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On Private Events and Theoretical Terms

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The conception of a private event as an inferred, theoretical construct is critically examined. The foundation of this conception in logical positivist epistemology is noted, and the basis of the radical behaviorist alternative is presented. Of particular importance is the radical behaviorist stance on the contributions of physiology and private behavioral events to psychological explanations. Two cases are then reviewed to illustrate radical behaviorist concerns about private events, theoretical terms, and the relation between them. The first is the position of cognitive psychology toward internal states and processing mechanisms. The second is the recent suggestion that even radical behaviorists regard the private event as an inferred, theoretical construct (Zuriff, 1985).

A common distinction in the philosophy of science, generally credited to logical positivism, concerns observational and theoretical terms. According to this distinction, observational terms are first-order epistemological phenomena that refer to publicly observable physical objects or attributes of physical objects. In contrast, theoretical terms are higher-order epistemological phenomena that are inferred according to the established principles of logic from publicly observable phenomena (e.g., Hempel, 1958; Maxwell, 1962; Smith, 1986).

The logical positivists regarded both sorts of terms as integral to science. However, they insisted that the terms be handled properly, so that "metaphysical" propositions would not degrade the cognitive significance of the scientific enterprise. The original logical positivist interpretation, as well as the interpretation of operationism as it was practiced in the United States, was that theoretical terms must be *explicitly and exhaustively reducible* to publicly observable events. For example, any "mental" term used in psychology

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must be regarded as a theoretical term that referred to nothing more than either publicly observable behavior or "dispositions" to behave.

However, an approach requiring exhaustive reduction did not always work, as Rudolf Carnap, a leader of the logical positivist movement, recognized by the mid-1930s. Concepts in science were flexible and probabilistic, not fixed and static as required by exhaustive definitions. Moreover, dispositional concepts had no observable manifestations except under particular test conditions. What was the status of the disposition in the absence of the test conditions? To resolve these problems, Carnap developed an alternative interpretation, involving partial definitions, reductive chains, and bi-lateral reduction sentences (Carnap, 1936, 1937; see Zuriff, 1985, p. 59 ff.). In the end, logical positivists dropped the requirement that theoretical terms be exhaustively defined with reference to observable events, and required only that theoretical terms be logically derived from observable events. Indeed, some writers feel that the movement after the introduction of these changes should be known as "logical empiricism," rather than logical positivism, to mark this rather significant revision in doctrine (see Smith, 1986, p. 28).

A noteworthy illustration of these changes is the passage below by Herbert Feigl, one of the original logical positivists. The passage is included here because it illustrates the changes in logical positivist thinking, and because it anticipates certain arguments to be made later in the present paper.

> Statements about mental events are not translatable into statements about (actual or possible) overt behavior . . . . The meaning of statements (at least in one very important sense of "meaning") is to be identified with their factual reference, and not with their evidential basis. The slogans of early logical positivism and of ultra-operationism about meaning and verification—while helpful in the repudiation of transcendent metaphysics—despite their imprecisions were far too restrictive to do justice to the actual conceptual structure of knowledge. (Feigl, 1963, pp. 247–248)

During the 1930s, psychology also began to introduce theoretical terms, as it entered the era of S–O–R mediational neobehaviorism (Gergen, 1985). By the late 1940s, continuing discussions of the nature of operationism prompted psychology to face the same problem as had logical positivist philosophy some years earlier, namely, did theoretical terms in psychology require an exhaustive definition in terms of observables? As is well known, MacCorquodale and Meehl (1948) pointed out that many theories in psychology employed two sorts of theoretical terms without explicitly realizing it. One sort required that theoretical terms be exhaustively reducible to observable events, whereas the second sort allowed for meaning beyond observable events. MacCorquodale and Meehl proposed a linguistic convention, where instances of the first sort, such as Hull's habit strength, would be referred to as "intervening variables" and instances of the second, such as Hull's afferent neural interaction, as "hypothetical constructs."

Psychologists subsequently came to employ a large number of hypothetical constructs in their theories, because constructs afforded a greater latitude in theory construction and because of the constructs' "heuristic value." For example, Tolman (1949), who introduced theoretical terms to psychology, quite explicitly abandoned his original intervening variable interpretation in favor of the hypothetical construct interpretation:

> I am now convinced that "intervening variables" to which we attempt to give merely operational meaning by tying them through empirically grounded functions either to stimulus variables, on the one hand, or to response variables, on the other, really can give us no help unless we can also imbed them in a model from whose attributed properties we can deduce new relationships to look for. That is, to use Meehl and MacCorquodale's distinction, I would abandon what they call pure "intervening variables" for what they call "hypothetical constructs," and insist that hypothetical constructs be parts of a more general hypothesized model or substrate. (p. 49)

In any event, the upshot was that most psychologists assumed they were following safeguards specified by the philosophy of science, and consequently came to feel quite comfortable about the use of theoretical terms in their theorizing.

The exception to this whole trend of theorizing in psychology was the radical behaviorism of B.F. Skinner. Skinner's (1945) revolutionary paper on operationism was in fact a thoroughgoing indictment of the conventionally accepted position, particularly as it concerned "methodological behaviorism" and "the operationism of Boring and Stevens." Skinner agreed that the critical issue was how to accommodate the contribution of unobservables, such as private events, to explanations of behavior. However, Skinner argued that the conventionally accepted position failed to make some important distinctions, was confused about others, and ended up preserving an established set of explanatory fictions, all to the detriment of scientific progress. For that matter, Skinner argued, the entire conception of the relation among verbal behavior, logic, and scientific activity must also be revised.

The present paper will first examine the way Skinner's radical behaviorism views private events, particularly with regard to explanations. Then, two cases will be reviewed to illustrate radical behaviorist concerns about private events, theoretical terms, and the relation between them. The first is the position of cognitive psychology toward internal states and processing mechanisms. The second is the recent suggestion that even radical behaviorists regard the private event as an inferred, theoretical construct (e.g., Zuriff, 1985).

Explanations, Radical Behaviorism, and Private Events

Let us begin with some comments on explanations and the particular contributions of private events to explanations from the perspective of radical behaviorism. As noted elsewhere, radical behaviorism views an explanation

as verbal material that guides effective action on the basis of either (a) direct intervention by manipulation and control into natural events, (b) predictions suggesting appropriate action when direct intervention is not feasible, or (c) some combination of the two (Moore, 1987, 1990).

Two broad classes of factors occasion explanations of behavior: organismic and environmental. These factors may be viewed as interacting elements in a coordinated system, similar to Aristotelian material and efficient causation (Hocutt, 1974; Winton, 1986). Let us now examine these two broad classes of factors more specifically.

Organismic Factors

Organismic factors include the general physiological characteristics of the sentient organism: (a) a genetic endowment that accommodates innate, operant, and respondent behavior, (b) sensory systems that are responsive to stimulation in various forms, and (c) a nervous system that provides continuity between stimulus and response.

Knowledge of these organismic factors allows a researcher to fill the two spatial and temporal gaps inherent in a behavioral account. The first gap lies between stimulus and response, as the organism behaves today. The second gap lies between today's experiences and their effects on subsequent behavior. Events during these two gaps are a legitimate subject matter for some aspect of biological science. For example, suppose such physiological characteristics as how the organism has been changed by events within its lifetime or how the organism stands in respect to third variables, is known. Effective action may then be based on information about those characteristics, rather than a possibly inadequate specification of historical interactions between organism and environment (cf. "An organism behaves as it does because of its current structure," Skinner, 1974, p. 8; "In a more advanced account of a behaving organism 'historical' variables will be replaced by 'causal.' When we can observe the momentary state of an organism, we shall be able to use it instead of the history responsible for it in predicting behavior," Skinner, 1969, p. 283). Perhaps in the future a technology will even become available whereby the inner physiological states might be produced directly. Such a technology would further expand the possibilities for predicting, controlling, and understanding behavior.

Nevertheless, the question of "How does an organism's body function when it responds to various aspects of the world?" is not the same as the question of "What are the various aspects of the world to which an organism's body responds?" Although answers to both questions may well be relevant to predictions in a science of behavior, an answer to the first question does not provide the same information about how to control behavior as

does an answer to the second (see also Hineline, 1984; Marr, 1983; Morris, Higgins, and Bickel, 1982; Schnaitter, 1986a, 1986b). Thus, consideration of environmental factors is relevant.

Environmental Factors

Environmental factors that occasion explanations include eliciting operations, which underlie unconditioned reflexes, kineses, taxes, and fixed action patterns. Presumably, such responses have survival value to the members of the species, as the species has evolved through the millennia.

Contingencies and the elements of which contingencies are composed are also included among environmental factors. Contingencies operate during the lifetime of the individual organism and promote adaptation to new environments. Stimulus–stimulus contingencies produce conditioned respondent behavior, whereas contingencies of reinforcement produce operant behavior. The stimulus–stimulus contingencies of conditioned respondent behavior are concerned with relations between the conditioned and unconditioned stimulus. Contingencies of reinforcement are concerned with the interrelation among (a) the discriminative antecedent condition, (b) the response itself, and (c) the reinforcing consequence achieved by the response in the past. Sensitivity to contingencies also has survival value to the members of the species, as the species has evolved through the millennia.

The Contribution of Private Events to Psychological Explanations

Most of the elements constituting contingencies would presumably be publicly observable. However, not all are. An important part of an organism's environment is not directly accessible to others, for example, because it is enclosed within an organism's own skin. At issue is whether events that take place within an organism's skin should be regarded as having special properties simply because of their locus. Radical behaviorism regards these events as homogeneous with events outside the skin. Thus, radical behaviorism argues that these events may be considered as (a) occurrent, private behavioral processes that serve as sources of discriminative stimulation for subsequent behavior (e.g., as in "thinking"); and (b) private sources of [interoceptive] stimulation not immediately related to occurrent behavioral processes (e.g., as in aches and pains; see Moore, 1980, 1984a, 1984b). These two classes of phenomena are Skinner's "private events."

The Causal Status of Private Events

A good deal has been written about the causal status of private events (e.g., Schnaitter, 1978; Moore, 1984b; Zuriff, 1979b). From the perspective of radical behaviorism, an organism interacts with its environment in the process called behavior. Private events may participate in the event in question, but neither as initiators nor as mere physiological mediators of behavior. They do not explain behavior, but rather are more phenomena to be explained.

To be concerned with private events is to be concerned with the discriminative stimulus control arising from private responses, or with the effects of private, interoceptive stimulation. Let us now examine the implications of each of these two cases for the causal status of private events.

In most instances of private responses, the responses were presumably acquired in their public form. The responses then receded to a private level because the public forms were punished, because the private forms were more expedient, or because the stimuli that occasioned the public forms were weak. The responses are carried out on a smaller scale, or perhaps just their incipient stages are involved.

Importantly, the private responses owe their discriminative function to particular public antecedent states and conditions (Moore, 1984b, p. 6). Failure to recognize this origin means an incomplete analysis in terms of behavior–behavior relations, rather than a complete analysis in terms of environment–behavior relations (Hayes and Brownstein, 1986, pp. 185–186). As Skinner (1953) says,

> The private event is at best no more than a link in a causal chain, and it is usually not even that. We may think before we act in the sense that we may behave covertly before we behave overtly, but our action is not an "expression" of the covert response or a consequence of it. The two are simply attributable to the same variables. (p. 279)

Other private events are concerned with interoceptive stimulation relating to felt conditions of the body. For example, speakers may report they are in pain. Is pain as a private event the cause of a subsequent response? The circumstances that cause the pain may well elicit certain responses, but in general, the responses are directed toward the environmental conditions responsible for the pain. Alternatively, responses may be concerned with terminating contact with the pain. In either case, the pain is the motivating condition that modulates the behavioral effect of various antecedent and consequent environmental stimuli.

A special case concerns the labeling of private stimuli. Ordinarily, the verbal community teaches pain language to speakers by reinforcing verbal responses in the presence of the appropriate discriminative stimulus. The verbal community works with a handicap in the case of private stimuli, how-

ever, because the verbal community does not have adequate access to the appropriate stimuli. The verbal community overcomes this handicap by administering reinforcement on the basis of collateral responses or public accompaniments (Skinner, 1945; see also, Moore, 1980).

From this perspective, to ask whether individuals are aware of private stimuli is to ask the same sort of question as whether they are aware of public stimuli. To ask whether they are aware they are in pain is to ask if conditions are such that they are going to verbalize that they are being stimulated in painful way. Such a statement is no different in principle than asking if they are aware a light is on. The inquiry concerns the presence/absence of a particular kind of stimulus control over a verbal response, and not necessarily the stimulus control over another response—a motor response—that may be functionally related to escaping from whatever causes the pain in the first place (e.g., Natsoulas, 1983, pp. 8–9).

Indeed, a locution that asks about awareness of pain actually prejudices the case. One is presumably already aware of the stimulation as painful when one asks about the awareness of pain. One might not be so aware of the stimulation during an emergency, or the heat of battle, or when otherwise distracted. In any case, the "observation" and subsequent verification of a causal inner state are not any more involved in private stimulation than in public stimulation.

Radical Behaviorism, Cognitive Psychology, and Theoretical Terms

We may now turn to a first illustration of radical behaviorist concerns about private events, theoretical terms, and the relation between them. This illustration deals specifically with the orientation of cognitive psychology toward its "theoretical terms." In brief, cognitive psychology holds that its theoretical terms are meaningful because they designate functional mental states or processing mechanisms, rather than because they are operationally defined, in the fashion of logical positivism, in terms of publicly observable behavior or "dispositions" to behave. These internal states and processing mechanisms are thought to be necessary ingredients in any explanation of behavior. Cognitive psychology further argues that these phenomena differ from anything with which any kind of behaviorism can deal, by virtue of behaviorism's concern with publicly observable behavior. Therefore, cognitive psychology claims explanatory superiority over any kind of behavioral psychology, including radical behaviorism.

Consider, for example, the following passage from Fodor (1968):

> To qualify as a behaviorist in the broad sense of that term that I shall employ, one need only believe that the following proposition expresses a necessary truth: For each mental predicate that can be employed in a psychological explanation, there must be at least one description of behavior to which it bears a[n exhaustive] logical connection.

> I shall henceforth refer to this proposition as P . . . . A mentalist is, then, simply someone who denies "necessarily P." . . . . [T]he distinction between mentalism and behaviorism is both exclusive and exhaustive. (pp. 51; 55)

Similarly, Sober (1983) argues that

> [M]ental states are inner. They are the causes of behavior and are therefore not identical with behavior . . . . Besides claiming that mental states cause behavior, mentalism goes on to say how these mental states manage to do so. (p. 113)

As expressed in these two passages, the mentalism of cognitive psychology advocates causal explanations of behavior that do not operationally define theoretical, mental phenomena in terms of publicly observable, behavioral phenomena (cf. Block, 1980, p. 172).

An Alternative Assessment of the Cognitive Orientation

From the perspective of radical behaviorism, the entire orientation of cognitive psychology to explanation, especially as explanation involves terms pertaining to mental events, is in fact consistent with that advocated in both logical empiricism and mediational neobehaviorism. Let us begin the assessment of the cognitive orientation by reviewing certain broad methodological issues associated with the conduct of science. As Harré (1970) has discussed, much of what is called explanation in contemporary science consists in showing "how the patterns discerned amongst events are produced by the persisting natures and constitutions of things and materials" (p. 125). Similarly, Block (1980) identifies a mode of explanation "that relies on a decomposition of a system into its component parts; it explains the working of the system in terms of the capacities of the parts and the way the parts are integrated with one another" (p. 171). Finally, Flanagan (1984, pp. 182–183) describes an inference strategy that allows analysts to start with observables and go "behind the scenes." The strategy has four steps:

Step 1: Start with known facts.
Step 2: Ask how the facts could come to be as they are.
Step 3: Use observable events to answer the questions at step 2. If observable events yield a satisfactory answer, stop. Otherwise, proceed to step 4.
Step 4: Use unobserved or unobservable events to fill out the answers to questions remaining after step 2.

Given such citations, the common explanatory methodology in science seems to be explaining the observable in terms of underlying structural entities, where those entities may not be publicly observable.

What does this explanatory methodology have to do with cognitive psychology? According to Wessells (1981), the principal aim of cognitive psy-

chology "is to explain behavior by specifying on a conceptual level the universal, internal structures and processes through which the environment exerts its effects" (p. 167). Baars (1986) places the matter in a similar way:

> We have defined cognitive metatheory as a belief that psychology studies behavior in order to infer unobservable explanatory constructs, such as "memory," "attention," and "meaning." A psychological theory is a network of such constructs, serving to summarize empirical observations, predict new results, and explain them in an economical way. Like behaviorism, cognitive psychology is primarily a metatheory for psychology, one that simply encourages psychologists to do theory . . . . No longer is it thought necessary for theoretical constructs to resemble visible stimuli and responses, or to adhere to rigid conceptions of theoretical parsimony . . . . By the same token cognitive psychology is an act of imagination that permits wider latitude in imagining explanations for behavior. Whereas behaviorism taught psychologists to respect empirical evidence, the cognitive metatheory may make it possible to do good theory. (pp. 144–145)

From these passages, it seems that cognitive psychology conforms to the traditional explanatory methodology outlined at the beginning of this section.

We now come to the central issue. As noted in the present Introduction, logical positivism, in the late 1930s, retreated from the requirement that theoretical terms be exhaustively defined in terms of public observations (see Feigl, 1963), as did mediational neobehaviorism in the 1940s (see Tolman, 1949). Thus, closer inspection suggests that *given a hypothetical construct interpretation of theoretical terms, the acts, states, mechanisms, and processes of cognitive psychology are essentially compatible with the theoretical terms developed under the auspices of logical empiricism and deployed for explanatory purposes in mediational neobehaviorism* (for further discussion of this point, see Moore, in press). The foregoing does not constitute an endorsement of either cognitive psychology or mediational neobehaviorism by any means. Rather, it is simply to point out that mediational neobehaviorism and cognitive psychology are more closely related than cognitive psychologists let on, and that many criticisms of mediational neobehaviorism by cognitive psychologists are off the mark.

Indeed, in surveying the contemporary scene, Leahey (1987) makes this same point in the following way:

> Herbert Simon, one of the founders of modern information processing psychology, betrays the continuity of information psychology with behavioralism, and even its affinity with behaviorism, very well . . . . The information processing adherents do not believe central processes are covert versions of S–R associations, but their theory is not far removed from Hull's or Tolman's except in complexity of sophistication. Information processing is a form of behavioralism. The information processing view follows the steps of William James, Hull, and Tolman in seeing, beneath behavior, processes to be investigated and explained. (pp. 437–438)

In summary, the argument here is that cognitive psychology is an enterprise that deploys a set of theoretical concepts, which it depicts as mental states

and processes, as it seeks to provide a causal explanation of behavior. That whole process is consistent with mediational neobehaviorism, which sought to deploy its own set of theoretical concepts in pursuit of a causal explanation of behavior. In both cases the theoretical concepts designate entities that are different in kind from the evidence that justifies their use. From the perspective of radical behaviorism, at least three troublesome features of the cognitive theoretical orientation follow as a consequence of this consistency.

Three Troublesome Features of the Cognitive Theoretical Orientation

Physiological vs. discriminative factors. The first troublesome feature is that the cognitive theoretical orientation does not distinguish adequately between physiological and discriminative factors. The question is whether a purported understanding of the structure of the dependent variable warrants the inference that that structure is the artifact of some generative private phenomenon similarly structured, such that little else is needed in the way of explanation.

A radical behaviorist argues that much more is needed. Of course, physiological factors are relevant, but the argument is that cognitive psychology as currently practiced distorts what could be a useful insight into those factors, and impedes the analysis of the contribution of environmental factors. At the very least, where is it adequately recognized that the structure of the observed phenomena might be derived from ontogenic contingencies, rather than universal, biologically determined principles and processing mechanisms? Not all behavior is determined by reinforcement contingencies, of course, but enough is so determined to make the consideration worthwhile.

The behavior of explaining. The second troublesome feature of the cognitive theoretical orientation concerns the process of explanation. In brief, the issue is whether explanation is regarded as a behavioral process, or whether explanation is regarded as essentially a logical process, caused by a privately constructed entity, such as a theoretical term, that acts upon the scientist's neurological machinery according to the rules of logic to cause the behavior of correct explaining (Moore, 1989). Radical behaviorism adopts the first point of view, but cognitive psychology seems to adopt the second, as does mediational neobehaviorism. The appeal to "theoretical" entities (see quote by Baars above) suggests that the hypothetical construct is given some sort of mystical power to produce knowledge. Cognitive psychology appears to regard knowledge as the theory-driven, unique achievement of logical inference and logical necessity.

The status of logical necessity has always been controversial. Wittgenstein, Quine, and others have rejected logical necessity as being the kind of compulsion that traditional approaches imply. Ironically, such contemporary the-

orists as Chomsky and Popper (e.g., Popper and Eccles, 1976), who have committed themselves to the supremacy of logic, have now formally embraced Cartesian dualism to maintain the integrity of their epistemological position insofar as it involves logic and logical necessity. In any case, from the perspective of radical behaviorism, the way that cognitive psychology endorses the supremacy of logic implies a dualistic world view, despite its repeated disavowals of dualism.

Instrumentalism vs. realism. The third troublesome feature of the cognitive theoretical orientation concerns instrumentalist versus realist interpretations of theories in science. From the standpoint of radical behaviorism, the cognitive orientation raises an enormous epistemological problem with its claim that an appeal to an inner phenomenon makes an irreducibly distinct contribution to the explanation of an event. In particular, the problem is with the claim that because the aim of science is to predict and control, any device that mediates prediction and control must by definition be valid because it is pragmatically useful.

The premise underlying the argument is that any use of terms is as a construct or symbol, because we humans are essentially symbol-using creatures. Propositions need only be evaluated in terms of an empirically agreed upon method, and the good ones thereby sorted out from the bad. This issue is a time-honored one, pertaining to the instrumental versus realist interpretation of theories in science (Suppe, 1977). A conspicuous illustration of the cognitive endorsement of the instrumentalist view may be seen in the following quote from an interview with George Mandler, a noted cognitive psychologist: "[O]ne of the components of theory is the generation of useful fictions [sic]. That's what theories are about" (as cited in Baars, 1986, p. 255).

The problem is that theoretical concepts can be mischievous and deceptive, as well as useful. Cognitive psychologists seem all too ready to grant the logical positivists' distinction between the context of discovery and the context of justification. In contrast, for the radical behaviorist, even a preliminary operational analysis of the origin of some concepts would reveal they are derived from linguistic or cultural preconceptions, and are cherished for irrelevant and extraneous reasons. To say that concepts will be corrected through experimentation is not enough. Many should never have been proposed in the first place, and scientists have squandered important resources in coming to that conclusion. If all that is necessary is for some phenomenon to account for an agreeably high percent of the variance, why does not phlogiston continue as a serious account for a theory of combustion?

Are Cognitive and Behavioral Psychology Complementary?

In conclusion, are we to regard cognitive and behavioral psychology as complementary branches of behavioral science (cf. Catania, 1973)? For

example, we have noted that a behavioral account necessarily includes two gaps. Is cognitive psychology the discipline concerned with filling those gaps? No doubt neurophysiology would fill the gap and be regarded as complementary with behavioral psychology, in the special sense advanced earlier in this paper (see also Schnaitter, 1987). The real question is whether the gaps in a behavioral account will be filled by anything similar to various conceptual acts, states, mechanisms, and processes of contemporary cognitive psychology. Many think not (see discussion of this point in Marr, 1983, p. 12; Schnaitter, 1984, p. 7).

Moreover, it is difficult to see how cognitive and behavioral psychology are complementary when the cognitive position is that "functional relations between environment and behavior are not explanatory" (Wessells, 1982, p. 75). Note that popular opinion portrays behaviorists as intransigent. Wessells (1981, pp. 167–168) states that there are very great differences between cognitivists and behaviorists regarding goals and conceptions of explanation, and that in order to achieve extensive cooperation between behaviorists and cognitivists, these differences will have to be reconciled. Wessells' point is well-taken, but merits clarification. From the radical behaviorist perspective, there seem few important differences between mediational neobehaviorism and cognitive psychology. The very great differences lie between radical behaviorism on the one hand, and both mediational neobehaviorism and cognitive psychology on the other.

Radical Behaviorism and Private Events as Inferred, Theoretical Constructs

We may now turn to a second illustration of radical behaviorist concerns about private events, theoretical terms, and the relation between them. This illustration deals with the recent suggestion (Zuriff, 1979a, 1980, 1985; see also Williams, 1986) that radical behaviorists regard private events as inferred, theoretical constructs, just as do more traditional mediational neobehaviorists such as Spence (1948). The following passage is representative of this position:

> Skinner's statement that private events are the discriminative stimuli for certain verbal responses is, at present, no more than a hypothesis . . . . Therefore, private stimuli and response are inferences . . . . [I]t seems appropriate to judge Skinner's private events as inferred and therefore as hypothetical constructs. (Zuriff, 1985, pp. 86–87)

The next section of the present paper will offer the counterargument that Skinner's radical behaviorism does indeed regard private events differently than does mediational neobehaviorism. The counterargument has three aspects.

Three Aspects of the Radical Behaviorist Counterargument

The nature of language. The first aspect of the radical behaviorist counterargument concerns the nature of language. In brief, to argue that private events are equivalent to hypothetical constructs suggests that the radical behaviorist view of language is equivalent to the traditional view, which is not true (Skinner, 1957).

Recall that according to the traditional view, talk of theoretical terms and hypothetical constructs is predicated on a theory whereby language refers to events in a scientist's immediate experience. Recall further that the theoretical terms and hypothetical constructs exist only in the scientist's immediate experience, and not as part of nature. The mere mention of immediate experience in this sense raises profound ontological issues, of course, which call into question the entire position (Skinner, 1953, p. 258). In any case, according to the mediational neobehaviorist stance, the dimension of immediate experience is ineffable. If so, how does language descriptive of the relation and events inherent in immediate experience, such as theoretical terms and hypothetical constructs, actually develop? Do people have a "private language" that enables them to deal with this dimension? It is hard to imagine anything less naturalistic than a private language.

Moreover, as mentioned earlier in this paper, the mediational neobehaviorist stance on the necessity of hypothetical constructs in scientific explanations implies that the constructs somehow have the power to cause the behavior of correct predicting, controlling, explaining, and understanding (Moore, 1989). All of these points are at considerable variance with the radical behaviorist position (Moore, 1984a; Skinner, 1945, 1957).

The problem of solipsism. A second aspect of the radical behaviorist counterargument concerns the problem of solipsism. According to the traditional view, only events in immediate experience are known. Thus, the question of knowledge is essentially a question of private self-knowledge, wherein individuals who know something are said to know the private events that go on inside themselves.

On this view, if one is to have a meaningful account of science, one must be able to specify the public counterparts of the scientist's private classifications, conceptual schemes, and mental operations. Hence, operational definitions provide the starting point in the scientific account of science, because they specify the scientist's private events as hypothetical constructs, intervening variables, and so on.

However, if all behavior is a function of an event in immediate experience, and if the event cannot be a subject matter itself because it is private, then even the behavior of the scientist must be a function of such an event. If a subject's reports are doubted, why are not a scientist's reports similarly

doubted? After all, are the scientist's reports not descriptive of the scientist's immediate experience, in the same way that the subject's reports are descriptive of the subject's immediate experience? If such is the case, how can any report ever be verified, because any attempt at verification would seem to inescapably involve seeing potentially distorted forms? If these premisses are granted, then public observation would seem to do nothing more than increase the number of people having the experience of seeing distorted forms in their immediate experience. One can never get outside the solipsistic loop.

The radical behaviorist recognizes private phenomena must be approached instead from a fresh perspective. As noted earlier, at issue are (a) the processes by which a vocabulary descriptive of private events is acquired and maintained, and (b) the processes by which private events come to exercise discriminative control over subsequent operant behavior. The whole approach to language as logical symbols referring to the contents of immediate experience is simply a legacy of dualism and indicative of an unhealthy desire to retain explanatory fictions that are cherished for irrelevant and extraneous reasons.

The inferential status of private events. A third aspect of the radical behaviorist counterargument concerns the alleged inferential status of private events. More specifically, is it plausible to say that for the person hosting the toothache, the toothache is inferred or is a hypothetical construct? An observer might well make inferences about private events in others, but for the one who is behaving, the toothache is presumably neither inferred nor hypothetical.

If the observer wants to predict the action of the one who is behaving, the observer presumably wants to entertain as many relevant factors as possible, including phenomena inside the behaver's skin. Whether these phenomena inside the behaver's skin can be known well enough to have some influence on the observer's prediction is one question. Perhaps they will be known one day, for example, by instrumental invasion (Skinner, 1953, p. 282). Knowledge about private events in this sense is a technical problem for the observer. The extent to which events inside the skin actually do influence the behavior of the observed person is a different question, not to be confused with whether those events may be known well enough by someone else to have some bearing on generating a prediction about future action. Reducing the second question to a not-very-respectable version of the first is the very essence of methodological behaviorism, and being against methodological behaviorism is the heart of Skinner's radical behaviorism.

The methodological behaviorist position further implies that analysis of the processes through which a vocabulary descriptive of a toothache is acquired and maintained are somehow beyond the scope of an objective and empirical science. Again, radical behaviorism asserts the processes are not

beyond the scope of science (Skinner, 1945, p. 294). Hence, in responding to Zuriff's interpretation of private events, Skinner states:

> Zuriff misreads my view of the role of the private stimulus. It is true that the practice of the verbal community is to infer the private event in arranging instructional contingencies, but the person who thereby learns to describe the event is responding to it directly, not by inference . . . . The listener who responds to "I am depressed" by acting henceforth as he usually reacts to a depressed person is using inference only to the extent that a person who hears someone say "It is raining" then takes an umbrella. If doing either of these things is using a hypothetical construct, so be it. (as cited in Catania and Harnad, 1988, p. 579)

Clearly, Skinner is not willing to concede that private events are inferred, theoretical constructs, at least as "theoretically inferred" is conventionally understood (cf. Zuriff, 1979a, 1980, 1985).

Conclusions and Implications

In conclusion, radical behaviorism argues that explanation is a matter of formulating verbal statements that guide effective action (Moore, 1987, 1990, in press). The study of physiology and contingencies both contribute to this process, although in different ways. Some of the elements of contingencies may well be private. Unlike logical positivism, mediational neobehaviorism, and cognitive psychology, radical behaviorism does not regard explanation as a logical phenomenon wherein private events are taken as theoretical constructs and as thereby making an irreducibly distinct contribution to the process of explanation. To so view the process of explanation is to embrace a wide variety of Platonic, Cartesian, and Kantian dualistic doctrines, including (a) the equating of discriminative and physiological causes of behavior and (b) the taking of logical necessity as a transcendental power that causes behavior, specifically correct explaining.

In the final analysis, our concerns with explanation are pragmatic, namely, what can we say about ourselves that is likely to make us better citizens, parents, students, and managers of our lives? The radical behaviorist argues that the most efficient progress will be made toward these goals by recognizing that explanation is a behavioral process, even when private events are involved (e.g., Moore, 1984a).

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