

Part I
A PROGRAM

Chapter I

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*A Functional Analysis
of Verbal Behavior*

MEN ACT upon the world, and change it, and are changed in turn by the consequences of their action. Certain processes, which the human organism shares with other species, alter behavior so that it achieves a safer and more useful interchange with a particular environment. When appropriate behavior has been established, its consequences work through similar processes to keep it in force. If by chance the environment changes, old forms of behavior disappear, while new consequences build new forms.

Behavior alters the environment through mechanical action, and its properties or dimensions are often related in a simple way to the effects produced. When a man walks toward an object, he usually finds himself closer to it; if he reaches for it, physical contact is likely to follow; and if he grasps and lifts it, or pushes or pulls it, the object frequently changes position in appropriate directions. All this follows from simple geometrical and mechanical principles.

Much of the time, however, a man acts only indirectly upon the environment from which the ultimate consequences of his behavior emerge. His first effect is upon other men. Instead of going to a drinking fountain, a thirsty man may simply "ask for a glass of water"—that is, may engage in behavior which produces a certain pattern of sounds which in turn induces someone to bring him a glass of water. The sounds themselves are easy to describe in physical terms; but the glass of water reaches the speaker only as the result of a complex series of events including the behavior of a listener. The ultimate consequence, the receipt of water, bears no useful geometrical or mechanical relation to the form of the behavior of "asking for water." Indeed, it is

characteristic of such behavior that it is impotent against the physical world. Rarely do we shout down the walls of a Jericho or successfully command the sun to stop or the waves to be still. Names do not break bones. The consequences of such behavior are mediated by a train of events no less physical or inevitable than direct mechanical action, but clearly more difficult to describe.

Behavior which is effective only through the mediation of other persons has so many distinguishing dynamic and topographical properties that a special treatment is justified and, indeed, demanded. Problems raised by this special mode of action are usually assigned to the field of speech or language. Unfortunately, the term "speech" emphasizes vocal behavior and is only awkwardly applied to instances in which the mediating person is affected visually, as in writing a note. "Language" is now satisfactorily remote from its original commitment to vocal behavior, but it has come to refer to the practices of a linguistic community rather than the behavior of any one member. The adjective "linguistic" suffers from the same disadvantage. The term "verbal behavior" has much to recommend it. Its etymological sanction is not too powerful, but it emphasizes the individual speaker and, whether recognized by the user or not, specifies behavior shaped and maintained by mediated consequences. It also has the advantage of being relatively unfamiliar in traditional modes of explanation.

A definition of verbal behavior as behavior reinforced through the mediation of other persons needs, as we shall see, certain refinements. Moreover, it does not say much about the behavior of the listener, even though there would be little verbal behavior to consider if someone had not already acquired special responses to the patterns of energy generated by the speaker. This omission can be justified, for the behavior of the listener in mediating the consequences of the behavior of the speaker is not necessarily verbal in any special sense. It cannot, in fact, be distinguished from behavior in general, and an adequate account of verbal behavior need cover only as much of the behavior of the listener as is needed to explain the behavior of the speaker. The behaviors of speaker and listener taken together compose what may be called a total speech episode. There is nothing in such an episode which is more than the combined behavior of two or more individuals. Nothing "emerges" in the social unit. The speaker can be studied while assuming a listener, and the listener while assuming a speaker. The separate accounts which result exhaust the episode in which both participate.

It would be foolish to underestimate the difficulty of this subject matter, but recent advances in the analysis of behavior permit us to approach it with a certain optimism. New experimental techniques and fresh formulations have revealed a new level of order and precision. The basic processes and relations which give verbal behavior its special characteristics are now fairly well understood. Much of the experimental work responsible for this advance has been carried out on other species, but the results have proved to be surprisingly free of species restrictions. Recent work has shown that the methods can be extended to human behavior without serious modification. Quite apart from the possibility of extrapolating specific experimental findings, the formulation provides a fruitful new approach to human behavior in general, and enables us to deal more effectively with that subdivision called verbal.

The "understanding" of verbal behavior is something more than the use of a consistent vocabulary with which specific instances may be described. It is not to be confused with the confirmation of any set of theoretical principles. The criteria are more demanding than that. The extent to which we understand verbal behavior in a "causal" analysis is to be assessed from the extent to which we can predict the occurrence of specific instances and, eventually, from the extent to which we can produce or control such behavior by altering the conditions under which it occurs. In representing such a goal it is helpful to keep certain specific engineering tasks in mind. How can the teacher establish the specific verbal repertoires which are the principal end-products of education? How can the therapist uncover latent verbal behavior in a therapeutic interview? How can the writer evoke his own verbal behavior in the act of composition? How can the scientist, mathematician, or logician manipulate his verbal behavior in productive thinking? Practical problems of this sort are, of course, endless. To solve them is not the immediate goal of a scientific analysis, but they underline the kinds of processes and relationships which such an analysis must consider.

TRADITIONAL FORMULATIONS

A science of behavior does not arrive at this special field to find it unoccupied. Elaborate systems of terms describing verbal behavior have been developed. The lay vocabulary abounds with them. Classical rhetoric, grammar, logic, scientific methodology, linguistics,

literary criticism, speech pathology, semantics, and many other disciplines have contributed technical terms and principles. In general, however, the subject here at issue has not been clearly identified, nor have appropriate methods for studying it been devised. Linguistics, for example, has recorded and analyzed speech sounds and semantic and syntactical practices, but comparisons of different languages and the tracing of historical changes have taken precedence over the study of the individual speaker. Logic, mathematics, and scientific methodology have recognized the limitations which linguistic practices impose on human thought, but have usually remained content with a formal analysis; in any case, they have not developed the techniques necessary for a causal analysis of the behavior of man thinking. Classical rhetoric was responsible for an elaborate system of terms describing the characteristics of literary works of art, applicable as well to everyday speech. It also gave some attention to effects upon the listener. But the early promise of a science of verbal behavior was never fulfilled. Modern literary criticism, except for some use of the technical vocabulary of psychoanalysis, seldom goes beyond the terms of the intelligent layman. An effective frontal attack, a formulation appropriate to all special fields, has never emerged under the auspices of any one of these disciplines.

Perhaps this fact is responsible for the rise of semantics as a general account of verbal behavior. The technical study of meaning was already under way as a peripheral field of linguistics when, in 1923, Ogden and Richards¹ demonstrated the need for a broader science of symbolism. This was to be a general analysis of linguistic processes applicable to any field and under the domination of no special interest. Attempts have been made to carry out the recommendation, but an adequate science of verbal behavior has not been achieved. There are several current brands of semantics, and they represent the same special interests and employ the same special techniques as heretofore. The original method of Ogden and Richards was philosophical, with psychological leanings. Some of the more rigorous systems are frankly logical. In linguistics, semantics continues to be a question of how meanings are expressed and how they change. Some semanticists deal mainly with the verbal machinery of society, particularly propaganda. Others are essentially therapists who hold that many of the troubles of the world are linguistic error. The currency of the term "semantics" shows the need for a science of verbal behavior which will be divorced

¹ Ogden, C. K., and Richards, I. A., *The Meaning of Meaning* (New York, 1923).

from special interests and helpful wherever language is used, but the science itself has not emerged under this aegis.

The final responsibility must rest with the behaviorial sciences, and particularly with psychology. What happens when a man speaks or responds to speech is clearly a question about human behavior and hence a question to be answered with the concepts and techniques of psychology as an experimental science of behavior. At first blush, it may not seem to be a particularly difficult question. Except on the score of simplicity, verbal behavior has many favorable characteristics as an object of study. It is usually easily observed (if it were not, it would be ineffective as verbal behavior); there has never been any shortage of material (men talk and listen a great deal); the facts are substantial (careful observers will generally agree as to what is said in any given instance); and the development of the practical art of writing has provided a ready-made system of notation for reporting verbal behavior which is more convenient and precise than any available in the nonverbal field. What is lacking is a satisfactory causal or functional treatment. Together with other disciplines concerned with verbal behavior, psychology has collected facts and sometimes put them in convenient order, but in this welter of material it has failed to demonstrate the significant relations which are the heart of a scientific account. For reasons which, in retrospect, are not too difficult to discover, it has been led to neglect some of the events needed in a functional or causal analysis. It has done this because the place of such events has been occupied by certain fictional causes which psychology has been slow in disavowing. In examining some of these causes more closely, we may find an explanation of why a science of verbal behavior has been so long delayed.

It has generally been assumed that to explain behavior, or any aspect of it, one must attribute it to events taking place inside the organism. In the field of verbal behavior this practice was once represented by the doctrine of the expression of ideas. An utterance was felt to be explained by setting forth the ideas which it expressed. If the speaker had had a different idea, he would have uttered different words or words in a different arrangement. If his utterance was unusual, it was because of the novelty or originality of his ideas. If it seemed empty, he must have lacked ideas or have been unable to put them into words. If he could not keep silent, it was because of the force of his ideas. If he spoke haltingly, it was because his ideas

came slowly or were badly organized. And so on. All properties of verbal behavior seem to be thus accounted for.

Such a practice obviously has the same goal as a causal analysis, but it has by no means the same results. The difficulty is that the ideas for which sounds are said to stand as signs cannot be independently observed. If we ask for evidence of their existence, we are likely to be given a restatement in other words; but a restatement is no closer to the idea than the original utterance. Restatement merely shows that the idea is not identified with a single expression. It is, in fact, often defined as something common to two or more expressions. But we shall not arrive at this "something" even though we express an idea in every conceivable way.

Another common answer is to appeal to images. The idea is said to be what passes through the speaker's mind, what the speaker sees and hears and feels when he is "having" the idea. Explorations of the thought processes underlying verbal behavior have been attempted by asking thinkers to describe experiences of this nature. But although selected examples are sometimes convincing, only a small part of the ideas said to be expressed in words can be identified with the kind of sensory event upon which the notion of image rests. A book on physics is much more than a description of the images in the minds of physicists.

There is obviously something suspicious in the ease with which we discover in a set of ideas precisely those properties needed to account for the behavior which expresses them. We evidently construct the ideas at will from the behavior to be explained. There is, of course, no real explanation. When we say that a remark is confusing because the idea is unclear, we seem to be talking about two levels of observation although there is, in fact, only one. It is the *remark* which is unclear. The practice may have been defensible when inquiries into verbal processes were philosophical rather than scientific, and when a science of ideas could be imagined which would some day put the matter in better order; but it stands in a different light today. It is the function of an explanatory fiction to allay curiosity and to bring inquiry to an end. The doctrine of ideas has had this effect by appearing to assign important problems of verbal behavior to a psychology of ideas. The problems have then seemed to pass beyond the range of the techniques of the student of language, or to have become too obscure to make further study profitable.

Perhaps no one today is deceived by an "idea" as an explanatory

fiction. Idioms and expressions which seem to explain verbal behavior in term of ideas are so common in our language that it is impossible to avoid them, but they may be little more than moribund figures of speech. The basic formulation, however, has been preserved. The immediate successor to "idea" was "meaning," and the place of the latter is in danger of being usurped by a newcomer, "information." These terms all have the same effect of discouraging a functional analysis and of supporting, instead, some of the practices first associated with the doctrine of ideas.

One unfortunate consequence is the belief that speech has an independent existence apart from the behavior of the speaker. Words are regarded as tools or instruments, analogous to the tokens, counters, or signal flags sometimes employed for verbal purposes. It is true that verbal behavior usually produces objective entities. The sound-stream of vocal speech, the words on a page, the signals transmitted on a telephone or telegraph wire—these are records left by verbal behavior. As objective facts, they may all be studied, as they have been from time to time in linguistics, communication engineering, literary criticism, and so on. But although the formal properties of the records of utterances are interesting, we must preserve the distinction between an activity and its traces. In particular we must avoid the unnatural formulation of verbal behavior as the "use of words." We have no more reason to say that a man "uses the word *water*" in asking for a drink than to say that he "uses a reach" in taking the offered glass. In the arts, crafts, and sports, especially where instruction is verbal, acts are sometimes named. We say that a tennis player uses a drop stroke, or a swimmer a crawl. No one is likely to be misled when drop strokes or crawls are referred to as things, but words are a different matter. Misunderstanding has been common, and often disastrous.

A complementary practice has been to assign an independent existence to meanings. "Meaning," like "idea," is said to be something expressed or communicated by an utterance. A meaning explains the occurrence of a particular set of words in the sense that if there had been a different meaning to be expressed, a different set of words would have been used. An utterance will be affected according to whether a meaning is clear or vague, and so on. The concept has certain advantages. Where "ideas" (like "feelings" and "desires," which are also said to be expressed by words) must be inside the organism,

there is a promising possibility that meanings may be kept outside the skin. In this sense, they are as observable as any part of physics.

But can we identify the meaning of an utterance in an objective way? A fair argument may be made in the case of proper nouns, and some common nouns, verbs, adjectives, and adverbs—roughly the words with respect to which the doctrine of ideas could be supported by the appeal to images. But what about words like *atom* or *gene* or *minus one* or *the spirit of the times* where corresponding nonverbal entities are not easily discovered? And for words like *nevertheless*, *although*, and *ouch!* it has seemed necessary to look inside the organism for the speaker's intention, attitude, sentiment, or some other psychological condition.

Even the words which seem to fit an externalized semantic framework are not without their problems. It may be true that proper nouns stand in a one-to-one correspondence with things, provided everything has its own proper name, but what about common nouns? What is the meaning of *cat*? Is it some one cat, or the physical totality of all cats, or the class of all cats? Or must we fall back upon the idea of cat? Even in the case of the proper noun, a difficulty remains. Assuming that there is only one man named Doe, is Doe himself the meaning of *Doe*? Certainly *he* is not conveyed or communicated when the word is used.

The existence of meanings becomes even more doubtful when we advance from single words to those collocations which "say something." What is said by a sentence is something more than what the words in it mean. Sentences do not merely refer to trees and skies and rain, they say something about them. This something is sometimes called a "proposition"—a somewhat more respectable precursor of speech but very similar to the "idea" which would have been said to be expressed by the same sentence under the older doctrine. To define a proposition as "something which may be said in any language" does not tell us where propositions are, or of what stuff they are made. Nor is the problem solved by defining a proposition as all the sentences which have the same meaning as some one sentence, since we cannot identify a sentence as a member of this class without knowing its meaning—at which point we find ourselves facing our original problem.

It has been tempting to try to establish the separate existence of words and meanings because a fairly elegant solution of certain problems then becomes available. Theories of meaning usually deal

with corresponding arrays of words and things. How do the linguistic entities on one side correspond with the things or events which are their meanings on the other side, and what is the nature of the relation between them called "reference"? Dictionaries seem, at first blush, to support the notion of such arrays. But dictionaries do not give meanings; at best they give words having the same meanings. The semantic scheme, as usually conceived, has interesting properties. Mathematicians, logicians, and information theorists have explored possible modes of correspondence at length. For example, to what extent can the dimensions of the thing communicated be represented in the dimensions of the communicating medium? But it remains to be shown that such constructions bear any close resemblances to the products of genuine linguistic activities.

In any case the practice neglects many important properties of the original behavior, and raises other problems. We cannot successfully supplement a framework of semantic reference by appealing to the "intention of the speaker" until a satisfactory psychological account of intention can be given. If "connotative meaning" is to supplement a deficient denotation, study of the associative process is required. When some meanings are classed as "emotive," another difficult and relatively undeveloped psychological field is invaded. These are all efforts to preserve the logical representation by setting up additional categories for exceptional words. They are a sort of patchwork which succeeds mainly in showing how threadbare the basic notion is. When we attempt to supply the additional material needed in this representation of verbal behavior, we find that our task has been set in awkward if not impossible terms. The observable data have been preempted, and the student of behavior is left with vaguely identified "thought processes."

The impulse to explicate a meaning is easily understood. We ask, "What do you mean?" because the answer is frequently helpful. Clarifications of meaning in this sense have an important place in every sort of intellectual endeavor. For the purposes of effective discourse the method of paraphrase usually suffices; we may not need extraverbal referents. But the explication of verbal behavior should not be allowed to generate a sense of scientific achievement. One has not *accounted for* a remark by paraphrasing "what it means."

We could no doubt define ideas, meanings, and so on, so that they would be scientifically acceptable and even useful in describing verbal behavior. But such an effort to retain traditional terms would

be costly. It is the general formulation which is wrong. We seek "causes" of behavior which have an acceptable scientific status and which, with luck, will be susceptible to measurement and manipulation. To say that these are "all that is meant by" ideas or meanings is to misrepresent the traditional *practice*. We must find the functional relations which govern the verbal behavior to be explained; to call such relations "expression" or "communication" is to run the danger of introducing extraneous and misleading properties and events. The only solution is to reject the traditional formulation of verbal behavior in terms of meaning.

A NEW FORMULATION

The direction to be taken in an alternative approach is dictated by the task itself. Our first responsibility is simple *description*: what is the topography of this subdivision of human behavior? Once that question has been answered in at least a preliminary fashion we may advance to the stage called *explanation*: what conditions are relevant to the occurrence of the behavior—what are the variables of which it is a function? Once these have been identified, we can account for the dynamic characteristics of verbal behavior within a framework appropriate to human behavior as a whole. At the same time, of course, we must consider the behavior of the listener. In relating this to the behavior of the speaker, we complete our account of the verbal episode.

But this is only the beginning. Once a repertoire of verbal behavior has been set up, a host of new problems arise from the interaction of its parts. Verbal behavior is usually the effect of *multiple causes*. Separate variables combine to extend their functional control, and new forms of behavior emerge from the recombination of old fragments. All of this has appropriate effects upon the listener, whose behavior then calls for analysis.

Still another set of problems arises from the fact, often pointed out, that a speaker is normally also a listener. He reacts to his own behavior in several important ways. Part of what he says is under the control of other parts of his verbal behavior. We refer to this interaction when we say that the speaker qualifies, orders, or elaborates his behavior at the moment it is produced. The mere emission of responses is an incomplete characterization when behavior is *composed*. As another consequence of the fact that the speaker is also a listener,

some of the behavior of listening resembles the behavior of speaking, particularly when the listener "understands" what is said.

The speaker and listener within the same skin engage in activities which are traditionally described as "thinking." The speaker manipulates his behavior; he reviews it, and may reject it or emit it in modified form. The extent to which he does so varies over a wide range, determined in part by the extent to which he serves as his own listener. The skillful speaker learns to tease out weak behavior and to manipulate variables which will generate and strengthen new responses in his repertoire. Such behavior is commonly observed in the verbal practices of literature as well as of science and logic. An analysis of these activities, together with their effects upon the listener, leads us in the end to the role of verbal behavior in the problem of knowledge.

The present book sets forth the principal features of an analysis from this point of view. Part II sketches the topography of verbal behavior in relation to its controlling variables and Part III some of the consequences of the interaction of variables. Part IV describes the manipulation of verbal behavior in the act of composition, while Part V considers the activities involved in editing and in the creative production of behavior which are usually called verbal thinking. No assumption is made of any uniquely verbal characteristic, and the principles and methods employed are adapted to the study of human behavior as a whole. An extensive treatment of human behavior in general from the same point of view may be found elsewhere.² The present account is self-contained.

One important feature of the analysis is that it is directed to the behavior of the individual speaker and listener; no appeal is made to statistical concepts based upon data derived from groups. Even with respect to the individual speaker or listener, little use is made of specific experimental results. The basic facts to be analyzed are well known to every educated person and do not need to be substantiated statistically or experimentally at the level of rigor here attempted. No effort has been made to survey the relevant "literature." The emphasis is upon an orderly arrangement of well-known facts, in accordance with a formulation of behavior derived from an experimental analysis of a more rigorous sort. The present extension to verbal behavior is thus an exercise in interpretation rather than a quantitative extrapolation of rigorous experimental results.

² Skinner, B. F., *Science and Human Behavior* (New York, 1954).

The lack of quantitative rigor is to some extent offset by an insistence that the conditions appealed to in the analysis be, so far as possible, accessible and manipulable. The formulation is inherently practical and suggests immediate technological applications at almost every step. Although the emphasis is not upon experimental or statistical facts, the book is not theoretical in the usual sense. It makes no appeal to hypothetical explanatory entities. The ultimate aim is the prediction and control of verbal behavior.