syndromes should lend themselves readily to a comprehensive programme of experimentation. A first step would be establishing the grouping of behavioural cues on different nonverbal channels into congruent syndromes signalling a given emotional or other communicative state. Then experimental manipulation of behaviour on a single channel could be used to precipitate the perception of discrepancies in otherwise congruent syndromes of cues. This leads to the ability to ask such questions as 'what are the values of different parameters that co-occur to produce a given syndrome of paralinguistic cues'? What is the communicative effect of scalar variation, substitution or omission of individual parameters in given syndromes? What are the timing tolerances between given parameters in different syndromes? How are individual speakers characterised? Do syndromes fall into paralinguistic dialects?

Many broad research agendas emerge from this integrating concept of paralinguistic syndromes. Studies are enabled of the following generic topics: the detailed relationship between linguistic and nonverbal

communication; the pragmatic effects in different cultures and sociolinguistic communities of using a given nonverbal feature; the acquisition of nonverbal communication by infants and foreigners, of normal use, and of pathology and its remediation; cultural diversity and universality; patterns of change over time of nonverbal communication within a given community; and the development of synthesis-systems which combine speech, facial expression and gesture.

5. CONCLUSION

It has now become possible to say with a degree of confidence that paralinguistic nonverbal communication has evolved as a new interdisciplinary subject. Some aspects of a wider relevance of nonverbal research to the contributory disciplines emerge. The linguistic and nonverbal strands of communication are integrated as parts of overall interactions. Nonverbal performance is skilled behaviour, and the skills have to be learned; they can fail to be acquired, and can also be lost. There may be both phylogenetic and ontogenetic relationships between the evolution of language and nonverbal communication. Deficits in nonverbal ability have potentially severe consequences for interpersonal relationships. Nonverbal behaviour norms are likely be related to those of the subject's sociolinguistic community. The cultural relativity of nonverbal communication may be at the heart of much trans-cultural misunderstanding.

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