

not by the farthest stretch of the imagination be called "smiling." By this operation we recognize that the mouth movement is a segment of a structure that can be used as part of a code and that it is not specifically meaningful in and of itself.

Analogically, we could compare the movement of the lips which is at times used to compose the expression "smile" as a conventionalized body activity, with the long vowel /uw/, which in my dialect stands between the consonantal clusters in the forms "school" and "fool." There is nothing about the /uw/ sound which signifies that these two words have an underlying common identity. By some other operations we might discover that the /uw/ sound is to "school" and "fool" as the /i/ sound is to "skill" and "fill." That is, these are significant pieces of linguistic structure but are not in themselves meaningful.

The lip movements we are discussing are also pieces of structure. They must be combined with other pieces of comparably derived structure to form a meaningful unit of American communicative body movement. By examining the neighborhood of the curved lips, we can discover that this behavior often, *but not always*, occurs with a shifting tonus in the cheek area. It may *or may not* be accompanied by certain changes in the circumorbital region. It may *or may not* be accompanied by a shift in the positioning in the upper and lower lids. There may *or may not* be involvement of the eyebrows, and/or the forehead. Careful observation may reveal that this behavior may be accompanied by a movement of the scalp. The head may *or may not* be tilted. Continuing this same investigation, we can, using our descriptive and abstractive method of search, discover that the shoulders and the arms may *or may not* be involved. The trunk, too, while often not shifting as the lips curve or assume an original "at rest" position, may at times be seen to move. The hips may *or may not* be involved. And, if we are careful enough observers, we may come to recognize that in many of the situations in which we observe mouths curving, the legs and feet can be seen to move in regular and characteristic ways.

By other operations of isolation and contrast we may discover that each of the variables which we have just discussed also may occur without the appearance of a curving mouth. If each of these taken separately or together in a variety of combinations influence the way that people characteristically respond to a particular complex of behavior, we know that we are dealing with pieces of structure. We can surmise that we have begun to isolate some of the building blocks for the system through which Americans communi-

cate with each other. In other words, we have discovered, on the one hand, that the word "smile" is a lexical (verbal) abstraction of very complex behavior and, on the other, that there are, in the American body movement system, events like words, sentences, and paragraphs. We have demonstrated that some order of lip movement seems required in the activity perceived by Americans as a smile. By extensive operations of search, in fact, we will discover that if other pieces of facial behavior are correctly presented there is no need for an actor to either curl or part his lips—a slight softening is sufficient. The observer will report that the actor has "smiled."

While many of the techniques used in the abstraction and analysis of communication systems are relatively new, the insights on which the approach is based have been around for some time.* A popular beginning point for those concerned with the history of modern communication theory is Darwin's *Expression of the Emotions in Man and Animals*. In this work, the great biologist attempted to organize an extensive body of observations into some kind of ordered theory about the audible and visible behavior of mammals and the emotional states which induce such behavior. A rigorous observer, Darwin set a model for behavioral description which can be read with profit today. However, his concern with certain kinds of psychological problems, many of which remain unsolved, vitiated his attempt to regulate his data. In his role as synthesist he was hampered by preconceptions which even the sternest materialists of his day could not avoid.

Inheritance, as Darwin used it, seems at times a genetic, and at other times a social phenomenon. Perhaps it makes little difference to his major thesis which aspects of human behavior are biologically inherited as long as he demonstrates the continuity of the species and the society. However, for certain problems with which the human sciences are concerned today, it makes a great deal of difference whether or not vocal and body motion systems ultimately derive their order from the biological base or are exclusively a product of social experience. Careful reading of Darwin leads one to believe that if he had had some knowledge about social systems or even

*This selection is adapted from "Paralanguage: Twenty-five Years after Sapir," in *Lectures on Experimental Psychology*, Henry W. Brosin ed. (Pittsburgh: University of Pittsburgh Press, 1961). [Note: References indicated by date in this paper and those following can be found in the Bibliography.]