Pragmatism And a-ontologicalism in A Science Of Behavior

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Behavior analysis is intimately linked to radical behaviorism, the philosophy of the science of behavior. Ontological discussions in the latter are easily generalized to the former, in which case behavior analysis is not judged by its scientific merit, but evaluated on the basis of philosophical matters. According to pragmatism, the meaning of discourse is to be understood in terms of its effect on behavior, and ontological assumptions are essentially prescriptions on how behavior analysis is to be conducted. Dissemination of behavior analysis would be greatly facilitated if such prescriptions are framed in a form that is as a-ontological as possible, so that fruitless discussions can be avoided that distract from the main purpose of behavior analysis – prediction and control of behavior.
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Behavior analysis, the scientific study of behavior, has always been very closely associated with radical behaviorism, the philosophy of the science of behavior (Skinner, 1974). Of all areas of psychology, it is probably the one that is most intimately linked to a philosophical school of thought. Such a close alignment promotes conceptual coherence within and across different sub-areas of behavior analysis, whose scope has been expanding continuously, from experimental laboratory research with animal subjects, to applied settings, such as schools, work environments and interpersonal relationships. One can easily see the advantages of commonalities in the usage of terminology and in the formulation of behavioral theories.

Even though behavior analysis might have its historical origin firmly embedded in the philosophical framework of behaviorism, it is by no means inseparable from it. Any literature search of experimental behavioral studies would reveal that scientific investigation is only too happy to proceed without preceding philosophical discourse. Indeed, too close a link with philosophy could bring with it some dangers. Any rejection of behaviorism (be it from misunderstandings or even from more informed concerns) can easily be generalized to behavior analysis, in which case the latter is not judged by its scientific merit and predictive power, but rejected for philosophical reasons. Todd and Morris (1992) and Skinner (1974) listed a range of common misconceptions about behaviorism that have negatively affected public perception of behavior analysis.

Regardless of whether one considers a particular argument as justified or as a reflection of a misconception or prejudice, the persistent nature of criticisms forwarded against behavior analysis demands their attention. Behaviorists have frequently stressed the difference between methodological behaviorism and radical behaviorism and that the most common criticisms of behaviorism, such as how private events are dealt with, apply to the former, the older of the two (Skinner, 1974; Zuriff, 1985). Unfortunate choices of terms do not facilitate, but even hinder, efforts of clarification (Drash, 1988). It is difficult to blame the lay reader for believing that the term *radical* behaviorism, with its connotations of fanaticism and lack of willingness to compromise, refers to a form of behaviorism that exaggerates the unattractive peculiarities of methodological behaviorism, rather than to a form with the goal of *consistently* applying behavioral principles including covert behavior.

Misconceptions brought about by usage of terminology are already bad enough, with an audience that might not be very receptive to time-consuming clarifications. Other obstacles to a successful dissemination of behavior analysis involve more philosophical concerns, which, as I will argue in the

present article, can be equally unnecessary and avoidable. According to pragmatism, ontological assumptions are essentially only methodological prescriptions on how behavior analysis is to be conducted. Behavior analysis could benefit greatly from pragmatism's a-ontologicalism to return the focus of the science of behavior to its main purpose – prediction and control of behavior.

PRAGMATISM

Radical behaviorism has been influenced heavily by the philosophy of pragmatism (Moore, 2003; Moxley, 2004). Probably the key distinguishing feature of pragmatism is its treatment of the concepts of *truth* and *reality*. Unlike realism, pragmatism argues that there is no absolute, objective truth, a truth *ante rem* (James, 1907/1996). "[I]t is vain to seek the *nature* of things, since everything is describable/knowable only in the language in which the question of existence has been put...there are no objects describable in the *abstract*, independent of the language of description" (Malone, 2001, p. 70).

Philosophical discourse and scientific investigation, as complex as these behavioral patterns might appear, deserve no special status over any other behavior. Discussion about *any* matter is more verbal behavior to be explained by behavioral laws. Any statement needs be related to its underlying contingencies of reinforcement, and can therefore never be regarded in isolation from the behavioral stream and context of the speaker (Skinner, 1974; Roche & Barnes, 1997; Ryle, 1949; Zuriff, 1980).

While realists claim that, theoretically, we could get very close to a description of a *real* world or an objective truth, pragmatists argue that reality is constantly revised (Malone, 2001). "Truth *happens* to an idea. It *becomes* true, is *made* true by events" (James, 1907/1996, p. 97). Truth is what works, what is useful (James, 1907/1996). It is whatever enables the most effective action (Zuriff, 1980). When one refers to truth, one simply emphasizes one's "expression of his determination to hold on to his choice" (Peirce, 1878/1997, p. 43). As new knowledge becomes available that results in more effective action, beliefs are adjusted and truth is revised accordingly. And since knowing is behaving (Skinner, 1972), we never make contact with a *real* world, but only ever with other behavioral events (Skinner, 1953).

It is important to stress that one must not confuse pragmatism with practicality or instrumentalism (Moore, 1998). What one might call *useful* is not necessarily that which prevails. The Shavian alphabet, Esperanto, and the metric system should immediately spring to mind. How do we define *useful* anyway? It is one thing to explain behavior in retrospect by referring to its outcome as useful, but how does one predict what will be useful in the future? Also, as research in the area of self control (Rachlin, 2000) demonstrates, what is useful in the short term is not necessarily useful in the long term. Therefore, to frame it more precisely in the terms of behavior analysis, talk about truth is what is maintained by reinforcement contingencies. "Truth is concerned with rules and rules for the transformation of rules...Belief is a matter of probability of action and the probability is a function of the contingencies" (Skinner, 1969, pp. 170-171). The behavior analyst therefore reads any reference to *useful* in pragmatist writings as *reinforcing* or *maintained by reinforcement contingencies*.

The realization that any discussion of philosophical theories must include an analysis of the reinforcement context of the speaker has the effect that pragmatism does not attach absolute values to any particular theory. Instead, pragmatism considers any theory as true if it is effective in prediction and control of behavior (Barnes & Roche, 1994; Hayes & Brownstein, 1986; Skinner, 1974). According to the effectiveness criterion of pragmatism, two alternative views or theories are not different from one another if they do not lead to different consequences. "If two concepts lead you to infer the same particular consequence, then you may assume that they embody the same meaning under different names" (James, 1911/1996, p. 60). However, occasions where two alternative statements or views can be considered the

same are arguably extremely rare at best. The effects of names, terms and jargon must not be downplayed. The fewer the differences of two views in terms of practical or tangible outcomes, the relatively more important becomes the social context in which they emerge. Science, like any other activity, is subject to cultural factors (Clayton, Hayes, & Swain, 2005). Cultural heritage and the *zeitgeist* influence what is collectively believed in a particular period of time. At times, personal reasons might also become significant. Baum (2002), for example, referred to *elegance*, among other reasons, to favor the molar paradigm in behavior analysis over the molecular paradigm. With unlimited ways to express a particular view, there are equally unlimited numbers of connotations and idiosyncratic elements that determine whether one view becomes to be accepted as true.

THE FUNCTIONS OF ONTOLOGICAL STATEMENTS

One common working assumption in behavior analysis is that of determinism. As already hinted to by the term *working*, it is a useful assumption in a science that has the aim to predict and control behavior. Whether somebody considers determinism as *true* is determined (pun intended) by that person's particular reinforcement history. One's belief in determinism is upheld if it is maintained by social reinforcement contingencies or if it is coherent with already-held effective beliefs.

For the process of conducting science, the assumption of determinism is useful to set standards. When a particular phenomenon cannot be explained with current knowledge, one is more likely to continue one's search for causes if one assumes that there is always a cause for any event. Giving up and explaining phenomena by referring to undetermined novel events in an explanation would undoubtedly lead to less effective prediction and control in the long run. Pragmatically, therefore, the working assumption of determinism is a prescription on how to conduct science. It is a description of reinforcement contingencies of research methodologies that have resulted and are expected to continue to result in more effective science.

The *meaning* of something is simply what behaviors it involves (Peirce, 1878/1997; James, 1911/1996). The above example about determinism shows that reinforcement contingencies of verbal behavior and the reinforcement history of the speaker can expose the meaning of ontological statements. An appreciation of the behavioral consequences of the different ontological theories could be used to guide us to formulate them in a way to avoid misunderstandings and unnecessary discourse that could arise from them (James, 1911/1996, p. 61). What follows is a discussion of the pragmatic meaning of realism and assumptions about ontological substance dimensions.

Realism

Many behavioral scientists are said to subscribe to realism (Barnes & Roche, 1994), which is the idea that a world of universals exists independently of any observer. "That whose characters are independent of how you or I think is an external reality" (Peirce, 1878/1997, p. 42). The ultimate goal of scientific enquiry is to become increasingly closer to an accurate description of the *real* world, although a complete description will always be practically unattainable. As discussed earlier, the pragmatist argues that there can never be an objective description of an independent reality because of the impossibility of the speaker to remove himself from his or her behavioral stream. "One's conviction that the evidence one goes by is of the real objective brand, is only one more subjective opinion added to the lot" (James, 1896/1997, p. 80). We can never make contact with the abstract object of our discussion, but only with other behavioral events:

"[T]he experimenter may come under the erroneous impression that the stimulus can be

known independently of responding to it. From the behaviorist perspective, however, there is no God's eye view or mental eye view of the stimulus. Neither subject or experimenter has any way of knowing which stimulus occurred at any point *aside from responding to it*" (Natsoulas, 1983, p. 21).

In pragmatism's treatment of *reality*, one is at times reminded of mystic traditions, such as Chán or Zen buddhism's usage of the *gōng àn* (Japanese: *kôan*):

> "[I]t makes very little difference whether we say that a stone on the bottom of the ocean, in complete darkness, is brilliant or not—that is to say, that it is *probably* makes no difference, remembering that that stone *may* be fished up to-morrow" (Peirce, 1878/1997, p. 47)

In the functional definition of behavior used in behavior analysis, a stimulus implies a response and a response implies a stimulus (Barnes & Roche, 1994, 1997; Zuriff, 1985). A stimulus can therefore not be conceptualized without its corresponding response. And no two stimuli can ever be the same. Every person, or more precisely, every behavior, makes contact with, or engages in, the world of behavioral events in its own unique way.

Pragmatically, to say that an object or stimulus is *real* or *as if real* is equally true (Barnes-Holmes, 2000), although social reinforcement histories are probably more likely to select the former. Imagine you have just come back from the basement, but you forgot to switch off the light. And now you want to get your child to go downstairs and turn the light switch. Of course, you are going to say something like: "The light is still on in the basement. Please go downstairs and switch it off". It would be very strange to say: "It is *as if* the light is still on in the basement. Please go downstairs and switch it off". Or imagine the confused look you would receive if you said: "There is no light in the basement. Please go downstairs. When you open the door to the basement, you will see that light is on. Please switch it off."

Ontological Substance Dimensions

Western philosophy has deep roots in dualistic traditions tracing back to Plato and Descartes. There are many different forms of dualism, but their main characteristic is the division of the world into two substance dimensions. Today, this distinction, such as between the physical and the non-physical, still features widely in the *weltanschauung* of the scientific, philosophical and lay community. Behaviorists, in contrast, have traditionally been ardent monists, and it has been said that monism is even a requirement for being called a behaviorist (Malone, Armento, & Epps, 2003). According to monism, the world consists of only one single substance dimension. Monism does not permit explanations that refer to immeasurable events from another substance dimension, such as in dualism's distinction between the physical and the mental. Because all events are of the same type, they can in theory be related tp one another in a causal fashion, and monism is therefore usually accompanied by the assumption of determinism.

The monist view that is most commonly expressed in the literature of radical behaviorism is that of physicalism:

> "…I contend that my toothache is just as *physical* [italics added] as my typewriter" (Skinner, 1945, p. 294), and

> "The skin is not that important as a boundary. Private and public events have the same kind of *physical dimensions* [italics added]" (Skinner, 1963, p. 953).

The usage of the term *physical* in definitions of monism can be taken to mean "as opposed to mentalistic explanations", or explanations that refer to mental and psychological events as causes of behavior. Radical behaviorism has always criticized the usage of mentalistic explanations (Skinner, 1938), and instead argues that all behavioral events, including both overt and covert, can be accounted for by one single conceptual framework:

> "A private event may be distinguished by its limited accessibility but not, so far as we know, by any special structure or nature. We have no reason to suppose that the stimulating effect of an inflamed tooth is essentially different from that of, say, a hot stove. The stove, however, is capable of affecting more than one person in approximately the same way" (Skinner, 1953, pp. 257-258).

According to radical behaviorism, therefore, the distinction between private and public events is not one of ontology, but one of accessibility. The fact that they are inaccessible to the public does not imply that they do not follow behavioral laws. Private events are considered part of the causal chain, or causal texture (Moore, 2003), of behavior, although Skinner claimed that they can never be *initiating causes*, but only ever exert discriminative stimulus control (Overskeid, 1994). Radical behaviorism is therefore not bound by the concept of *truth-by-agreement* as methodological behaviorism is:

> "The ultimate criterion for the goodness of a concept is not whether two people are brought into agreement but whether the scientist who uses the concept can operate successfully upon his material—all by himself if need be. What matters…is…whether he is getting anywhere in his *control* over nature" (Skinner, 1945, p. 293-294).

Radical behaviorism's objections with methodological behaviorism are at root about its operationally defined methodology, and it is irrelevant whether one talks about a form of methodological behaviorism that is ontologically dualistic or that is ontologically monistic but epistemiologically dualistic. The objections forwarded against dualism by behaviorists are generally of pragmatic nature relating to the effectiveness of scientific enquiry. "The objection is not that these things are mental, but that they offer no real explanation and stand in the way of a more effective analysis" (Skinner, 1969, p. 222). Instead of using intervening variables and hypothetical constructs,

> "[a] science of behavior must eventually deal with behavior in its relation to certain manipulable variables. Theories—whether neural, mental or conceptual—talk about intervening steps in these relationships. But instead of prompting us to search for and explore relevant variables, they frequently have quite the opposite effect. When we attribute behavior to a neural or mental event, real or conceptual, we are likely to forget that we still have the task of accounting for the neural or mental event. When we assert that an animal acts in a given way because it expects to receive food, then what began as the task of accounting for learned behavior becomes the task of accounting for expectancy" (Skinner, 1984, p. 517).

On one rare occasion, Skinner (1945) expressed a more general form of monism that did not explicitly postulate a physical dimension: "What is lacking is the bold and exciting behavioristic hypothesis that what one observes and talks about is always the 'real' or 'physical' world (or at least the 'one' world)" (p. 292-293). Since monism assumes that the world consists of only one single substance dimension, there is no need to insist on particular terms for that dimension. Whether we say that everything is spiritual (Berkeley, 1710/1962), that everything is God (Spinoza, 1677/1930), or even that everything is water (Malone et al., 2003) is irrelevant. "For behaviorism, as for Berkleian idealism there is no separation between one group of facts, called the mental, and another group of facts, called physical or material" (MacKinnon, 1928, p. 356). A person made out of spiritual substance cannot step out of his or

her own body, behavioral stream, or world to confirm that everything is spiritual. Neither can a person made of any other matter.

Apart from contrasting a substance dimension with the mental, the term *physical* can also be interpreted as relating to *physics*. Saying that private events are physical would simply mean that every behavior can be described and explained using the language of this science. Although behavior is a "subject matter in its own right" (Skinner, 1938, p. 440), a description and explanation of behavior is theoretically reducible to the laws of physics. In principle, radical behaviorism is not opposed to such attempts. Certainly, just like the different levels of explanations that are available in the natural sciences, reductionism might eventually turn out to be useful in helping to explain behavioral phenomena (Moore, 2002).

Probably nobody would argue that the laws of physics will cease to apply if different terms and names were used to describe the world. There is no reason why a Berkleian scientist cannot be just as successful in predicting the movement of *spiritual* phenomena than a physicist is in predicting the movement of *physical* phenomena, provided they both use the same methodology, principles, and equations. As discussed earlier, science is behavior, and the only contact that a scientist can make is with other behavioral events. Whatever one calls the single substance dimension of monism does not influence the effectiveness of scientific explanations in terms of prediction and control. Purely based on this criterion, therefore, it does not matter how we call the single substance dimension. The reasons why it *does* matter, however, and why the monist scientist should not be careless in the usage of ontological terms, lie in the reinforcement history and context of the listener. Every term has its connotations and associations that, as discussed earlier, can make a difference on whether a particular statement is accepted as *true* or not. Saying "yîn" implies "yáng", saying "above" implies "below", and any talk of something *physical* or *material* implies something *mental* or *immaterial.* By using the term *physical*, we awaken the ghost of the *mental.* Omitting reference to a mental dimension in an analysis of behavior as allegedly *physical* events implies an epi-phenomenalism of the type found in methodological behaviorism. We have just let in dualism through the backdoor. We appear to be silently acknowledging a second substance dimension but not giving it a causal status. As a result, "many scholars take the very definition of behaviorism to entail the rendering of the mental in terms of publicly observable behavior or dispositions to behave" (Moore, 2001a, p. 168), and radical behaviorism remains lumped with methodological behaviorism.

A-ONTOLOGICALISM AND BEHAVIOR ANALYSIS

Even though, at times, pragmatists expressed explicitly anti-ontological views (Peirce, 1878/1997, 1904/1997), it would be overall more appropriate to label pragmatism a-ontological (Barnes-Holmes, 2003). Pragmatism argues that the meaning of ontological statements needs to be sought in their effect on behavior, but that does not imply that ontological talk is to be discouraged. The a-ontologicalism of pragmatism is not prescriptive, but simply reflects the realization that the subject of the talked-about can never be dissociated from the speaker, or the listener, for that matter.

Any philosophical discourse ultimately reduces to a purely behavioral account that requires reference to the reinforcement contingencies controlling the behavior of the speaker. Whether, and what type of, ontological talk will be maintained in the long term, will depend on its effectiveness, whereby, to be consistent in a functional analysis of philosophical behavior, we need to remind ourselves that this statement itself cannot be taken as a given, either, but needs to be understood as only "a loose *prediction* from a science of behavior, [and] not a *recommendation* deduced from that science" (Zuriff, 1980, p. 348).

Gazzaniga, Ivry and Mangun (1998) described *philosophical behaviorism* as a view that "one cannot talk about inner experience at all" (p. 529). The literature of psychology is full of similar examples where behaviorism is described inaccurately. Probably equally plentiful are the attempts by behaviorists to rectify such misconceptions. Whether we personally consider a certain argument as justified or not, is irrelevant. What matters are reinforcement contingencies to lead to that verbal behavior. "Even nonsense and muddled language are caused by something, and analysts of verbal behavior are obliged to account for this language just as much as that of which they approve, rather than dismissing it as the result of pathological processes or of emotional significance only" (Moore, 2001b, p. 243).

Pragmatism does not attach any absolute value to any particular ontological assumption. Behavior analysis might be able to predict which ontological assumptions could be useful in the future and could be maintained by reinforcement contingencies, but the success of any prediction will only be known in retrospect. It would be unwise, therefore, to cling to certain ontological assumptions without being prepared to abandon them if need be. As Skinner (1972) noted: "I cannot quite agree that the practice of science *requires* a prior decision about goals or a prior choice of values" (p. 35). Besides, the ontological assumptions we might make collectively in behavior analysis can differ considerably from our individual ones. And even then, there can be stimulus control of ontological verbal behavior, such as when someone is a monist in science, but a dualist in church.

Ontological assumptions are pragmatically methodological prescriptions in disguise. They can be beneficial by conveying a sense of a credo for scientific investigations from which to derive a set of guidelines. At times, these formulations can be a very efficient way of communication. As discussed earlier, it is often much more efficient to use realist language rather than lengthy and technical behavioral descriptions. Language will always be full of biases. A pure data language is an unachievable goal (Zuriff, 1985), and we have to accept the fact that all language will always have to rely to varying degrees on shorthand expressions. The use of ontological language in the verbal community is therefore likely to continue.

Early theories of behavior might have been inspired by ontological claims and philosophical assumptions, but as these theories have evolved, with a continuously expanding catalogue of techniques and applications, the more important have become their predictive power and effectiveness. Hanging on to certain ontological assumptions for purely historical reasons risks the danger of exposing behavior analysis to the connotative effects of ontological terms and statements and thus diverting attention away from the empirical usefulness of behavioral theories, techniques and principles. There are occasions when behavior analysts must ask themselves whether certain ontological expressions are really necessary. What does it contribute when saying that "my toothache is just as physical as my typewriter" (Skinner, 1945, p. 294)? What is gained that justifies the negative connotations that the term *physical* has for some people? An alternative might be to say that "my toothache is just as *spiritual* as my typewriter". Although, pragmatically, one might consider these two sentences to be the same, the latter could equally lead us back again into the dualist trap, let alone putting off those other type of people who attach certain connotations with the word *spiritual*. But why do we need to attach a label at all? All we need to say is that behavior analysis can explain both private and public events. Remaining as a-ontological as possible will make behavior analysis more attractive to a much wider audience. The goal of behavior analysis is successful prediction and control of behavior. As long as the techniques of behavior analysis are used appropriately, it is irrelevant whether at heart one is a dualist, monist, idealist, materialist, or any other -ist.

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