EDITORIAL

ON THE VOCABULARY AND THE GRAMMAR OF BEHAVIOR

The Editor's business is with the verbal behavior of his colleagues. This verbal behavior is effective only to the extent that consistencies in vocabulary and grammar are maintained by a verbal community. In some respects, the verbal behavior recorded in this journal differs in its properties from the verbal behavior maintained by the general English-speaking community. A significant part of our verbal behavior—the verbal behavior of behavior—is unique in its vocabulary and its grammar. Through the verbal behavior of behavior, we bring our colleagues into contact with our research. Thus, the vocabulary and the grammar of behavior may be as important to our progress as the growth of the experimental literature and the refinement of apparatuses and procedures.

One of the Editor's functions is to examine the consistencies in vocabulary and grammar that are established and maintained in this verbal community. But the Editor's decisions cannot be made merely for the sake of consistency, for there are many ways to be consistent. Instead, the Editor's concern must be with the possible consequences of different vocabularies and different grammars. How will our terms and their grammatical usages affect the way we come to speak of and deal with behavior?

Some consistencies involve little more in the way of consequences than that a single term or usage reduces the number of alternatives that a student must learn. When two terms are interchangeable, the decision is arbitrary. For example, when every response is reinforced, it may make little difference whether we speak of continuous reinforcement or of regular reinforcement. But there exist few pairs of terms such that a choice between the terms is completely without consequence. For example, there was a time when we spoke of stimuli with acquired reinforcing properties either as conditioned reinforcers or as secondary reinforcers. Now, however, we prefer to speak generally of conditioned reinforcers. One consequence is that the alternative term becomes available for distinguishing the different orders of conditioned reinforcers as special cases: secondary reinforcers, tertiary reinforcers, and so on.

It is interesting to note that the terms providing the most frequent problems of consistency in usage are those most fundamental to the analysis of behavior. It may therefore be useful to outline some of the problems of vocabulary and grammar that have arisen with respect to the term *reinforcement* and its derivatives. The example may illustrate the importance of a concern with the verbal behavior of behavior, and may even suggest that such a concern is crucial to an effective analysis of behavior.

The vocabulary of reinforcement includes at least three nouns: *reinforcer* as a stimulus, *reinforcement* as an operation, and *reinforcement* as a process or as a relationship between an operation and a process. We often fail to observe the distinction between *reinforcer* and *reinforcement* (a simple test of the proper use of reinforcement as an operation is to substitute *delivery of a reinforcer*; if the text no longer makes sense, *reinforcement* was improperly used). But the more serious problems arise because the different functions of *reinforcement* are indicated only by context. In a Method section, reinforcement is the delivery of a reinforcer or the delivery of a reinforcer when a response occurs; in a Results section, it is the increase in responding produced by the operation. The same term refers both to what we do and to the effects of what we do. The consequence is that we sometimes fail to recognize whether our concern should be with our own verbal behavior or with the behavior of the organism that we observe. It is one thing to agree on how circular definitions can be avoided; it is another to agree on how behavioral phenomena shall be named.

The problem of distinguishing operations and processes is common to a number of terms (e.g., extinction, punishment), but it has not been resolved. It would be possible to restrict *reinforcement* to an adjectival function, and to speak only of the reinforcement operation and the reinforcement process. Such usage, however, would at the least be unwieldy. Another possibility is to discontinue the term as process. The process can be described simply as an increase in responding, and this description is not likely to be misunderstood. Why should we say: "The response was reinforced

(it produced a reinforcer), and thus it was reinforced (its rate increased)," when we can say instead "The response was reinforced (it produced a reinforcer), and thus its rate increased"? But such a restriction on usage would make it difficult to speak about the empirical properties of the reinforcement relationship, or the relationship between operation and process.

As the preceding sentences illustrate, the vocabulary of reinforcement also includes a verb: *to reinforce*. The grammar of this verb requires that we specify what is reinforced. For many years we spoke indifferently of reinforcing organisms and of reinforcing responses. But recently the second usage, reinforcing responses, has become standard. This usage seems to make the most behavioral sense: the reinforcement operation is imposed on responses, and it is presumably the reinforced response that is primarily affected by this operation. But there is an even more compelling consequence of the standard usage, for this grammar forces us to be explicit. If it is grammatically permissible to say "The pigeon was reinforced" without specifying anything more about the reinforcement operation, then ambiguous sentences will sometimes be written. But if such a sentence is not acceptable in the grammar of behavior, then we must say "The peck was reinforced" or "The pigeon's peck was reinforced" (note that we are not forced to leave out the organism). In practice, this standard usage also makes it possible to write shorter and simpler sentences: compare "The pigeon's peck was reinforced" with "The pigeon was reinforced for pecking". The same grammatical principle also applies to other verbs such as *to shape* and *to punish*. The significance of this usage becomes especially important in application. Consider how much more accurately and explicitly the consequences of behavioral operations might be noted if parents and teachers spoke not of rewarding or punishing a child, but of reinforcing or punishing the child's responses.

These are perhaps the most important problems in the vocabulary and the grammar of reinforcement, but many others exist. Is it proper to speak of reinforcing operants as well as reinforcing responses? (A simple check on the proper use of *operant* is to see whether the text makes sense when *class of responses* is substituted for *operant*.) How shall we choose among alternatives such as "The organism's response produced a reinforcer", "The organism obtained a reinforcer", "The or-

ganism responded for a reinforcer", and "The organism responded in order to produce a reinforcer"? (Only the first avoids the difficulty that we may eventually come to speak of responding as under the control of a future event.) How shall we speak of reinforcers delivered independently of behavior? (It is here, in the vocabulary of response-independent or free reinforcers, that the appropriateness of the grammar of reinforcing responses can most effectively be disputed.) Should reinforcers be said to depend on or to be contingent upon responses? (The former is not only grammatically simpler, but also preserves the concept of contingency from such indiscriminated usage that its effectiveness is diminished.) And should reinforcers be said to be scheduled or programmed? (*To schedule* is a convenient verb and it is useful to be able to speak of scheduling consequences when it is not known whether a consequence is or is not an effective reinforcer. Perhaps the best index that the verb *to program* does not serve any special function in the vocabulary of behavior is that it has appeared but rarely in recent volumes and yet does not seem to have been missed; it was eliminated to solve such stylistic problems as in the sentence "The computer was programmed to program a schedule", but the consequence is that the term is now available for other functions.)

These are only a few examples of problems in the vocabulary and the grammar of behavior. We could have treated instead the vocabulary and the grammar of stimulus control or of operants and respondents. In each of these cases, we must be alert to the contingencies that operate in our verbal behavior, for our verbal behavior does have consequences. Part of our effort is to devise a vocabulary and a grammar that correspond to the dimensions of behavior in such a way that we can speak easily of behavioral operations and processes. The best writing is the writing that is readable because it is based on such correspondences, and therefore because it brings us into effective contact with the observations of our colleagues. This contact is the consequence for which our verbal behavior of behavior has been shaped. Perhaps this is why it is always an editor's pleasure to receive a manuscript that demonstrates that an author has taken the preparation of a manuscript as seriously as his mastery of the lore of the laboratory.

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