

On Books

A Comprehensive Science: A Review of Moore's *Conceptual Foundations of Radical Behaviorism*

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Of the various scientific literatures that define and describe the products and progress of behavior analysis, one literature addresses the field in its broadest and most abstract characteristics, and in its most far-reaching scope and implications. The literature of radical behaviorism began with Skinner's 1945 paper on "The Operational Analysis of Psychological Terms" and continued in various sources throughout his career (e.g., Skinner, 1953, 1957, 1964, 1969, 1974). The first person to address and explore the unique characteristics of the system described by Skinner was Willard F. Day, Jr. (for a collection of papers, see Leigland, 1992). An expanding literature of radical behaviorism has followed, and along with numerous papers, several excellent books have appeared. One of these books is William Baum's *Understanding Behaviorism: Behavior, Culture, and Evolution* (1994, 2005; Leigland, 2006). Another excellent treatment is Mecca Chiesa's *Radical Behaviorism: The Philosophy and the Science* (1994).

To these we may add Jay Moore's *Conceptual Foundations of Radical Behaviorism* (2008). As comprehensive a treatment as one may find in a single source, Moore's detailed descriptions of Skinner's radical behaviorism in historical, philosophical, and psychological contexts make it required reading for all behavior

analysts (along with Baum's and Chiesa's books) and (would that we could only arrange it) for psychologists, cognitivists, linguists, and philosophers as well.

The book is organized into sections preceded by an introductory chapter. The first chapter, "Radical Behaviorism as a Philosophy of Science," provides a brief introduction to the field of behavior analysis and to radical behaviorism as the philosophy of science that underlies that field. The chapter also introduces the central themes that appear later in the book, including behavior as a subject matter its own right, the notion of internal causes of behavior and mentalism, and by contrast, "The emphasis that radical behaviorism places on explanations that identify causes at a consistent level of observation and analysis" (p. 8). An example of that emphasis is seen in the following passage, which highlights an epistemological theme found throughout the book:

As discussed throughout this book, radical behaviorism is interested in providing comprehensive explanatory statements about the cause's of anyone's behavior. ... By virtue of its fundamental concern with verbal behavior and knowledge claims, radical behaviorism is in a unique position: It is based on the science for which it stands as a foundation. Importantly, then, radical behaviorism admits no discontinuity between the behavior being explained and the behavior of explaining it. (p. 9)

Of special interest is the source of the causes to be used in the explanation of behavior. A sharp distinction

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is drawn in the first chapter between behavioral and mental dimensions as sources of causes of behavior, and the distinction and its implications are emphasized at many points throughout the book. A causal explanation based on behavioral dimensions involves “the totality of variables and relations of which the behavior is a function” (p. 6), whereas mental dimensions are invoked “when the explanation includes elements that are not expressed in the same terms and cannot be confirmed with the same methods of observation and analysis as the facts they are said to address” (p. 6).

In promoting behavioral over mentalistic explanations of behavior, the principal argument against the latter is also stated clearly and repeatedly in the first chapter, as it is throughout the book, as shown in the following passage:

Radical behaviorism is concerned about talk of mental causes and dimensions because it is fanciful to think that there is such a qualitatively different dimension with qualitatively different causes. To state the matter somewhat starkly, there is no such dimension and there are no such causes. They are fictions, talk of which is a product of nonscientific influences. The properties with which the mental causes are supposedly endowed ultimately sidetrack more effective analyses in terms of causal relations in the one dimension in which behavior takes place. ...There is no mental life in the sense implied by traditional psychology because there is no mental dimension that differs from a behavioral dimension. (p. 6)

The argument against mentalism in this passage includes two components. One of these is a pragmatic argument about effective scientific practices, and the other is an ontological argument about what does and does not exist. The utility of each of these arguments in making a case for radical behaviorism and against mentalism will be examined more fully in the remarks that follow.

Thus, the first chapter lays out the major themes and positions that are developed throughout the book. Fol-

lowing the introductory chapter, the book is organized into four sections, each of which will be addressed in the comments below.

Foundations

Section 1, “The Foundations of Radical Behaviorism,” consists of six chapters that examine (a) the history of behaviorism and behavior analysis and (b) behavior-analytic perspectives on science and behavior, along with an introduction to basic terms, concepts, and processes. Chapters 2 and 3, on the historical development of the varieties of behaviorism and the place of behavior analysis in that history, are among the strongest and most important parts of the book.

Many, perhaps most, psychologists and philosophers have very limited exposure to the history of psychology, and many of the superficial treatments perpetuate a variety of misconceptions that eventually become conventional wisdom. The most common misconception involves the view that behaviorism constitutes a singular, monolithic, mechanistic, peripheralistic perspective that dominated psychology until it was all but swept away by the tsunami of cognitivism (for an example of a product of such views, see Robins, Gosling, & Craik, 1999; cf. Friman, Allen, Kerwin, & Larzelere, 2000; Leigland, 2000). It may also be that such confusions are unchallenged when behavior analysts engage in undifferentiated talk of “behaviorism” when describing behavior analysis to those outside the field (as opposed to separating radical behaviorism from its historical and contemporary forms). Nevertheless, these chapters, and those later in the book that examine some of these misconceptions, provide an excellent review of the historical themes and developments for behavior analysts as well as for those in other fields.

The story begins with a bit of philosophical context and back-

ground on some of the early players in sensory psychology, and on to Wundt and Titchener, Darwin and functionalism, to animal psychology and Watson's revolution. Considerable discussion follows of the development of mediational S-O-R neobehaviorism and its philosophical relations, highlighting the role of internal, hypothetical mechanisms in the explanation of behavior. These developments set the stage for the appearance of Skinner and the various influences on him that set his work on a distinctively different scientific path. Chapter 3 focuses on the divergences of Skinner's path from the mainstream behaviorism with which it is often mistakenly associated. To those unfamiliar with such material, the themes may appear to be oppressively philosophical or of interest to historians only, but a great deal of such material is summarized in efficient and engaging prose, and it is a story that is of critical importance for the full understanding of the science of behavior analysis and its implications.

The remaining four chapters of Section 1 describe the basics of behavior analysis. Chapter 4, "Behavior As a Subject Matter in Its Own Right," begins with a critical review of the term *behavior*, a term of great complexity despite its apparent simplicity. Various definitions are reviewed along with issues raised by the proposals, such as questions of physiological responses, novel behavior, perceptual behavior, and covert behavior. The discussion is summarized in the following way:

Thus, the sense of behavior that is relevant to radical behaviorism is that it is an interaction between organism and environment that has particular properties as a result of certain functional relations that obtain between the features of the behavior and features of the environment. The interaction may have developed phylogenetically or ontogenetically, and represents a central characteristic of the organism as it progresses through its life cycle. (p. 68)

The chapter continues with a thorough discussion of the complementary relations between behavior analysis and neuroscience, with an emphasis on the arguments against reductionism (i.e., the reduction of behavior-analytic concepts and relations to find ultimate explanation at the physiological level). The chapter concludes with a section that addresses one of the most common misconceptions of behavior analysis: "The Charge of the 'Empty Organism.'" Here again the pragmatic relations among physiology, behavior, and the environment are emphasized. The issue of the empty organism arises again later in the book during discussion of the phenomena of private events from the perspective of radical behaviorism.

Chapter 5, "Categories of Behavior," introduces basic functional relations between environment and behavior. Included are varieties of innate behavior, reflexes, respondent behavior and conditioning, and of course, operant behavior. The latter includes more extended discussions of the concept of operant behavior in general along with such topics as behavior shaping, stimulus control, and a particularly useful discussion of molecular and molar analyses of behavior.

Chapters 6 ("Consequences and Concepts in the Analysis of Behavior") and 7 ("Selection by Consequences") extend the topic of operant behavior into more advanced material such as the nature of the technical vocabulary, extinction, superstition, and motivative operations. More advanced still are discussions of connections between operant behavior and evolution and cultural selection.

Program

Section 2, "The Realization of the Radical Behaviorist Program," covers more complex properties of the scientific system, including conceptu-

al and content issues, such as verbal behavior and private events, and issues of scientific practice, such as scientific methodology and explanatory practices. The six chapters in this section address these four themes.

Chapters 8 (“Verbal Behavior 1: Elementary Verbal Relations”) and 9 (“Verbal Behavior 2: Complex Verbal Relations”) provide the basics of Skinner’s (1957) functional analysis of verbal behavior and more recent, equivalence-based interpretations, respectively. In the latter chapter, the basics of equivalence relations introduced in Chapter 8 are given more extended treatment via relational frame theory (e.g., Hayes, Barnes-Holmes, & Roche, 2001). Topics given special attention include rule-governed behavior and instructions and self-reports. Also, thorough coverage is provided on the role of awareness in operant conditioning.

Chapter 10, on “Private Events,” engages a central topic of radical behaviorism, a topic with which many critics are unfamiliar. The chapter begins with a review of Watson’s complex views concerning “implicit” stimuli and responses and their relevance to traditional mentalistic concepts such as thinking. Although Watson endeavored to interpret such concepts in terms of behavioral (vs. mental) dimensions, the interpretations themselves were based primarily on respondent (S-R) processes.

Skinner’s position on private events is contrasted with Watson’s classical behaviorism and especially with mentalistic practices. The latter contrast is based on radical behaviorism’s view that (a) private events are regarded as behavioral phenomena, or as part of the “behavioral dimension,” and (b) that such events are functionally related to environmental variables. This sort of naturalizing of private events has the effect of moving the phenomena previously associated with the mental into the same pragmatic domain

as other environment–behavior interactions.

Much of chapter 10 is devoted to an examination of two types of private events. One of these, feelings (or sensed conditions of the body), is examined through various examples that illustrate relations to functional environmental variables (e.g., motivating operations), and also through Skinner’s (1945) interpretation of the “problem of privacy”; that is, how special contingencies may bring verbal behavior under the control of such private events. The other type, covert operant activity, provides a means to interpret such classic “mental” processes as thinking, imaging, problem solving, and consciousness. This chapter concludes with an interesting reevaluation of the traditional methods of sensory psychophysics, and returns for another rebuttal of the “empty organism” charge leveled against radical behaviorism by uninformed critics.

Chapter 11, “Methods in a Science of Behavior,” provides an excellent overview of the radical behaviorist perspective on the experimental analysis of behavior. The discussion begins with Skinner’s pragmatic view of science in general along with some historical material that sets up a contrast between Skinner’s methodological practices and traditional research methods in psychology. This is followed by a lengthy critique of traditional research practices, including group designs and inferential statistical analysis (methods, Moore maintains, that tell researchers “how to manipulate data, not behavior,” p. 254). Behavior-analytic research practices are reviewed, with emphases on single-subject designs and experimental control.

Chapters 12 (“Scientific Verbal Behavior: Theories”) and 13 (“Scientific Verbal Behavior: Explanation”) present a detailed account of the explanatory practices of behavior analysis under the influence of radical behaviorism. Some readers might be

curious about the order of the chapters; in traditional psychology one might begin with explanatory goals, concepts, and perspectives, and then move to the realization of those explanatory practices by describing how scientific theories are to be formulated. Yet Moore begins with a critique of traditional practices of theory construction with the goal of illustrating that such practices are regarded as subject to a behavioral analysis as much as any other behavior.

To give a brief illustration of the issue, years ago I asked a prominent psychological theorist (from the era of mediational neobehaviorism; specifically, the Hull–Spence S-R behavior theory) a question about his theoretical practices, and he replied, “Well, I don’t know. You should probably go and talk to someone in the Philosophy Department about that.” It is true that many mainstream psychologists, when dealing with issues of theory, move off of their psychological perspective and seek refuge in the rational, rule-governed world of philosophy of science (if indeed, they give much thought to their theoretical practices at all). Moore refers to such a position as epistemological dualism.

In the case of radical behaviorism, of course, theory construction is regarded as a matter of verbal behavior in contact with multiple variables. Some of the variables have their origin in direct contact with the world, and some have their origin in contact with a variety of cultural and social variables, for example, cultural preconceptions, academic contingencies (some of which might be metaphorically dubbed “academic contingencies of survival”), and so on. Moore’s discussion in chapter 12 is designed to fully examine theoretical practices and associated issues in this distinctly behavioral sense, such that “Once theorizing is understood as behaving verbally, the way is clear to examine the contingencies responsi-

ble for the verbal behavior in question, to determine its function as a guide for effective action” (p. 265).

Once the connection between theory construction and verbal contingencies has been established in chapter 12, the broader issues of scientific explanation are explored in chapter 13. Two traditional modes of neobehavioristic explanation are described (instantiation and the covering law model), followed by several sections of the chapter that describe the relations between description and explanation from the perspective of radical behaviorism. A considerable amount of space is devoted to the careful consideration of the issues involved, as seen in the remaining subsection headings from the chapter: “The Relation Among Explanation, Description, and Theory in Behavior Analysis”; “Causal Explanation, Prediction, and Description”; “The Causal Explanation of Behavior”; “Epistemological Dualism and Other Mischievous Sources of Control Over the Verbal Behavior of the Scientist”; “Interpretation.” Clearly, the radical behaviorist account is contrasted with the traditional views by the radical behaviorist antimentalism and pragmatic view of science, including explanatory practices. The final section on interpretation is an excellent summary of Skinner’s use of the term, in which there may be conditions when scientific statements may be generalized to contexts in which prediction and control may not be feasible, and practices of confirmation may also be engaged.

Comparisons and Contrasts

Section 3, “Comparison and Contrast with Alternative Viewpoints,” offers more direct and explicit comparisons with other psychological systems or other fields that have a certain overlap of domain. The five chapters in this section address, in order, mentalism (in general), cognitive psychology, psycholinguistics,

and traditional philosophical issues (two chapters).

Chapter 14, “Opposition to Mentalism,” provides a much more detailed description of and argument against the mental dimension and the mental causation of behavior that was introduced and rejected in chapter 1. A definition of *mentalism* is offered as follows: “An orientation may be regarded as mentalistic when it holds that an appeal to causal phenomena from an internal dimension is necessary in an explanation of behavior” (p. 315). An extensive discussion of the definition involves a consideration of a variety of examples of mentalistic explanation, including the ways in which invoking physiological variables in explaining behavior could satisfy the definition. Other examples of mentalistic explanation that are examined in subsections of chapter 14 include folk psychology, feelings, beliefs, intentionality, intelligence, the copy theory, the medical model of abnormality, and the theoretical writings of Freud and Piaget.

Another section of chapter 14 raises the question of the origins of mentalistic explanations. As in previous chapters, Moore takes a strong metaphysical stand against mental entities, as in the following passages:

Mentalistic verbal behavior is not of concern to radical behaviorists simply because it purports to refer to subjective, mentalistic entities from another dimension. ... There is no such other dimension, and there are no such entities. Therefore, mentalistic verbal behavior can't literally be referring to that dimension or those entities. ... In the present view, all verbal behavior, even that which is called mentalistic, is a function of naturalistic factors that exist in space and time, in the physical and material dimension. The task is to determine what those factors are. Thus, radical behaviorists hold that even mentalistic verbal behavior may be analyzed in terms of the contingencies that promote it. (pp. 326–327)

Two complex issues arise from this passage. First, there is the implication that mentalistic explanatory practices

entail a version of Cartesian-style substance dualism. Although Moore, in a previous chapter, indicated that the success of traditional mentalistic psychologists in avoiding substance dualism is unclear, the fact is that many, if not virtually all, cognitivists would strongly assert that their mentalistic constructs also refer to “naturalistic factors that exist in space and time, in the physical and material dimension.” Indeed, in a sense, the whole idea of contemporary cognitivism was the notion that the concept of the *mental* could be put into good physicalistic order through information theory and information processing models of cognitive processes. The early metaphor was that mind is to brain as software is to hardware, an entirely physical system that solved Descartes' problem and (as Moore documents), with the practices of methodological behaviorism, opened up a new area of research and theory (e.g., Gardner, 1995; for interesting examples of mentalistic language in the context connectionist models of cognitive processes, see Elman, e.g., 2004, 2005). If dualism is the charge, then in virtually all cases in scientific psychology it will be played out as epistemological dualism.

Second, the case can be made that the existence of the various dimensions is beside the point. In the last section of the chapter, which summarizes the two principal behavior-analytic objections to mentalism, Moore goes on to describe the first objection in the following way:

Radical behaviorists reject that there is another [mental] dimension. Consequently, entities that are talked about as being in another dimension do not literally exist. It is not that they exist but cannot be talked about, but that they do not exist at all. They are explanatory fictions. (p. 332)

Denying the existence of entities, processes, and dimensions engages the very ontological verbal behavior that is at the heart of the mentalism

of Western culture. One cannot be rid of ontological messes by using ontology and staying within the same language game; one only digs in deeper (“How do you know these things don’t exist?”). *Existence* is just another term that is in need of a functional analysis of verbal behavior (Leigland, 1996).

Fortunately, there is another way that fully engages radical behaviorism and avoids the verbal quagmires of traditional philosophical discourse. The second behavior-analytic objection to mentalism engages radical behaviorism’s pragmatic view of science. This discussion will be taken up in a later section of this review.

Chapter 15, “The Challenge of Cognitive Psychology,” gives a carefully constructed and lucid account of cognitive psychology as a direct extension of mediational neobehaviorism. Of course, such an account flies in the face of conventional thinking about cognitive psychology, in which the field is portrayed in near mythical terms as the St. George that slew the dragon of behaviorism for all time; a revolutionary perspective that transcends the limited, arcane, mechanistic, and superficial ideas and practices of a bygone era. Chapter 15 disassembles this view piece by piece, and is probably the best thing written to date on the historical ties between the two areas.

In simplified form, mediational neobehaviorism and cognitive psychology share the strategy of inferential theory; that is, making inferences regarding hypothetical, internal processes that are said to explain the environment–behavior interactions under empirical study. That the mediational neobehaviorists studied the behavior of rats and made inferences regarding, for example, hypothetical S-R mechanisms on the one hand, and cognitive psychologists studied human behavior and made inferences regarding information processing mechanisms on the other, is of little importance com-

pared to the shared mentalistic explanatory practices. When comparing either mentalistic perspective to radical behaviorism, Moore interprets the overriding issue to be differing perspectives on verbal behavior, as in the following:

Indeed, the present argument is that cognitive psychology is essentially consistent with mediational neobehaviorism. They are consistent because they subscribe to the same interpretation of theoretical terms. ... The analysis above of the relation between cognitive psychology and mediational neobehaviorism emphasizes the similar views of theoretical terms held in cognitive psychology and mediational neobehaviorism. The similar views are predicated on a referential, symbolic theory of language. As identified many times in this book, one of the features that distinguishes radical behaviorism from virtually any other position in psychology, including cognitive psychology and mediational neobehaviorism, concerns verbal behavior, and particularly scientific verbal behavior such as “theoretical terms.” ... Again, the magnitude of the differences between either cognitive psychologists or mediational neobehaviorists, on the one hand, and radical behaviorists, on the other hand, when viewed from the perspective of radical behaviorism, should not be underestimated. (pp. 346–347)

Moore concludes again that the differences between radical behaviorism and the alternative mentalistic positions are important because of pragmatic concerns. Effective cultural practices may wait on an effective science and technology of behavior, but as Skinner (e.g., 1971) has often pointed out, certain extant cultural practices and perspectives may inhibit the development of such a science and the implementation of its products.

Chapter 16, “The Challenge of Psycholinguistics,” provides an excellent overview of the controversies and conflicts between linguistics and psycholinguistics on the one hand and the functional analysis of verbal behavior on the other, which have had their beginnings and maintenance in a series of misunderstandings and confusions about behavior analysis and its implications for the

verbal domain. After characterizing the general mentalistic orientation of psycholinguistics as a field, Moore goes on to describe, and then respond to, two well-known charges against behavioral approaches to language that have been leveled by the linguistic and psycholinguistic communities. The two charges are that (a) sequential processes cannot adequately explain language and (b) direct interaction with the environment cannot adequately explain the development of such linguistic processes as grammar and syntax.

As to the first charge, Moore shows through the historical record and a review of some of the research of the time that the notion that complex language could be explained by simple, chain-like linear processes had its roots in some of Watson's writings as well as some related theoretical concepts that appeared later in the writings of some of the mediational neobehaviorists, but such notions played no important role in Skinner's functional analysis of verbal behavior. The second charge is the familiar "poverty of the stimulus" argument, in which environmental input appears to be grossly insufficient to produce the subtlety and complexity of language over so short a time period of human development. The charge appeared to gather empirical support from Brown's (e.g., 1973) analysis of mother-child verbal interactions, from which the conclusion was drawn that reinforcement, for example, was not an important factor in language development. As many behavior analysts now know, however, and as Moore describes in some detail, Ernst Moerk's (e.g., 1990, 1992) brilliant and painstaking reanalysis of Brown's data has shed new light on the effects of consequences and context in the observed changes in the child's verbal behavior as a function of interactions with her mother over time.

Further, the poverty of the stimulus argument has also come under attack from some additional sources, such as philosopher Fiona Cowie (Schoneberger, 2005) and prominent cognitivist researcher Jeffrey Elman, noted earlier. Elman's (2004, 2005) connectionist simulations of language development have created a firestorm of controversy in the linguistic community by showing that many of the complex properties of language widely assumed to be innate may be learned by a computer without programmed rules, but only with inputs, history, and feedback (or consequences).

Moore's review of psycholinguistics (chap. 16) concludes with an excellent section on "Chomsky Versus Behavior Analysis," which includes a history of the controversy regarding Chomsky's (1959) widely influential review of Skinner's (1957) *Verbal Behavior*. The section also includes a summary of Chomsky's misguided arguments against Skinner's functional analysis of verbal behavior and a useful segment on MacCorquodale's (1970) reply to Chomsky's review.

Chapters 17 ("Radical Behaviorism and Traditional Philosophical Issues: 1") and 18 ("Radical Behaviorism and Traditional Philosophical Issues: 2") conclude the comparisons with alternative views with a two-part look at philosophical perspectives on psychological issues. A number of complex philosophical positions are described in each of these chapters, and although the positions cannot be effectively reviewed in the space available here, the chapters should nevertheless be considered an excellent resource for behavior analysts who are interested in such things, or behavior analysts who are likely to be in communication with those in other fields about what radical behaviorism might have to say about such things (which, I should hope, would be all behavior analysts).

Chapter 17 reviews a variety of philosophical perspectives that have been associated with some form of behaviorism in some fashion or at some time. These include logical behaviorism, conceptual analysis, metaphysical behaviorism, and both the early and later forms of methodological behaviorism. The chapter also documents more fully how the later form of methodological behaviorism became the orthodox view of cognitive psychology as well as the complex mentalistic issues that arose from that transition. The chapter ends with an examination of pragmatism and its relation to radical behaviorism.

Chapter 18 goes to the heart of the language and culture of mentalism by addressing the numerous and complex philosophical positions relevant to the “mind–body” problems. A simple listing of the topics will communicate the range of challenges available for critical examination by radical behaviorists: idealism, materialism, interactionism and epiphenomenalism, parallelism, double-aspect theory, mind–brain identity theory, eliminative materialism, functionalism (also referred to as philosophical or computational functionalism; definitely not to be confused with the functionalism of William James and John Dewey), machine-state functionalism, intentionality, and intensionality. Some of these are, of course, classics in the history of the language of mind, and others are of recent origin. They are all, however, from the perspective of radical behaviorism, the products of verbal processes in complex interaction with verbal and nonverbal variables and contingencies, and may be analyzed as such. As Moore summarizes,

In general, radical behaviorism rejects the entire set of premises upon which the various mind-body theories are based. ... At issue for radical behaviorism is what occasions the use of a mental term. For radical behaviorism there is not one and only one thing that

occasions the use of a mental term. There are several, and they may function alone or in combination. (p. 409)

The relevant variables include observed environment–behavior interactions (public or private), physiological variables, and sociocultural variables. Moore goes on to illustrate with examples and additional issues.

The fourth and concluding section of the book consists of chapter 19, “Radical Behaviorism as Epistemology.” The first part of the chapter discusses a number of issues that are relevant to formulating a definition of a “genuine behaviorism” (p. 430). The final form of the definition is quite lengthy, but Moore’s comments summarize the central points:

However tortuous, this definition offers some possibility of identifying a genuine behaviorism that differs from ersatz versions that have emerged as intellectual compromises since the second quarter of the twentieth century. The definition explicitly rejects mentalism and methodological behaviorism. Instead, it calls for the analysis of verbal behavior ostensibly concerned with the mental, but in terms of naturalistic contingencies that operate in space and time. (pp. 431–432)

The last part of the chapter traces Skinner’s early interest in epistemology and how this interest made contact with the various sources that led him to early behaviorism, and later to the experimental analysis of behavior and to radical behaviorism. Through this section Moore argues for the epistemological importance of radical behaviorism, as seen in the following passages:

Not only did radical behaviorism encompass epistemology, but it also took the lead in understanding what knowledge was, how it came about, and how to improve the human condition by making human beings even more knowledgeable. Thus, radical behaviorism represents nothing less than a thoroughgoing, naturalistic epistemology, grounded in fundamental principles of behavior and extended in an operant approach to verbal behavior. (p. 433)

Knowledge and meaning are therefore behavioral matters, to be analyzed in terms of operant contingencies of reinforcement. What

is important is how features identified in the study of epistemology function in one's life. If one can account for scientific verbal behavior, one has accomplished one the major goals in an analysis of behavior. If one can account for how one comes to know oneself, one has accomplished another. Radical behaviorism may ultimately be understood as a set of guidelines for carrying out these several tasks according to thoroughgoing behavioral principles. (pp. 436–437)

Conclusions

Moore's *Conceptual Foundations of Radical Behaviorism* (2008) is certainly an important contribution to behavior analysis. This single source covers an impressive range of issues from the historical to the conceptual to the scientific and philosophical. It is written in clear prose and with thoughtful planning toward the presentation of complex issues and arguments. The organization may strike the reader as somewhat unusual in places. For example, the detailed discussion of mentalism does not occur until chapter 14, although complaints about mentalism accumulate throughout the book long before its problems are fully described. The overall impression, however, is one of a progressive laying of groundwork for the careful presentation of arguments and positions that are most often misread, misinterpreted, and misunderstood.

In predicting or anticipating reactions from critics in other fields, a problem with the book noted earlier may be its unrelenting repetition of the nonexistence of mental events and dimensions. The reader frequently encounters statements such as, "Radical behaviorism does none of this, as there are no such other dimensions and no such other entities" (p. 216), "They are variously intrinsically mental (of which there is no such thing), innate, autonomous, or initiating" (p. 217), and

Presumably, the hypothetical construct is not useful because it affords some unique logico-theoretical insight into another dimension.

That kind of insight does not exist for anybody, including those who appeal to hypothetical constructs. There is no such dimension, so there can be no such insight. Similarly, the hypothetical construct is not useful because it correctly takes advantage of the underlying mental processes of the scientist. Those kinds of processes do not exist for anybody either, especially for those who appeal to hypothetical constructs, despite their statements to the contrary. (p. 280)

Such statements invite the sorts of ontological verbal riots that philosophers and other critics of behavior analysis would relish. As indicated earlier, it is not likely that one can simply assert an argument out of existence, even with great repetition. Staying within the verbal framework of ontology in this way engages a network of verbal relations from which there is no victory and no escape. Another way to state the matter is that behavior analysts have better things to do than to argue with others over what things or dimensions actually exist. Further, to construe the argument in such terms might invite an accusation of representationalism, a perspective that is inconsistent with radical behaviorism and the functional analysis of verbal behavior (e.g., Leigland, 1999), as Moore documents. For a thoroughgoing pragmatic system such as radical behaviorism, the pragmatic counterarguments are sufficient in all cases (for a different kind of example, see Leigland, 2001–2002). The strength of the behavioral analysis is what it allows people to do (beyond merely say).

For advanced students of behavior analysis, Moore's (2008) authoritative treatment of radical behaviorism joins the two other excellent sources, Baum (2005) and Chiesa (1994), in a substantial expansion of the literature of radical radical behaviorism, a literature that may yet find its way into the mainstream culture. These sources also remind behavior analysts that the field is not about autism, developmental disabilities, or special education any more than it is about

rats and pigeons, or levers and response keys. It is about all of these important things, to be sure, but it is also about much more. It is about a comprehensive science of the behavior of organisms, the full range of human action and experience, the panorama of psychological phenomena.

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