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## Are radical and cognitive behaviorism incompatible?

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In his synopsis of 250 years of behaviorism, Ratliff (1962) concluded correctly that behaviorism "amounts to nothing more than the acceptance of the inevitable." "Behaviorism-50" gave Skinner's view of behaviorism, most of which should be acceptable to most behavioral scientists (to be distinguished from nonscientific psychologists). After all, Skinner concluded, "No entity or process which has useful explanatory force is to be rejected on the ground that it is subjective or mental. The data... must, however, be studied and formulated in effective ways." These appear to be reasonable and realizable conditions for behavioral investigations of most traditional subjects in psychology. Why, then, has there been such opposition to Skinner's (radical) behaviorism?

The answer is that Skinner does *not* believe that mental entities or processes have "useful explanatory force." Contrary to the apparent latitude expressed above, included among Skinner's remarks on "Behaviorism-50" (Wann 1964) was, "I find no place in the formulation for anything which is mental." Thus, many behavioral scientists feel that their scholarly interests are rejected by the radical behaviorists, and they oppose behaviorism or, worse, ignore it. This is unfortunate because there is misunderstanding in both camps. Skinner misunderstands (or ignores) alternative views of "mental processes" and what constitutes "useful explanatory force." Cognitive behavioral scientists believe Skinner to be narrower and less tolerant than he is.

There should be no quarrel with Skinner's criticism of "mental way stations" when mentalistic concepts are substituted for explanations or when mental entities are reified. But the use of mentalistic concepts that are defined only in terms of "behavior and manipulable or controllable variables" (see below) or that are used to characterize, presumably existing, isomorphic neurophysiological processes should be acceptable. Skinner appears to be inconsistent about the acceptability of some concepts, and the ones that he rejects are the ones whose rejection repels the nonradical behaviorist. Consider the following examples.

In "Behaviorism-50" Skinner objected to the students saying that the pigeon came to *associate* its action with the click of the food dispenser. He preferred to say that the bird's action was *temporally related* to the click. More recently (in "Why I Am Not a Cognitive Psychologist," 1977b) he used a similar example. "The standard mentalistic explanation is that the dog 'associates' the bell with the food. But it was Pavlov who associated them!" In a similar vein, he criticized the notion of a child or pigeon "developing a concept."

On the other hand, in "Behaviorism-50" Skinner said, "the child will not *discriminate* among colors... until exposed to... contingencies [of verbal reinforcement]" (italics added). Aside from the error of the assertion about the conditions for color discrimination in children (Bornstein 1975) and the significance that that has

conceptualize. All can be defined in relation to behavior and manipulable or controllable variables. In principle all can, but need not, refer to isomorphic neurophysiological processes. Discrimination is a standard term in the radical behaviorists' nomenclature. Why can't association and conceptualization be?

To be fair, Skinner usually uses the form "to respond discriminatively," but it appears that "to respond associatively or conceptually" would not be acceptable. Would a definition such as "conceptual behavior refers to reinforced responses which do not depend upon prior experience with the specific stimuli being presented" make "conceptual behavior" or "conceptualization" acceptable? If so, the nonradical behaviorist need not feel rejected by the radical behaviorists and could study conceptualization essentially as it is studied anyway.

Presumably, if pressed, a cognitive behavioral scientist, whether physiologically oriented or not, would say that the use of "associate" or "conceptualize" was only an abbreviated way of characterizing the longer description that a behavioral analysis would yield or, perhaps, that it referred to an assumed, isomorphic neurophysiological process. It may surprise some to know that Skinner pointed to the possibility of the latter at least 20 years ago.

Again, in his remarks on "Behaviorism-50" Skinner indicated what "useful explanatory force" meant to him.

An explanation is the demonstration of a functional relationship between behavior and manipulable or controllable variables.

A different kind of explanation will arise when a physiology of behavior becomes available. "It will fill in the gaps between terminal events..." It must be arrived at "by independent observation and not by inference, or not by mentalistic constructions." (Wann 1964, p. 102)

Skinner is unnecessarily restrictive in the last sentence. Mentalistic constructions developed by inference are reasonable and useful provided they are not inappropriately reified or do not become nominal explanations. In the final analysis, the best explanation is a complete description. In principle, however, there will never be a complete description in terms of behavioral analysis or otherwise. It is artificially constraining to ignore the probability of eventual neurophysiological correlates for mental-behavioral concepts and to avoid terms such as "associate" and "conceptualize" which function heuristically.

Skinner's place in the history of behavioral science is assured. I hope that in his next 20 years he will work toward a rapprochement with cognitive behavioral science, so that his place in history won't be tainted by dogmatic opposition to such rapprochement.

BFS: I agree that "'The pigeon discriminates' is as objectionable as 'The dog associates.'" Both expressions are dangerous in suggesting an initiating control on the part of the organism. I apologize for my careless usage. It is the behaviorist's dilemma. The English language and so far as I know most other languages put the behaving individual in the position of a controlling agent. We say that a person sees, hears, learns, fears, loves, thirsts, and so on. To rephrase every instance in accordance with good scientific methods would make for very difficult reading, but an analysis of a given instance must assign the initiating control correctly. For many purposes the lay vocabulary is convenient, but convenience is not to be mistaken for heuristics. The current popularity of cognitive psychology "as a revolt against behaviorism" is largely due to the freedom to use a lay vocabulary, not the discovery of an alternative science of comparable rigor.