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The language of ontology is the subject matter of behavioral science

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ABSTRACT

This paper examines one of the many points of contact between behavioral science and traditional issues in philosophy. Such points of contact involve an analysis of verbal practices of both fields. Specifically, the question is whether the scientific nonverbal and verbal practices of behavioral science allow for descriptions of "reality" or the "real world". The key to answering this question is found in two pragmatically-based scientific systems, Functional Contextualism (Contextual Behavioral Science) and Radical Behaviorism (Behavior Analysis). Although both scientific systems acknowledge the physical world (or the one world), the case is made that there is no way to access the "real world" in and of itself. All behavior is inextricably related to multiple and interactive environmental variables over time, and thus it is impossible to make discriminations of "reality" that do not entail the influence of such variables. All such discriminations must be, in part, a function of a history in the relevant verbal community and culture. Critics might claim that the scientific perspectives described here also constitute ontology, but even if it qualifies as such under the language game of philosophy, the perspective still serves the pragmatic language game of science. Further, a scientific analysis of ontology might be possible through a functional analysis of the philosophical and psychological terms and practices involved with the language of ontology.

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1. Introduction

The definitions, scope, and methods of ontology as a domain of philosophy are complex and multi-faceted. Traditionally, ontology is the philosophical study of existence, reality, and being. In psychological discussions, ontology may be most commonly linked to issues of reality, as in whether or in what ways scientific methods, findings, or theories may be said to explore or represent what is commonly called the "real world". The question to be addressed in this paper is whether the scientific practices of Contextual Behavioral Science and Behavior Analysis allow for descriptions of "reality" or the "real world", in and of itself.

The question is important to any behavioral scientific perspective that claims to be interested in the totality of human behavior. The verbal practices of the philosophical verbal community constitute a special domain of human environment–behavior interaction that awaits a scientific analysis. The *scientific* study of such verbal relations and interactions will not "answer" the philosophical problems under analysis within the verbal practices of the philosophical verbal community, but would clarify some of the verbal and nonverbal variables and conditions that influence the philosophical terms and discussions of interest to the philosophical community.

In this discussion, the systematic and philosophical common ground of Contextual Behavioral Science and Behavior Analysis will be emphasized. Although such common ground includes various conceptual and methodological issues (differences in emphasis and/or details may also be found; e.g., Vilardaga, Hayes, Levin, & Muto, 2009), the two fields find their most important points of contact in their respective scientific systems, Functional Contextualism and Radical Behaviorism. Both of these systems entail pragmatic views of science, and it is this common ground that will enable the fields and their respective scientific systems to be described together in the following exploration of their treatments of ontology and reality. The two scientific fields will be collectively termed Behavioral Science.

The following is a science-based discussion of ontology and science. It is a theoretical/interpretive exercise, enabling critical review from scientific and philosophical perspectives and perhaps suggesting lines of empirical research.

2. Radical Behaviorism and pragmatism

Radical Behaviorism (RB), like Functional Contextualism (FC), may be properly described as a scientific version of philosophical pragmatism. Numerous sources have documented the relationship in the

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case of RB (e.g., Baum, 2005; Chiesa, 1994; Day Jr., 1980, 1983; Hayes & Brownstein, 1986; Hayes, Hayes, & Reese, 1988; Leigland, 1992, 1999; Moore, 2008; Todd & Morris, 1995; Zuriff, 1980), as well as FC (e.g., Biglan & Hayes, 1996; Hayes, Barnes-Holmes, & Roche, 2001). Pragmatic themes in the RB literature include Skinner's pragmatic interpretations of "truth" (e.g., Skinner, 1957, p. 427; Skinner, 1974, p. 235), and advocacy of the pragmatic interpretation of science as useful knowledge (e.g., Skinner, 1969, p. 141).

Skinner's pragmatism may also be seen in his antirepresentationalist view of science (for more examples and discussion, see Leigland (1999)). This view stands in opposition to the traditional view in philosophy and science that minds or languages can more-or-less accurately represent the "real" world, in and of itself (e.g., Rorty, 1979, 1990). The antirepresentationalist alternative to this is the pragmatic view that the practices of science are effective ways of working adaptively with the world, as Rorty (1990) described as follows:

> Most of [the pragmatist philosophers saw] the appearance/reality distinction…as useful when confined to relatively narrow contexts (apparent magnitude rather than real magnitude, non-dairy creamer rather than real cream), but useless when blown up to the traditional philosophical scale. For them, it is useless to ask whether one vocabulary rather than another is closer to reality. For different vocabularies serve different purposes, and there is no such thing as a purpose that is closer to reality than another purpose.
>
> Nothing is conveyed by saying…that the vocabulary in which we predict the motion of a planet is more in touch with how things really are than the vocabulary in which we assign the planet an astrological influence. For to say that astrology is out of touch with reality cannot explain why astrology is useless; it merely restates that fact in misleading representationalist terms. (p. 3)

Skinner's antirepresentionalist views can be followed from his 1931 doctoral dissertation to his 1974 book, About Behaviorism (for additional examples and discussion, see Leigland, 1999). The following examples illustrate the perspective on pragmatic science and reality:

> In studying perception one is "actually investigating the stimulus conditions under which people" report appearances which are at variance with information obtained by other means. "You never get to the way it really is". (Skinner, 1964; summary and quotes by Wann (1964, p. 101); emphasis in original)
>
> There are often many ways in which a single event may stimulate an organism. Rain is something we see outside our window or hear on the roof or feel against our face. Which form of stimulation is rain? Stimulation arising from contact may not agree perfectly with that arising visually or audibly, and we may not be willing to identify one form with reality to the exclusion of the others. There are still [those] who argue for the priority of one form of stimulation and, hence, insist upon a distinction between experience and reality. We are much less inclined today to ask which form of energy is the thing itself or correctly represents it. (Skinner, 1953, pp. 276–277; emphasis in original)
>
> Responses to some forms of stimulation are more likely to be "right" than responses to others, in the sense that they are more likely to lead to effective behavior. Naturally these modes are favored, but any suggestion that they will bring us closer to the "real" world is out of place here. (Skinner, 1953, pp. 138–139)
>
> Scientific laws…specify or imply responses and their consequences. They are not, of course, obeyed by nature but by [women and] men who deal effectively with nature. The formula $s=1/2gt2$ does not govern the behavior of falling bodies, it governs those who correctly predict the position of falling bodies at given times. (Skinner, 1969, p. 141)

3. Inextricable environment–behavior interactions: the functional and the "real"

On the Behavioral Science view, all creatures engage in constant and comprehensive interaction with the world over time and contexts. In humans this applies to both nonverbal and verbal behavior, and thus all verbal interactions are always and inextricably a function of a confluence of variables in interaction over time and conditions. This means that our assessments of "reality" are a complex set of nonverbal and verbal discriminations that are affected by, for example, a history of functional consequences, varying motivational conditions, discriminative/contextual factors, higher-order complex verbal/relational processes that are related to social/cultural variables over time, and which also entail abstraction, rule-construction, and so on (e.g., Hayes et al., 2001).

Thus when we speak of "reality" we are speaking under the control of a complex web of variables from which there is no escape, and through which there are no direct lines to "underlying reality". Ontological discourse, as with all behavioral interaction, is embedded in historical, verbal and cultural context. On the pragmatic Behavioral Science view, sciences such as physics do not bring us "closer to the underlying reality" of nature, but rather bring us into more effective interaction with the "one world" (e.g., Skinner, 1945, p. 293). To the extent that the findings and practices are effective, extensive, and generalizable, they are more likely to be described as "real" or part of "reality", as when physicists speak about the reality of quantum mechanics in the context of its remarkably precise and diverse lines of experimental evidence (e.g., Greene, 2004).

Descriptions of the "one world" take many forms and entail many vocabularies, from the mathematics of physics to the terminology of metaphysics of philosophy. From the Behavioral Science perspective the differences may be most efficiently described in terms of the functions of the vocabularies and the products of their use, rather than in terms of presumed correspondences to a "reality" that is more-or-less accurately described. There is no way to independently assess such "correspondences" as the presumed "reality" from the perspective of behavioral science, is a complex verbal/cultural construction. Speaking of "true reality" in the vocabularies of metaphysics or ontology is not transcendent, but is just as embedded and entailed with complex environment–behavior interactions as any other behavior.

4. Language games of philosophy and science

It is important to note that the preceding pragmatic interpretation can easily be construed as an ontological statement itself (i.e., a statement about how things are "in reality"), demonstrating that ontology is inescapable. However, being unable to "escape" the use of certain terms in describing the issues involved may say more about the verbal practices and conventions than the implication of certain inevitable representations between those terms and that world. A similar point was made by Rorty (1991) about a language-based interpretation of mind–body substance dualism. That is, the apparent "ontological" difference between mind and body may be a function of the incompatibility or non-translatability of two vocabularies, the vocabulary of biology and the vocabulary of phenomenological experience.

The question for the Behavioral Scientist concerns the functions of the philosophical and scientific verbal behavior. From such

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