An Introduction to the Philosophy Called Radical Behaviorism

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The work of B.F. Skinner simply did not follow the majority views of his time. In this he was not the first. He stood, as the saying goes, on the shoulders of giants. He advanced another major step in a trend whose continuity in the West began nearly 500 years ago. That trend is one of replacing what could be characterized as humanity's self–centeredness with an increasingly more effective natural science perspective about people's place in the order of things. This trend got a big push when Copernicus reiterated what Aristarchus of Samos and the ancient Ionian Greeks had discovered much earlier but which had been lost in the intervening centuries: the Earth, and thus humanity, were not the center of everything. Later, Darwin showed that our bodies (our physical forms, structures, and functions) are also products of the same natural laws that apply to all other living and non–living things. Then Skinner, through the behaviorology discipline arising from his work, demonstrated that our very being, our consciousness, our conduct, our behavior, is also necessarily and properly within the reach of natural science. From that demonstration, and its associated applied technologies, arises an increased opportunity for humanity to solve its problems: from day–to–day personal difficulties, through challenges such as the crisis in education, to the global problems threatening survival itself. To benefit from that opportunity, people must expand their behavior repertoires with respect to behaviorology, the discipline responsible for the relevant science and technology. An appropriate starting point is the *philosophy of science* that informs that discipline. This paper introduces that philosophy.

Skinner gave the name *radical behaviorism* to the philosophy of science under which he operated. That philosophy now informs the behaviorology discipline, a continuing extension of Skinner's work. The term, *radical,* in radical behaviorism, means thoroughgoing or fundamental (Ulman, 1991). Radical behaviorists use this term to distinguish this form of behaviorism from other forms of behaviorism such as Watson's original behaviorism (Watson, 1913), methodological behaviorism, interbehaviorism, or paradigmatic behaviorism (Ulman, 1992a). The distinction is necessary because the criticisms commonly leveled at behaviorism are not applicable to all forms. Those criticisms have become appropriate only for the other forms of behaviorism because radical behaviorism developed partly as a corrective response to some legitimate concerns raised in the criticisms. Skinner provides a comprehensive discussion of these issues in his 1974 book *About Behaviorism.*

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Simply as a name originating in an historical context, the name radical behaviorism has little problem itself as an acceptable name for the philosophical position informing the behavior science Skinner started, at least to practitioners of that science. However, some authors have expressed legitimate concerns over misunderstandings caused outside that science and historical context by the terms used in this name. Schneider and Morris (1987) try to reduce the misunderstandings by providing a thorough history of the use and evolution of the terms radical and behaviorism. Meanwhile Vargas (1990) argues for avoiding the misunderstandings by using a different term, such as *selectionism,* to replace the older terms in naming this philosophy of science. Ulman (1992b), while not insisting that a change was unnecessary, questioned selectionism as a good choice for an appropriate name. He pointed out a particular problem with selectionism: one can be a selectionist without holding to a radical behaviorist philosophy (for example, Hegel or Tielhard de Chardin). Since no alternative name is as yet generally accepted, this paper continues to use the name radical behaviorism.

This philosophy of science, radical behaviorism, has many components. These components are at the core of the science and movement that became the natural science behaviorology discipline (several applicable components are shared by other natural sciences). As radical behaviorists and natural scientists, behaviorologists respect these components. Four of these components arise regularly in discussions of radical behaviorism and were especially important in the emergence of behaviorology. Rather than saying "radical behaviorism does this or that," certain behaviors of radical behaviorists represent these components: (a) Radical behaviorists respect behavior as a *natural* phenomenon as part of respecting the continuity of events in space and time which, in natural sciences, accumulates as a natural history. (b) Radical behaviorists emphasize experimental control over dependent variables and the application of that control in culturally beneficial ways. (c) Radical behaviorists recognize private events, such as thinking or emotions, as covert behaviors involved in the same lawful relationships that involve overt behavior. (d) Radical behaviorists acknowledge that scientists are also behaving organisms whose behavior, scientific or not, is affected by the same variables that affect other people's behavior, and that those variables include scientists' philosophy of science. Other concerns are inseparably intertwined with these components of radical behaviorism. Some of these concerns include the preference for single–subject experimental designs rather than group statistical designs, the refusal to allow metaphysical events to enter explanatory accounts, and the question of parsimony in accounts of human behavior (see Chiesa, 1994).

Any and all of these components might be covered in discussions of radical behaviorism. Some authors take (a) and (b) for granted and mainly cover (c) and (d) in descriptions of this philosophy (e.g., Hake, 1982). Similarly, this brief introduction concentrates on (c) and (d), only mentioning (a) and (b) in passing. But this is partly because (a) and (b), and their implications, are extensively covered in a paper by Fraley and Ledoux (1997; also, see Ledoux, 1997a).

Private Events: Covert Behaviors

Radical behaviorism has been misunderstood and misrepresented concerning private events, their evaluation, and their place in a science of behavior (e.g., Mahoney, 1989).

Radical behaviorists do not deny that such events occur inside the skin. They ungrudgingly accept the reality of the physiological events occurring within the body, some as behavior. They take private events into account. But in so doing, they also insist that, in any serious scientific endeavor, private events be considered in ways respectful of the natural science continuity of events that accumulates as a natural history. That is, they insist that private events be considered without appeal to metaphysical causality or metaphysical implications. Since this precludes mentalistic and cognitive explanations, those who court such explanations resist radical behaviorism. Skinner (1974) addressed this issue in *About Behaviorism:*

> But if a behavioristic interpretation…is not all we should like to have, it must be remembered that mental or cognitive explanations are not explanations at all. (p. 106)

Adherents of radical behaviorism assume that the same natural laws prevail on both sides of the skin. This, of course, does not change the nature of either the person, the events inside the skin, the events' effects, or the events' independent variables. The skin is not any special sort of boundary to the laws of the universe. Furthermore, radical behaviorists recognize that a person may at times be the *only* observer in a position to detect or discriminate the occurrence of certain events within his or her skin (words like "detect" and "discriminate" need not imply agency; see Baum, 1995). So radical behaviorists invest scientific consideration also in events detectable by only one person. They do not restrict scientific consideration to events detectable only by more than one person. And they are willing to work with the resulting increase in technology required to manage the greater inaccessibility of such events.

Radical behaviorists find that the most effective way to handle private events is to recognize them as covert behaviors under the same laws affecting overt, public behaviors. Private events are lawful in the same way that one would regard public events. Radical behaviorists cannot grant scientific status to private events invented to be causes of behavior. Nor do they use real private events as primary causes of behavior. They do not need to, because they analytically pursue any causal chain to other, outside events. They do this for the sake of control in their subject matter. They do not treat private behavioral events as indicators of internal hypothetical constructs conjured up, or conveniently given just the right characteristics, to explain those events.

Instead, radical behaviorists see behavior, on the overt level, as neurologically based actions of the glands and muscles (both smooth and striped). They see private events as covert behaviors, under the same laws as overt behaviors. These covert behaviors are usually less accessible than overt behaviors, often being observable and reportable only by a public–of–one (see Ledoux, 1973). And sometimes these covert behaviors involve only the neurological–level events; the behavior of "seeing in the absence of the thing seen" is one example (see Ledoux, 1997a; also see Skinner, 1953, Ch. 17).

The Behavior and Philosophy of Scientists

When considering the behavior and philosophy of scientists, perhaps radical behaviorism has been more overlooked than misunderstood, as well as confused with other behaviorisms. That is unfortunate, because the practice of science itself, and philosophy of science, are both effectively addressed by the principles of radical behaviorism.

The Behavior of Scientists

The work of scientists is twofold. It is (a) to be exposed to precise and controlled contingencies that are unlikely to have affected others in this controlled way. It is also (b) to pass along descriptions and applications of those contingencies to others.

Scientific work is initially the behavior of the scientist under direct control of the contingency relations (that is, under the direct control of the complex of multiple stimuli, behaviors, and consequences) experienced in research. This is the point of science. After extensive study and preparation, scientists are exposed to the contingencies of the unknowns in their disciplines. Due to their study and preparation, they derive the maximum benefit from that exposure. And that is what doing science is all about.

The rare and precise arrangement of contingencies experienced in research generally limits the availability of these particular contingencies to scientific contexts. Hence only people operating in those contexts have their behaviors effectively shaped by those contingencies. The subsequent steps a scientist takes are largely determined by the consequences of the previous steps. The result is a unique, contingency–shaped expansion of the scientist's scientific behavior repertoire. Due to this expansion, scientists can behave more effectively with respect to the subject under their study than others who lack that exposure to those contingencies.

The disciplinary behaviors of scientists also include the behavior repertoires of summarizing, reporting, and applying their expanded scientific repertoires. These disciplinary repertoires involve verbal stimuli. And these verbal stimuli provide *rules.* The rules are statements of the contingencies the scientists have experienced. These rules affect the behaviors of others. Colleagues, disciplines, fields, and the public benefit from using these rules because when their behavior is affected by these rules (that is, when their behavior comes to be rule–governed—i.e., verbally mediated) their behavior often becomes more effective than it would be without the rules. As a result the rules become responsible for much of the behavior of these groups. In essence, such benefits accrue by expanding the repertoires of those people without each of them having to await the unlikely experience of the research contingencies themselves. In this way they benefit from scientists' work. While much of scientists' scientific behavior is contingency–shaped in vital ways, the behaviors of these other groups is to a large extent rule–governed (see Skinner, 1969, about this distinction).

Vargas (1988) has recently recast the distinction between contingency–shaped and rule–governed behavior as the distinction between event–governed and verbally–governed (or mediated) behavior. This distinction and its implications, and several other advances, provide the current state of the art for the scientific comprehension and handling of complex human behaviors. Some of the other advances include (a) the analysis of verbal behavior (Skinner, 1957), (b) recombined repertoires (Epstein, 1981), (c) establishing operations (Michael, 1982), (d) multi–term (n–term) contingencies (Sidman, 1986a, 1986b), (e) the function–altering effects of contingency–specifying stimuli (Schlinger & Blakely, 1987), (f) stimulus equivalence relations (Sidman, 1994; Sidman, Wynne, Maguire, & Barnes, 1989; Stromer, 1991), (g) the general level of reinforcement (Cautela, 1994), and (h) behavioral engineering and cultural design (Skinner, 1971; Ulman, 1991; West & Hamerlynck, 1992). Indeed, the radical behaviorist and behaviorological perspectives encompass a far wider domain than that denoted traditionally as "respondent and operant conditioning in the learning of new behavior."

The Philosophy of Scientists

Scientists, like everyone else (including radical behaviorists), are behaving organisms whose behaviors, scientific or not, are affected by the same laws that affect other behaviors. Those laws essentially reflect the functional relations between behavior and the variables inherent in an organism's (a) species history (e.g., genetics), (b) personal history, (c) current situation and, for people, (d) cultural setting. These contain the variables which a behaviorologist addresses when trying to analyze, understand, predict, control, and interpret the behavior of organisms.

A scientist's philosophy of science is itself among the variables affecting his or her work. The philosophical repertoire derives partly from the history and setting variables. This repertoire later affects the scientist's work as a part of those variables. The philosophical repertoire includes various underlying assumptions. Comprised mostly of verbal behaviors, a discipline's philosophy of science is usually learned at advanced stages in disciplinary training, although precursors are present long before that (parts of the personal history variables). This repertoire is behavior, and as such continues to be subject to the laws of behavior. But, through the scientist's colleagues and discipline which share it, the philosophy itself becomes one of the variables affecting the scientist's subsequent work (part of the cultural setting variables).

A scientist's philosophy of science affects her or his work in several ways. One way involves the philosophy evoking investigations of certain variables and not others. Cooper, Heron, and Heward (1987, p. 12) provide some examples:

> …the philosophical decisions to ignore all private events or to use explanatory fictions as the causes of behavior may both produce a similar effect on research and practice. Both positions restrict practice and research even though for different reasons. Methodological behaviorism is restrictive because it ignores areas of major importance for an understanding of behavior. Mentalistic positions are also restrictive, for as noted by Skinner (1974), "Mentalistic explanations allay curiosity and bring inquiry to a stop. It is so easy to observe feelings and states of mind at a time and in a place which make them seem like causes that we are not inclined to inquire further."

A philosophy of science can also affect a scientist's work by playing a role in the conditioning of a scientist to be reinforced by certain classes of events and not others. Hake (1982, p. 24) provides some examples:

> The issue here is what the radical behaviorist believes the reinforcement contingencies for the scientist should be. The most common view and that of the methodological behaviorist is that inclusion of a finding in the body of knowledge or theory is based on acceptability to the scientific community in the terms of (1) the research procedures used (e.g., agreement among observers, replicable individual data, precise measurement and control) and (2) the relation of the content to the existing theory (e.g., related to a productive content area but an extension of it). The radical behaviorist would not believe those contingencies alone to be totally desirable, because they include insufficient reinforcement for innovative content and procedures, and thereby delimit the growth of science… The radical behaviorist would suggest workability, stimulation, and contribution to society as additional worthwhile contingencies that would encourage innovation of content and method. The

major contention is that scientists should recognize that all aspects of their scientific behavior are shaped by the reinforcers of some scientific community and that this control of their behavior affects the science.

Conclusion

The philosophy of science called radical behaviorism played a fundamental role in B.F. Skinner's determination that our very being, consciousness, conduct, and behavior is necessarily and properly within the reach of natural science. (Regarding these concerns radical behaviorists have addressed relevant aspects as far–afield as ethics and religion; see Krapfl & Vargas, 1977; Schoenfeld, 1993; and Vargas, 1975, 1982.) The result has been increased opportunities for humanity to solve its problems through the science informed by that philosophy, namely, behaviorology.

A question that often arises in discussions of philosophy of science concerns how the radical behaviorist philosophy differs with the philosophies of science in other disciplines, most notably psychology. That question was not covered in this introductory paper. Extensive coverage can be found, for example, at appropriate points in a paper by Fraley and Ledoux (1997) which weaves its comprehensive way through the origins, status, and mission of behaviorology. However, comprehensive coverage of the radical behaviorist philosophy of science is beyond the scope of either that paper or this one. (For comprehensive coverage, see Skinner, 1953, 1974. For more recent comprehensive coverage, see Chiesa, 1994.) ☙

Endnotes

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