

On the Radical Behaviorist Conception of Consciousness

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Skinner has recently published replies to numerous evaluations, criticisms, clarifications, and extensions of his general radical behaviorist psychological theory and philosophy. Together with these commentaries, Skinner's responses constitute an important fund of current information about the radical behaviorist conception of consciousness. In the present article, I grasp the opportunity thus afforded to me to reopen and to develop issues I have raised in previous articles with regard to Skinner's scientific understanding of consciousness.

Why have I not been more readily understood? . . . I worked very hard on these papers, and I believe they are consistent one with another. The central position, however, is not traditional, and that may be the problem. (Skinner, 1984c, p. 719)

As part of a larger effort to reestablish the historically excluded subject matter of consciousness within the legitimate, accepted domain of the science of psychology (e.g., Natsoulas, 1970, 1974, 1978a, 1981, 1983b), I have published in recent years three theoretical articles (Natsoulas, 1978b, 1983c, 1985) that are concerned either entirely or in large part with B.F. Skinner's misunderstood radical behaviorist account of consciousness (Blanshard and Skinner, 1966-1967; Skinner, 1945a, 1945b, 1953, 1957, 1969, 1971, 1972, 1974, 1980a, 1980b; see also Natsoulas, 1970, 1981, 1983a). It would have been most enlightening, of course, had Skinner chosen to comment in print on my discussions and critiques of his relevant writings, perhaps even making use of the opportunity in order not only to defend but also to clarify and to develop his unique conception of consciousness. However valuable that would have been, something else that is related and equally valuable has transpired in the very recent psychological literature. Some readers will already be aware that I am referring to Skinner's recently published replies to numerous brief evaluations, criticisms, clarifications, and extensions of his general radical behaviorist psychological theory and philosophy that were prepared by a larger number of knowledgeable philosophers and scientists either individually or in pairs (e.g., Heil, 1984; Moore, 1984; Schnaitter, 1984). Together with these

often carefully composed and reasoned commentaries, Skinner's responses to them constitute an important new fund of up-to-date information concerning, among other things, his theory of consciousness. In the present article, I grasp the opportunity that has been afforded to me to reopen and to develop, in the light of this stimulating discussion between Skinner and students of his work, issues that I have raised in previous articles with regard to Skinner's scientific understanding of aspects of consciousness.

Do Mental Events Exist?

In the past, I have taken particular interest in pointing out to psychologists who are burdened with a stereotypical view of Skinner's radical behaviorist philosophy of psychology (cf. Gunderson, 1984, p. 628; Lowe, 1984, p. 562) that Skinner does not deny the existence of an inner mental life, that he acknowledges its existence in each one of us, and that he attempts to indicate what is, in his estimation and that of other radical behaviorists, a fundamentally improved account of human mental life over anything that we have had before. Among others, Terrace (1984) also had understood in this way, as I had, what Skinner has been saying about mental life. However, no doubt to Terrace's surprise, Skinner (1984a) replied to him with the statement that, while he does not deny the existence of mental events, *he does not believe that mental events exist*. This is very much a very fine line: If Skinner believes that mental events do not exist, his account of inner mental life will not make any (purported) reference to any mental events. And to leave mental events out of such an account is tantamount to their denial, for there is no other place at which Skinner would locate them. In further reply to Terrace, Skinner (1984a) stated, "There is an inner behavioral life including private stimuli and private responding" (p. 578). Of course, he was here putting the emphasis on "behavioral." Yet, it was not a long time before the appearance of the 1984 symposium in print that Skinner (1974, pp. 211-212; with another edition published in 1976) gave indication even of *redefining the basic subject matter of radical behaviorist science*. More than once, he announced that the heart of radical behaviorism is an alternative account of mental life. In the published exchange with Skinner, Lowe (1984) referred approvingly to the latter statement: "It is this concern with the role of 'private events' in human behavior that distinguishes [Skinner's] approach and is, indeed, at the heart of his radical behaviorism" (p. 562). In his reply, Skinner (1984a) did not contradict Lowe, saying instead that Lowe had, predictably, summarized Skinner's position correctly. Moreover, Skinner (1984b) did contradict Simon (1984) relevantly to the present issue as follows:

Simon says that if I were asked what understanding of what goes on under the skin has to do with understanding human behavior, I would reply, "Hardly anything." On the contrary, I would reply, "Everything." The question is, *What does go on under the skin, and how do we know about it?* (p. 662)

Radical behaviorism's answer to this question had been identified earlier, by Skinner (1974), with its prospective alternative account of inner mental life.

Some Advice for Psychologists

Among the professional skills that a psychologist is trained to possess is the skill of uncovering self-contradictions in the psychological thought of his or her predecessors and present colleagues. For reasons that I shall not enter into here, psychologists have been especially sensitized to this kind of lapse. Being strongly predisposed to find such error, they even will sometimes construe completely coherent positions as self-contradictory. In his commentary, Belth (1984) confessed to practices of this kind:

Now, the fact is that I may have misread Skinner altogether. I find that I often misread. . . . I read into a present essay all the inadequacies I want it to have. My intentions are very clear, at least to me. When I am put to it, I can even develop interpretations of sections, phrases, sentences, whole paragraphs of that essay that will not altogether outrage the dictionary, though they may make it wince a bit. (p. 623)

I consider the construal as inconsistent of completely coherent positions worse for psychology than falling into self-contradiction, because the former contributes to the simplification of the intellectual life of our field: What can be deemed self-contradictory may be properly ignored; it has no further justifiable claim on our attention. What I want to advise psychologists to do, instead, runs directly counter to this well-practiced tactic and demands greater and more sustained effort: *Assume that the other psychologist is saying something strange, something that you have not previously thought of or heard, rather than something that may be internally inconsistent. Try to make sense of the other person's thinking wherever it may lead you, however outlandish the upshot may seem to you to be.* More than through anything else, mutual comprehension and communication will be fostered among psychologists by each of us adopting the working assumption that the other psychologists do not engage in self-contradiction, that there is a special way in which their individual view, right or wrong, coherently hangs together. Also, this working assumption will allow us to uncover subtly different and unusual perspectives on the subject matter of psychology, perspectives whose recognition and currency will enrich our field. Our only other option, besides refusing to listen, is to wield a fixed set of categories into which whatever someone argues is made to fit (with "self-contradictions")—while we bemoan, at other times, the paucity of fresh ideas in psychology.

Thoughts, Beliefs, Perceptions, Memories, Feelings

In his friendly depiction of Skinner's views, Terrace (1984) naturally slid back and forth between "mental life" and "mental events." For one thing,

he expected that psychologists will be surprised to find that Skinner (1945a, 1945b) has published an appeal to them "to regard thoughts, beliefs, perceptions, memories, feelings, and so on, as bona fide subject matter of psychology" (Terrace, 1984, p. 569). With this statement, Terrace had somehow gone too far. Skinner (1984a) refused to be committed to mental events (cf. Skinner's, 1984b, reply to Toates, 1984, with regard to an explanation for sensory preconditioning). In reply to another commentator, Skinner (1984a) expressed himself disparagingly as follows: "It was Stevens and Boring, not Watson, Weiss, Tolman, Guthrie, and Hull who then continued to believe in the existence of mental life" (p. 579). Previously, Skinner (e.g., 1953, 1969, 1974) had seemed to be discussing, for example, feeling pain and seeing red with the implication that they exist. Why did he now reject Terrace's statement? Is there a contradiction that we can uncover in the great man's thought? Did he forget himself at one point or the other? We can safely assume that there is no contradiction, and expend effort comprehending what could turn out to be a strange position, one with which we are not familiar. It soon becomes clear that Skinner was convinced that there are processes transpiring beneath our skin that we can introspect; but he could not follow Terrace's suggestion, which seemed by implication to be: the categories and distinctions that mentalistic common sense contains should be adopted by radical behaviorists for the purpose of describing inner mental life because the mental events to which common sense refers do exist (cf. Searle, 1983, p. 262; Sperry, 1977, p. 241). According to Skinner (1984a), we do not have "an accurate introspective vocabulary" (p. 576). An alternative, improved account of mental life is necessary that would provide us with such an introspective vocabulary. This is why Skinner further responded to Terrace in terms of our having an inner "behavioral" life that is made up of stimuli and responses. In this way, he indicated the nature of the new vocabulary that would enable us to introspect accurately. The mental life of human beings consists of all that which is introspected, introspectible, or potentially introspectible, and consists of internal stimuli and responses that can serve as controlling occasions for those verbal operant responses that themselves are the introspections. (Responses can perform this controlling function by "creating . . . [a] discriminative stimulus . . . a mere portion of a response [can] suffice" [Skinner, 1984b, p. 664.]) The verbal operant responses that are under interoceptive or proprioceptive control have been determined by the conceptual framework of common sense, which includes "thoughts, beliefs, perceptions, memories, and feelings." *Although this framework fails in depicting that which goes on within the skin, private stimuli can discriminatively control mentalistic terms belonging to this framework:* "There is no questioning the strong evidence for states of one's body to which words like belief and desire have been applied for thousands of years" (Skinner,

1984b, p. 658). Still, we have not been provided with an "accurate introspective vocabulary."

Failed Reference or Incorrect Categorization?

Is this "inaccuracy" of vocabulary a matter of failed reference, as in earlier scientific uses of the term *phlogiston*, or is it a matter of successful reference with incorrect categorization, as when we refer to a dish of stewed tomatoes as "a vegetable" (cf. Rey, 1984, on the "ontology" vs. the "ideology" of a theory)? That something does not exist says a great deal more than that something is not as we take it to be. Skinner's stated belief in the nonexistence of mental events corresponds to the stronger position. If mental life is nothing more (or less) than private stimuli and covert responses, events that are neither a kind of stimulus nor a kind of response and that are proposed by other theorists to be the constituents of mental life must not exist. As Skinner (1984b) stated, "Private events involve [i.e., mental life involves] stimuli and responses. They are the only events with respect to which we have developed an interoceptive and proprioceptive nervous system" (p. 662). For example, Skinner (1984a) agreed with Garrett (1984) to the effect that "The pain is in my neck," as normally uttered, refers to a kind of stimulation transpiring in one's neck. We may draw the implication, therefore, that this utterance does not refer to the experience of pain. After all, an experience of pain is not, in anyone's view, a form of stimulation. This implication is consistent with the claim that mental events do not exist. If mental events do not exist, then experiences of pain do not exist, since experiences of pain are (or would be) quintessentially mental events. The ordinary speaker who uses the utterance "The pain is in my neck" would explain, if asked, that he or she is referring to how the neck feels, to how he or she is experiencing the neck. In fact, however, this utterance refers to something else according to Skinner. *The utterance refers neither to a feeling nor to an experience, since these do not exist.* One cannot refer to what does not exist (cf. Searle, 1982, p. 267). As Moore (1984) stated, "Skinner would say that 'mental events' are explanatory fictions—neural, psychic, or conceptual creations empowered with precisely the characteristics necessary to explain what needs to be explained" (p. 565). Moore's commentary brought no objections from Skinner (1984a). Some readers may wish to object that the case of "The pain is in my neck" and similar cases are, actually, cases of a different kind. After all, the ordinary speaker in the example that I am discussing is oriented toward the same part of the body in which the introspective report's controlling occasion is located theoretically. It may be argued, therefore, that this is a case in fact of *successful reference that involves an incorrect categorization of that which is successfully referred to.* That is, the present case resembles the case that Garrett (1984)

mentioned: "The referent of 'That animal is a lion' might be a lion or (in the event of an error) some large dog whose presence prompted the remark" (p. 559). Accordingly, the person who utters "The pain is in my neck," in the usual circumstances for this utterance, is successfully referring to some private stimulation of a particular kind, which is transpiring in his or her neck, albeit calling this stimulation "pain" and thereby applying to the stimulation a concept that is a part of a fundamentally erroneous conception of mental life.

Inner Reference as Stimulus Control

However, this objection construes the relation of reference in a manner different from how Skinner himself would construe the relation. Ringen (1984) was quite accurate when he stated the following concerning the Skinnerian perspective on verbal reference: "Verbal behaviors ordinarily classified as first-person reports of concurrent psychological states . . . are not to be treated as reports or statements at all, much less as reports or statements that are accurate, reliable, true, or correct" (p. 567). From Skinner's perspective, the utterance in the above example is about the respective stimulation in the speaker's neck *only in the sense* that this stimulation is the controlling occasion for the utterance, that is, only in the sense that the occurrence of the stimulation makes the emission of the utterance highly probable: "Thus, the essential causal or functional relationships are no different from cases in which the referent is a public object or event" (Garrett, 1984, p. 558; cf. Skinner, 1984a, p. 573). Within the radical behaviorist conception of reference, neither the utterance nor the processes leading to the utterance have been assigned a means by which they may perform the function of individuating the particular stimulation that was said to be referred to by the utterance, that is, individuating the stimulation as against, for example, the stimulation's most immediate cause and its most immediate effect. Given a different conditioning history, utterance and processes leading to the utterance could be exactly as they are now although their cause was a different pattern of stimulation. Skinner (1984a) stated, "Within the limits of accuracy of such [introspective] reports, something can be learned [by the psychologist] about the person's history by asking how he feels" (p. 579). Notice what Skinner did not say: He did not say that something about the nature of the private stimulation itself can be learned directly from the introspective reports that psychologists now gather. Hocutt (1984) grasped this point very well when he stated, "To say we can only define [toothache] by talking about its public causes and symptoms is to say not that it is identified with these but that we know how to identify it only by referring to these" (pp. 560-561). *The private stimulation that controls the occurrence of an utterance is simply a present cause*

among other present causes of the utterance. Rejecting the traditional notion of reference, Skinner (1984a) stated,

The response *chair* in its relation to a chair as a controlling stimulus is a tact (and the chair is then said to be tacted); it is not a "reference to a chair," or a "statement about chairs," nor does it "express the idea of a chair," or "denote a chair," or "name a chair." It is simply a probability of emission of *chair* as a function of a particular kind of stimulus. (pp. 572–573)

Although Skinner denied, in his reply to Bennett (1984), that stimuli cause responses—he favored the probability formula (as above) to characterize their relationship—there is no doubt that a controlling stimulus is theoretically among the causes of an operant response such as a tact. The stimulus is not, however, an eliciting cause; the stimulus is not in unexceptional control of the response. In Skinner's account, the relation of verbal reference is basically a relation between a certain behavioral effect and a certain one of its present causes (cf. Garrett, 1984). In fact, a verbal operant may take place and make Skinnerian reference to private stimulation arising from a decayed tooth *without* the speaker's having "to know something about teeth" (Danto, 1984, p. 536). With regard to another kind of private stimulation, Lyons (1984) asked whether a behaviorist must postulate "a special, internal, compulsory-stop, translation centre for translating proprioceptive data from internal truncated behavior into ordinary cognitive talk" (p. 636). The answer is that, according to Skinner, no "translation" of this kind is involved; how one describes one's private events depends on the terms that the verbal community has used in teaching one to emit them under appropriate internal circumstances and, thus, to be "aware" of the latter.

Choosing a Suitable Introspective Utterance

Moreover, the person cannot be interpreted, from the radical behaviorist perspective, as putting the utterance "The pain is in my neck" *to use in order to make reference to* the stimulation in his or her neck. In order to make reference to the stimulation by using an utterance for this purpose, it would seem that the person must undergo an awareness of the stimulation that is not in the form of an utterance. But the radical behaviorist perspective holds that the only awareness the person can have of private stimulation consists of "The pain is in my neck" and similar utterances. As Zuriff (1984) put it, the person does not have an independent awareness of the private discriminative stimulus in the form of "Private stimulus X is controlling my verbal behavior" (p. 572). The person has the private stimulus only, and the verbal behavior that has been conditioned to it or may generalize to it. In part, this was the point that Robinson (1984) was developing when he wrote, "To refer

to [one's experience of pain] at all, there must be the experience; to teach one *how* (verbally) to refer to it, there must be a percipient who knows that the sensation or experience is *his own*" (p. 642). According to the radical behaviorist conception of consciousness, *we do not have any kind of nonverbal access to private stimulation that would make it possible for us to choose an utterance for its suitability to the stimulation*. As Graham (1984) pointed out, by the acquisition of verbal behavior and nothing more do we "learn to 'feel' or perceive what is distinctively sharp about sharp pains" (p. 558). However, this statement should not be taken to imply that in the process of acquiring introspective behavior, something in addition happens, namely, that we come to "notice" the properties of a pattern of stimulation. With regard to inner mental life, there is no "noticing" that is not simply the evocation by a stimulus of verbal behavior in some form. At most, in the radical behaviorist view, we could emit one utterance about the private stimulation based upon another utterance about the stimulation. This might allow the theorist to speak of using a second utterance to make reference to private stimulation of which one is aware by means of a first utterance. However, to decide on the second utterance's suitability to the first utterance (i.e., to what one is aware of by means of the first utterance) one would need to be aware of the first, covert utterance. In turn, this further awareness is possible only verbally according to radical behaviorist theory. Thus a third utterance is needed before one can get to the "second." But in deciding whether the "second" is appropriate to the "first," one would also have to be aware of the "second." The latter would also have to be performed covertly, and one could only be aware of it verbally, by means of a fourth utterance. This is a far cry from having special access to our private stimulation, whereby we can choose to refer to the private stimulation by means of an utterance. In all cases, our putative special or unique access to some of our private events becomes, in the radical behaviorist view, no more than a matter of a minimal number of mediating causes that lead to the production of a verbal response. As Garrett (1984) stated, "Thus, if someone says, 'The discomfort is in Richard's neck' upon hearing my report, 'This pain is in my neck,' both responses refer to and are the result of the painful stimulation in my body" (p. 558). Directness of reference merely amounts to verbal operant responding that involves a minimum of causal steps between the referent and the referring response. These are, in all cases, a great many.

Indeterminacy of Meaning

As stated, there is no "noticing" of any part of one's inner mental life that is not, in Skinner's view, the evocation by a stimulus of verbal behavior in some form. This point came out clearly when Skinner (1984b) demurred from

Gunderson's (1984) claim that one knows one's pains, and so on, by "indulging in them directly, immediately, noninferentially" (p. 629). Skinner (1984b) responded, "Self-observation is more than mere indulgence" (p. 657). He meant that "indulging" in one's private events is never *ipso facto* being aware of their occurrence; to "indulge" in a particular pattern of private stimulation in one's neck, for example, is simply for the receptors in one's neck to be undergoing a certain process. It is, as psychologists say, simply to *have* the stimulation, or to be stimulated in that way. A consequence of this understanding of "indulgence" and introspective awareness is indeterminacy in the meanings of introspective reports. If all introspective awareness (without exception; see Skinner's, 1984b, reply to Davis, 1984) consists of verbal operant responses of either an overt, covert, or incipient sort, the stimulation in one's neck, for example, when it evokes such a response must also give rise, equally reliably, to mediating causes of the response. *Given the Skinnerian understanding of reference, any one of these causes, too, would have an equal claim to be referred to by the utterance "The pain is in my neck."* Reference is indeterminate within the present theory and will have to be decided theoretically on a basis other than which event is the controlling occasion for the verbal operant; there are so many of these. Bennett (1984) was critical of this theoretical outcome when he argued,

We are to suppose that the causally sufficient conditions for a person's uttering "(That is) red" consists in (i) a red stimulus in conjunction with (ii) a set of circumstances C which always mediates between a stimulus and an utterance whose meaning is somehow given by the stimulus. . . . We need a systematic way of filtering out the "other stuff" in order to isolate the element that gives the meaning; and so . . . we need a single value of C that tells us in each case which part of the causal chain gives the meaning and which part belongs to the all-purpose "other stuff." (p. 553; cf. Harzem, 1984, on "the problem of ambiguity")

I have elsewhere argued that this indeterminacy of meaning leaves the possibility open for Skinner's theory to develop in a direction that will allow people to be aware of some of what goes on in their nervous system between private stimulation and verbal operant responses (Natsoulas, 1985, pp. 85-89).

Responding: An External Relation

However, even so, the Skinnerian conception of reference will differ from the one that we ordinarily apply when we describe a person as picking out an experience that he or she is undergoing or that has just taken place and, to his or her own satisfaction, making a statement concerning its taking place. For example, the experience of pain is commonsensically held to have a kind of "presence" (which, probably, Gunderson was addressing by means of *to indulge in*) that a mere cause of "The pain is in my neck" does not have, and

that allows us to make a direct, intimate reference to the experience. That pains allow such reference, being happenings with "presence," makes them different from mere causes of our behavior, the very great portion of which lack "presence." A reliable verbal effect of a stimulus does not necessarily mean that this effect is accomplished through the stimulus's "presence" or constitutes a direct, intimate reference to the stimulus. In the thought of many philosophers and psychologists, the "presence" of some mental events constitutes grounds for adopting a dualistic conception of the relation between the mental and the physical (cf. Mortensen, 1984). For example:

He, too, he says, has a toothache, and a toothache is a private event. But . . . toothache is a purely physical event, just like the radioactive event that is manifested in the click in the Geiger counter. Skinner, it seems, does not suffer from toothache like ordinary mortals. (Wright, 1984, p. 571)

According to dualistic perspectives, a purely physical event does not have "presence;" therefore, no such event can be a toothache. Conversely, if a private event has "presence," then it cannot be a purely physical event, such as stimulation in one's neck is. (This leads to an agreement between the dualists and Skinner; see below.) In fact, it is generally believed that we refer directly to our pains in a way more intimate than any form of responding to stimulation. A view such as the following, which was attributed to and accepted by Skinner, would be commonly rejected: "We know toothache only as that organic condition, whatever it may be, typically caused by an abscessed tooth and typically causing moaning and grasping of the jaw" (Hocutt, 1984, p. 561). In this view, such knowledge consists entirely of responding to "toothache" as we have been taught to respond verbally to it by the verbal community. They reinforced our operant verbal responses on the basis of what they observed of public stimuli that were impinging on us and of other responses that we produced at the same time. Most people would argue against this to the effect that there must be more to our inner access than a pattern of responding, even were our prior conditioning such that we managed to describe the toothache itself accurately and in veridical detail qua inner bodily condition. The correctness of that which introspective reports state is not at issue. Many people would explain that the problem lies elsewhere, namely, with *what the concept of responding implies*; that is, the problem lies with *what the fact of responding to something essentially amounts to, whatever the properties may be, in any instance, of the particular response that transpires*. That someone or some creature responded to something implies the occurrence of an effect, which is a response, that is external to its cause, which is the something responded to. This something is, as Skinner has insisted, only one of the causes of the response; that which is responded to helps to bring the respective response about. The response is distinct from it, not a continua-

tion of it. However "direct" the causal and referential relation is between any pattern of public or private stimulation and a verbal operant response to it, the stimulation does not thereby become, as Robinson (1984) expressed the point, "one's own." Although the private stimulation of course takes place in one's body, this stimulation remains just as "external" to one as, for example, the silent and invisible processes in one's brain that also contribute to causing the response and of which one has no introspective awareness. Responding to a private stimulus makes one no more "intimate" with that stimulus than one is with causes (of the identical response) to which one is not said to be responding, or with public stimuli and other causes of other responses.

Nonequivalence of Feelings and Private Stimulation

Assuming that one's inner access to private stimulation consists entirely of responding to the stimulation, the nonbehaviorist kind of account of the contrasting direct, intimate reference to one's mental events implies that the utterance "The pain is in my neck" (determined as it is by the conceptual framework of common sense and made use of only when one detects pain "present" in one's neck) *does not refer to private stimulation*, whether or not the private stimulation stands to the utterance in Skinner's controlling relation. *Private stimulation is "external," whereas the experience of pain is personal.* The concept of a feeling or an experience is an essentially different concept from the concept of private stimulation to the point that they do not refer to the same thing. Robinson (1984) saw this clearly when he stated that Skinner's account of introspective awareness is not an account of the mental at all. From a nonbehaviorist perspective, both the concepts of private stimulation and pain refer successfully, though to different things. Skinner, too, distinguished between "toothache" that is private stimulation and the (purported) toothache that the "mentalistic" considers "a personal experience" (Skinner, 1984a, p. 575). When Hocutt (1984) sought to correct "the usual interpretation" of Skinner's view, stating that Skinner does not "deny that there is such an experience as toothache" (p. 560), Skinner took the opportunity in his reply to reject, among other views of toothache, the view of it as a personal experience. Nor would Skinner agree with Danto's (1984) following interpretation of Skinner's view: "Skinner's native radicalism is tempered by a certain realism: it is a 'simple fact' that private stimuli occur and that a (humanly) important class of psychological terms takes them as their primary referenda" (p. 556). What is wrong with Danto's statement is that he attributes to Skinner the idea that people are referring to private stimuli with responses such as "The pain is in my neck." For Skinner, pain and private stimulation are not equivalents. A person's purported reference to his or her toothache is not an actual reference to certain private stimulation, as some may have

understood Skinner to be holding. One has only to ask people who are reporting their toothache. Some of them will say that they do not care about the private stimulation (activity in the inflamed nerve) if only the pain that the stimulation is producing would stop. It makes complete sense to people that a procedure of blocking the private stimulation from having its normal effects would, if put into effect, relieve their experience of pain. According to Skinner (1975/1978), the fact that toothache and other mental events are "assigned to space inside the skin does not bring them closer to a physiological account" (p. 111). Such an account will someday complete the true story of what goes on when we respond to the environment or to private stimuli. This physiological account (a) will include a description of the nonbehavioral effects that private stimulation produces inside the skin and (b) will not include any reference to experiences of toothache or other mental events: "No matter how much [physiologists] may improve their techniques, they will never find sensations, thoughts, or acts of will" (Blanshard and Skinner, 1966-1967, p. 325). This interpretation of Skinner will find some objectors, I am sure. They will point out that Skinner often speaks of toothache and of other feelings, that he describes himself as having a toothache, and so on. However, Skinner is always speaking in this way of *private stimulation that is usually produced by a decayed or damaged tooth*. Accordingly, when he rejected Rachlin's (1984) behavioral concept of pain ("toothache is overt, public behavior"), Skinner (1984a) stated "[Rachlin] evidently uses the term 'toothache' for all the behavior elicited or evoked by a carious tooth, where I am using it to mean only the stimulation arising from such a tooth" (p. 577). Why does Skinner use the word *toothache* to refer only to such stimulation? The answer is, in part, that he has no theoretical need for a word to mean experiences of toothache, of which there are not any. Although the word *toothache* belongs to ordinary mentalistic discourse, it can be borrowed from its original context and put to use in speaking of the controlling stimulation that is frequently the occasion for uttering the word itself (cf. the exchange between Irwin, 1984, and Skinner, 1984b, concerning "the existence of images"). Skinner's use of *toothache* does not reflect a theoretical conviction that mental events exist. Rather, it reflects Skinner's conviction that private stimuli can serve as discriminative stimuli and do (cf. Zuriff, 1984). For example, they serve as controlling stimuli for verbal operant responses. A part of the common sense mentalistic vocabulary is under such control. Given the correctness of the present interpretation, it would help communication if Skinner and other radical behaviorists who share his relevant views would place borrowed mentalistic words in quotation marks when they use such words as names for stimuli or responses. Otherwise, they will be taken by some of their readers to be using the words to refer to that to which people normally refer by means of those words.

Why Is "Toothache" Unfortunate?

However, more than quotation marks are needed when Skinner (1984a) states, "Unfortunately, one has a toothache whether or not one has been taught to be aware that one has" (p. 661). The question that such statements by Skinner will raise in the minds of the readers of the present article is: why is it unfortunate for one to have "toothache" given that "toothache" is only the stimulation arising from a decayed tooth and, therefore, not a personal experience? A closely related question is: why is it unfortunate for one to have "toothache" to which one has not acquired any operant verbal responses and of which one has, *ex hypothesi*, no awareness at all? I am assuming that Skinner's statement means no awareness at all; one has not acquired responses that identify the private stimulation as toothache, or that describe it as painful, bad, undesirable, unfortunate, or the like. In that case, why is having "toothache" still unfortunate? The same sort of question arises when Skinner (1984b) states, "We may treat [animals] compassionately because we believe they feel pain" (p. 656). Of course, Skinner treats animals compassionately. But why? What are his reasons? What does "feeling pain" amount to that makes it unfortunate and worthy of compassion when the one whose "pain" it is has no awareness of pain's taking place? I am not asking about the origins of Skinner's and others' behavior towards those in pain, or what maintains their behavior at strength. I know that Skinner would explain his behavior in terms of the historical contingencies of reinforcement through which he has lived (Skinner, 1969, pp. 260-262). Rather, my question pertains to the Skinnerian radical behaviorist theory of private stimulation. When Skinner says that "toothache" is unfortunate, he must be putting this theory to work in saying so. *There is something about "toothache" according to Skinner's scientific understanding of it that leads him to say that "toothache" is unfortunate.* However, Skinner cannot answer in an obvious way that will seem natural to many psychologists. He cannot say that "toothache" is, after all, an experience of a certain kind that explains what he means by "unfortunate." According to Skinner, "toothache" is not an experience, and there are no experiences. And he would not answer that "toothache" (qua private stimulation) produces effects further along in the nervous system that explain the unfortunate character of "toothache," these effects being themselves what people are in fact referring to with the word *toothache* (Sperry, 1976; see also Natsoulas, 1984, pp. 66-67, on "monist interactionism"). According to Skinner (see below), we cannot be introspectively aware of anything that goes on in our nervous system that takes place between private stimulation and incipient behavior. "Toothache" must be unfortunate, in Skinner's view, for objective reasons. No reference to the person's or creature's consciousness need be included in order to consider the private stimulation as unfortunate for the individual.

Skinner would not approach the question from the individual's point of view if the individual had not acquired or could not acquire verbal operant responses under the control of private stimulation. An answer that Skinner would not give is that "toothache" has a certain unpleasant "presence" for anyone or any creature, whether or not taught to be introspectively aware of toothache and other private stimulation. Like all physical occurrences, those inside the body do not have "presence." In this regard, Skinner agrees with the mind-body dualists, who also cannot countenance purely physical happenings as having "presence." However, Skinner's mind-body position is a species of physical monism that grants to any private event no more "presence" than it grants to public events, which is none at all. This is an important part of what Skinner (e.g., Blanshard and Skinner, 1966-1967, p. 325; Skinner, 1984b, p. 567) means when he insists on the sameness of the "stuff" in the person or creature as in the rest of the world. From Skinner's perspective, the answer to why "toothache" is unfortunate must develop along such lines as the following two: (a) that such stimulation produces effects in the body or behavior that interfere with the achievement of many reinforcing consequences other than the elimination of that stimulation or a reduction in its degree or amount, and (b) that it is biologically unfortunate to have "toothache" because it means that something is wrong with the tooth, which is a valuable part of the creature's body so far as its adaptation is concerned. More generally, a creature that is undergoing the kind of stimulation that controls in linguistic human beings the vocabulary of pain is in some degree of adaptational danger and should be treated compassionately, as we do sick creatures, because its life is at greater risk than normal.

Skinner's Toothache Hurts

Although Skinner does not do so, perhaps he should grant "presence" to some private events in the way that I shall suggest in the next section. I say that he should because I believe that "presence" is theoretically called for by Skinner's own self-observations of pain. Whenever Skinner has a carious tooth that is producing in him the private stimulation of "toothache," Skinner has awareness of this private stimulation not only in the form of (a) words that come into his mind or words that come out of his mouth, but also in the form of (b) a part of his mouth's hurting, literally and not metaphorically hurting. Poetry or prose, Skinner's consciousness of toothache apprehends that primitive *dolor* that we know so well. Skinner's aches and pains hurt him no less than those of humanistic psychologists hurt them. *It is simply not true that Skinner's awareness of his pains are entirely verbal, as the radical behaviorist theory of consciousness suggests, the pains themselves working their effects upon his verbal operant introspections without otherwise revealing themselves*

to him. It is because they reveal themselves to him more intimately, because they have "presence" to him, that Skinner (1984a) found Rachlin's (1984) behavioral characterization of "toothache" puzzling. Surely, if Skinner's toothache was as Rachlin stipulated, namely, if it was a set of operant and/or respondent behaviors that are produced by a decaying tooth, Skinner would be differently aware of his toothache. Similarly, after Skinner has hit his thumb with a hammer, he may jump up and down and wave his hands and arms about, but he does not feel pain in the rest of his body. As compared with staying still, his pain behavior seems to him even to reduce the pain, rather than exacerbate it. The intensification of pain behavior does not intensify his pain. However, the point is not where specifically he locates the toothache but the fact that the rest of his body, though responding to the private stimulation, *does not hurt*. In his reply to Rachlin's "puzzling" commentary, Skinner (1984a) seems to have been somewhat at sea with regard to how he could show that Rachlin, who is a fellow radical behaviorist, was on the wrong track. Skinner was able relevantly to say only what has been his own point of view concerning our awareness of "pain," namely, "that a substantial amount of behavior that would be called operant was indeed under the control of private stimuli" (p. 577). This sounds almost as though Skinner were wondering how "toothache" could be operant behavior, as Rachlin proposed, since "toothache" is a matter of private stimulation. Or, is not Rachlin perversely missing the obvious way in which radical-behaviorist psychology can treat of a kind of happening (i.e., "toothache") that may come to be widely accepted as the proper referent for the word *toothache*, since that happening takes place beneath the skin and serves as controlling stimulus for utterances of that word? Be that as it may, Skinner's reply to Rachlin could have proceeded somewhat more empirically: Why did Skinner imply that "toothache" must be private stimulation from a decayed or damaged tooth? Hocutt (1984) listed the possibility that "toothache" is a "muscular contraction." How has Skinner chosen from among the possible candidates for controlling stimulation? In addition to stimulation directly from the tooth, there are other interoceptive stimuli that reliably accompany one's having a toothache, as well as proprioceptive stimuli arising from the skeletal musculature as a result of pain behavior. Skinner had an opportunity, in his reply to Rachlin, to give grounds for his conviction that the word *toothache* is normally not under the stimulus control of pain behavior or of something else other than the interoceptive stimulation that comes directly from a bad tooth. That Skinner did not attempt to so argue suggests that he has a different basis for his conviction. A likely alternative is that Skinner's awareness of "toothache" is not entirely a verbal response to stimulation. That is, his awareness is not entirely an arbitrary response, which could just as well be an entirely different response depending on the verbal community's conception of the mental.

Skinner's inner contact with his own toothache consists of more than overt, covert, or incipient utterances. Skinner is aware of "toothache" as located in his mouth, and as having other properties that are not dependent on how he describes or identifies this private stimulation.

A Hypothesis of Dual Introspective Awareness

Perhaps, therefore, Skinner should distinguish (a) a kind of innate awareness of private events from (b) the learned awareness of them that he has so often discussed. A model for "dual introspective awareness" can be found in what Skinner (1984b) had to say about the distinction between a child's ability to discriminate among colored objects and the child's ability to respond to them verbally and abstractly:

When I said that children "will not see two colors as different—until [they have been] exposed to [appropriate] contingencies' of reinforcement by the verbal community," I did not mean that they would not see colored *objects* as different but that they would not name or otherwise respond abstractly to the color alone without verbal reinforcement. (p. 658)

The indicated model for introspective awareness is also an appropriate model from Skinner's (1984b) own perspective, *since he equated "in every respect" the "introspecting" of a private stimulus with the "inspecting" of a public one.* With Skinner's approval, Garrett (1984) argued that Wittgenstein had misled people into thinking that the two cases are different whereas Skinner has properly treated the two cases as quite the same. A Skinnerian model that distinguishes (a) seeing a stimulus from (b) responding to a stimulus in a verbal operant way, implies two kinds of awareness of a single stimulus which may occur concomitantly. One of the two kinds would seem to have a fundamentally innate basis, transpiring whether or not the verbal community has intervened. Although they may be incapable of linguistic behavior, some animals do see (Skinner, 1984b, pp. 657, 661). Analogously, in the introspective case with regard to private stimuli, what the corresponding two kinds of introspective awareness would make us aware of about the private stimuli would be different things. The innate kind of introspective awareness would provide a more primitive and concrete grasp of the private occurrence. Nonlinguistic (and prelinguistic) creatures may have this kind of introspective awareness, while they of course lack the second, verbal kind. About such creatures, Skinner (1984b) stated that they do not "know that they feel pain" (p. 656). However, their not possessing our kinds of concepts of self and pain to apply to their feelings of pain (and, so, to know that "they feel pain") does not rule out their having an innate awareness of their pains. They may be aware of them simply as unpleasant, as something to escape from, just as they find

the taste of certain foods pleasant or some kind of "good." Obviously, the categories under which states of affairs would be perceptually or introspectively brought by their nervous systems would not correspond to our verbal concepts, nor would these categories be necessarily anything like the latter. For that matter, our verbal concepts need not accord with the innate categories that our own nervous system spontaneously applies to (some) private events of which we are introspectively aware. Some of these nonverbal discriminations may not be matched by an adequate discriminatory vocabulary for reasons that Skinner gave pertaining to the verbal community's limited ability to tell when particular events are transpiring within an individual's skin. The "new" kind of introspective awareness that I am herein urging on Skinner and his fellow radical behaviorists would be more intimately connected with the thereby introspected private event and would give "presence" to the event. Perhaps the introspective awareness should be thought of as a kind of "conscious" context for the private event. Within this context, the private event would work its neural and behavioral effects. By operating through this context or structure, the private event would be more than just a stimulus whose effects have reached the brain. Together with its central effects and its introspective context, the private event would constitute an awareness, no less.

Skinner and Primary Introspective Awareness

Skinner (1969), too, seems to have been groping for something along the lines of the above hypothesis. He came close to the same idea when he suggested, "The felt pain in a toothache is not simply the inflamed nerve [or the stimulation taking place therein], but neither is it a copy of the inflammation [or stimulation]. . . . In a sense a feeling seems to be both the thing felt and the act of feeling it" (p. 255). Here is a chance, with my hypothesis, for Skinner to recognize that stimulation becomes perception even before the stimulus evokes any behavior: *The act of feeling the private stimulation is an act of awareness of an innate nonbehavioral sort* (cf. Mortensen, 1984). The present proposal of a primary introspective awareness goes along quite well with Skinner's often drawn distinction between a bodily state (e.g., a certain pattern of private stimulation) and the person or animal's feeling of that state (which, I am suggesting, is an awareness of innate origin). For example, Skinner (1972/1979) stated, "What we feel when we have feelings are states of our own bodies" (p. 49). And still more in line with my proposal is this statement from Skinner (1974): "We use the word 'feel' in describing our contact with these two kinds of stimulation [i.e., interoceptive and proprioceptive]" (p. 22). There is the private stimulation, and also we are able to feel it, because we have the innate capacity to feel states of our own body, namely, patterns

of private stimulation. My proposal connects, as well, with Skinner's (1984a, p. 573) claim that private stimuli vary in "salience." Therefore, a private stimulus can occur doubly unconsciously, so to speak. When it has minimal or no "salience," the private stimulus is neither "felt" (primary introspective awareness) nor is it verbally classified (secondary introspective awareness), though it may contribute to nonintrospective behavior (cf. Natsoulas, 1982, on "blind-sight"). A great deal more needs to be learned and said about this further kind of introspective awareness. For example, the intensity of a pattern of private stimulation is, no doubt, important in bringing the stimulation to one's "notice." As we know, a certain amount of stimulation from one's tooth cannot be continuously ignored except under unusual circumstances. Also, my proposal leaves the possibility open that some private events do not have "presence." The only introspective awareness of them that we can have, if any, is an awareness due to their evoking verbal operant responses.

One's Own and Another's Awareness of One's Toothache

However, let me leave the matter with that, for now, and comment briefly on Skinner's alternative to what I am proposing. Skinner may continue to deny, in effect, that any private event has "presence" and to insist that private events are, at most, only causal occasions for one's verbal categorizing of them as this or that, depending on their typical environmental causes and behavioral effects. Accordingly, the view is that the person is aware of some private events but such awareness is simply a kind of *presentiment* of their occurrence (cf. Lyons, 1984). For example, one finds oneself saying, "The pain is in my neck," and finds out about one's "pain" from this, spoken aloud or to oneself, just as one discovers that one is more hungry than one thought that one was from perceiving how one is eating (Skinner, 1948b, p. 660). Except for the emission of words on the occasion of one's pain, one is no closer to the pain than someone else who happens to hear one's utterance. The difference between one's own access and another's access to one's "toothache" is, according to Skinner's theory as it now stands, only a matter of the number of intervening causes and effects leading to the awareness. Garrett (1984) brought this out clearly when he compared his own and another person's Skinnerian reference to Garrett's pain:

In both cases (whether I or another describes my pain), the referent (the painful stimulation) is what is ultimately responsible for the verbal response. . . . Thus, the essential causal or functional relationships are no different from cases in which the referent is a public object or event. Nor is there any cause to exaggerate the importance of the fact that only I can *directly* tact the painful stimulation. (pp. 557-558)

It must be obvious, surely, to all radical behaviorists that Skinner's conception of consciousness has not yet captured the difference between a person's introspective awareness of his or her own pain and another person's awareness of the first person's pain. However, Skinner (e.g., 1984b, p. 656) does admit that there are problems of consciousness that he has not yet solved; this may mean that he is prepared to change his radical behaviorist account in such a way that would begin to treat of the difference between two people's awareness of the pain of one of them. I do not believe that Skinner has begun to treat this difference when he has described the causal steps leading to the two awarenesses. I believe that there is something different about the two awarenesses themselves that Skinner has not begun to address. However, we cannot be optimistic concerning his doing so as long as he denies the existence of experiences. If only private stimulation is theoretically involved in the kind of instance that I have been discussing, together with verbal responding to the private stimulation, then Skinner will not have the conceptual resources to treat of all the differences between self-awareness and other-awareness. Regrettably, Skinner did not rise to the occasion that was afforded to him by Gunderson's (1984) cogent and constructive commentary, to expand his conceptual repertoire. Skinner agreed with "much" that Gunderson said, but he maintained his exact previous position on the present issue. Gunderson presented a contrast between a person's access to his or her experiences and someone else's access to these experiences. The first person knows his or her pains, for example, by "indulging in them directly, immediately, noninferentially," that is, in a way that is possible only for a person relative to his or her own experiences. Whether or not the other person is a neurologist who is at the moment engaged in making observations or recordings of activity in the first person's nervous system, the other person cannot know the first person's experience in the same way that the latter does. Skinner (1984b) readily accepted the fact of different ways of knowing about the same occurrences. This is entirely compatible with his philosophy of science; different methods of acquiring knowledge do not necessarily mean a difference in the knowledge acquired. Skinner insisted that the particular private event that one introspects may be observed by a neurologist given adequate technological means. The point at which Gunderson was driving and to which Skinner was not fully responsive is the following: *Skinner's exclusive attention to the socially conditioned kind of introspective awareness tends to obscure the special access that one has to one's experience.* Skinner needs to deal with this special access in such a way that his account will distinguish this access from another person's access to the identical experience. Our verbal operant responding to a private event and another person's verbal responding to our verbal operant responding are not basically different from each other. Yet, we feel the pain and the other person does not. It is not that Skinner has fallen into inconsistency in ac-

counting for this difference. Quite the reverse: his consistency has caused him to miss something about his subject matter that is very important.

Expected Resistance to Sensation Classification

Relevant to the reception from Skinner that my proposal of primary introspective awareness is likely to get is how Skinner reacted to Graham's (1984) particular attempt to reinterpret Skinner's conception of introspection. Graham suggested that, when one seems to be reporting a feeling, one is classifying "sensations" that are produced by stimulation, rather than classifying the private stimulation itself. Skinner's acceptance of Graham's modification of radical behaviorist theory would move Skinner closer to what I have proposed. Sensations occur further along in the nervous system than where private stimuli occur. And Graham's understanding of the inner access that we have to our sensations would seem to involve more than just verbally responding to them. However, I cannot be confident about the latter statement concerning Graham's view. He could have been saying only that sensations perform the controlling function for the relevant verbal operants. In any case, Graham's alternative to Skinner's account diverges from the latter sufficiently for us to expect that Skinner would resist it. (a) For one thing, note that Graham's sensations are neither stimuli nor responses, though they would constitute our mental life at least in part. And recall Skinner's statement that I quoted earlier in this article, to the effect that the entirety of a person's inner mental life consists of private stimulation and covert responding; these events are the only ones relative to which, in his view, our species has evolved an interoceptive and proprioceptive nervous system (cf. Skinner's, 1984a, answer to Meehl's, 1984, third methodological query). Therefore, it follows from Skinner's conception of consciousness that, even under the most ideal, futuristic conditions of public knowledge concerning all of that which goes on within one's skin, we will remain strictly limited in what we can possibly introspect. Even under the sophisticated and conscientious tutelage of an omniscient verbal community, we could not learn to introspect any of the events, states, or processes that causally mediate between private stimulatory "occasions and [behavioral] results, because we have no sensory systems going to the structures involved" (Skinner, 1984b, p. 656). One should not misconstrue Skinner's emphasis on technology and how technology will improve our introspective accuracy by making more private events than before known to the verbal community that conditions our introspections. Pushing back the boundary of the private world that separates it from the public world may certainly help to improve our introspections. *But such improvement can take place only with regard to those parts of the world beneath the skin to which we can have introspective access.* This means

that we will never be in a position to introspect more than a little of what goes on in our nervous system. As regards processes of the brain of all kinds, we are in no special position to know them. We have always been (and will always be) no better informed about them than other people can be. Skinner (1975/1978) explained that, whereas our introspective efforts may be (mis)directed toward trying to make inner contact with the processes in our brain that are responsible for the occurrence of our behaviors, such introspective efforts are recent in the history of our species and we do not have a properly wired nervous system that would allow us to succeed in introspecting as we want. Our nervous system has evolved for different purposes than to permit us to have contact with the processes themselves (cf. Skinner, 1972/1978). Thus, Skinner claimed, in effect, that none of the purposes of evolution could have been served by our species' acquiring the kind of wiring that would allow us to be aware of occurrences in our brain. Moreover, Skinner knows that we lack this more advanced kind of introspective ability as part of his larger knowledge of both the purposes of evolution and how our species progressively evolved to meet these purposes. Skinner's position is a surprising one that needs to be further explored, though not in the present article. It is surprising because one would think superficially that the purposes of evolution would be served by a species that could "observe" the internal causes of its behavior (whether or not these are "initiating" causes). I shall return later in this article to the question of what occurrences we can be aware of directly, that is, by introspective means. At this point, I need further to mention only that Skinner understood Graham to be locating sensations in what Skinner considered to be the pitch-dark area of the nervous system; since Graham's sensations are nonbehavioral effects of private stimulation and are not effects that behavior produces except through private stimulation, they must be occurrences of some sort in the brain itself. My use of the word *pitch-dark* in the preceding sentence constitutes an overstatement that needs a little qualification in view of a certain "possibility" that Skinner (1984a) allowed. I shall provide that qualification before I close this article. (b) Moreover, Graham clearly did not conceive of sensations as personally inaccessible. A further reason for expecting Skinner's resistance to Graham's proffering of sensations in place of private stimulation as that which is introspected is this: very probably, Graham meant by a sensation the same event that we commonsensically call, for example, a feeling of pain. Some doubt about this remains due to Graham's apparent espousal of the functionalist notion that a change in the causal relations into which sensation enters makes the same occurrence a different sensation. However, Graham probably meant a burning pain when he wrote of a burning pain; no quotation marks are needed. And a change in how the pain comes about, a change in its effects, and a change in how it is called would not mean that the pain

is no longer the pain that it was. Assuming that a pain in this sense is a sensation in Graham's sense, the sensations that Graham was advocating for radical behaviorist theory have the "presence" that mere stimulation cannot have however the number and variety of different responses that the stimulation serves as the occasion for. On this basis, too, we should expect Skinner's resistance to Graham's "sensation classification" interpretation of what takes place when we normally utter, for example, "The pain is in my neck."

First Part of Skinner's Reaction to Sensation Classification

As one would expect from a knowledge of Skinner's position, Skinner did reject Graham's proposed theoretical shift to sensations as being that of which we are introspectively aware. Graham (1984) averred that it is sensations (rather than private stimuli? see below) that one classifies by means of introspective verbal operants. Sensations are classified thereby in terms of the environmental causes that reliably produce them and responses that they reliably produce. Skinner (1984a) was not persuaded that "sensation classification" amounts to an interpretative advance over his own "private stimulus classification," in yielding a correct understanding of introspective verbal reports. For the purposes of the present discussion of the radical behaviorist account of consciousness, Skinner's reaction to Graham's proposal shall be considered as though the reaction consisted of three distinct parts. Skinner quickly brought into explicit discussion *the crucial distinction between private stimulation and the environmental causes that elicit the private stimuli, when the latter have a source external to the body*. In introspection, private stimuli are verbally classified, according to Skinner, in terms of their public causes. Replying to a different commentator, Skinner (1984b) expressed the same basic idea as follows: "For Mortensen [1984], a 'part of our visual state' is [our] relation to a square patch existing from t_1 to t_2 in our visual field. If that means that whatever is going on in us is caused by the visual patch, I could scarcely disagree" (p. 660). However, Mortensen did not in fact mean something with which Skinner was in a theoretical position to agree. Mortensen was using concepts of the sort that Gibson (1963, 1966) used for the purpose of characterizing the contents of the most usual kind of reflective (as opposed to naive-realistic) seeing (see Natsoulas, 1983a, pp. 440-442). That is, Mortensen's reference to "a square patch" was a reference to something like a sensation. And "visual field" might well be a reference to the entire content of a reflective visual experience at a fixed point of observation, as would be consistent with Gibson's analysis. Again, as in reply to Graham, Skinner was refusing to think and speak in terms of experiences, sensations, and the like. Instead, he identified the private stimulus state, of which Mortensen spoke, in terms of the public cause of that state, namely, a visual stimulus patch

(in the optic array: Gibson, 1979) that impinges on one's visual receptors. This is exactly what we should expect from Skinner given his general account of "private stimulus classification." In Skinner's view, Mortensen's private visual state, which Mortensen was characterizing, consists in part at least of private stimulation. These private stimuli, which are produced by the light, as well as all other private stimuli, which also mediate between public causes and further effects in the nervous system, are not themselves accessible to the verbal community. This is the obvious sense in which they are private; by definition, only public entities and occurrences are accessible to the verbal community. As a consequence, descriptions of the intrinsic characteristics of private stimuli do not become, according to Skinner, a part of the language by which one introspects private stimuli. Because the verbal community has no other way to identify private stimuli than in terms of their observable, public accompaniments, the person himself or herself also does not describe private stimuli except in terms of those public accompaniments on the basis of which the verbal community originally reinforced his or her introspections, and metaphoric extensions of such terms. So long as the verbal community is unable to condition the individual's behavior of introspection on the basis of access to the intrinsic properties of the private stimuli, terms for public objects, events, and states of affairs must be, according to the radical behaviorist account, the source of language by which private stimuli are described. Graham was well aware, of course, of this part of radical behaviorist theory. Nevertheless, he seems to have skipped over the step of private stimulation and to have proceeded directly to the stage of sensation, which is later in the causal chain; this is how Skinner justifiably understood him. There are other possibilities for what Graham meant. Graham could have meant, rather, that a sensation is a kind of private stimulus or pattern of private stimulation, the kind that can be introspected, assuming that not all private stimulation has the necessary salience. But Graham did not make any such case or statement, except perhaps implicitly by saying about the process of introspecting sensations some of the same things as Skinner usually says about introspecting private stimuli. Alternatively, Graham may have been denying that we can be aware directly of private stimulation *per se*. And so, Skinner had to object to this rejection of *the very foundation of his account* of the kind of consciousness that we acquire through the efforts to teach us of the verbal community to which we belong.

Second Part of Skinner's Reaction to Sensation Classification

Skinner (1984b) considered the position that he was adopting on this issue, that is, in favor of "private stimulus classification" over "sensation classification," to be the proper position for a behaviorist to take. By the way, it is

interesting to find that in his replies to commentators, Skinner (1984a, 1984b) expressed himself several times in terms of what being a behaviorist requires. I hope that this does not mean that a present-day radical behaviorist is obliged to forbear following certain leads. In his reply to Graham, Skinner in effect stated that he was treating of the introspective process as a behaviorist should; Graham was up to something else: "As a behaviorist I can say that a sharp object causes the kind of stimulation that evokes the response *sharp pain*, but Graham, I suppose, would want to say that it is sensation which, in turn, is reported as a sharp pain" (p. 575). Once Graham introduces his concept of sensation into radical behaviorist theory, he evidently stops being a behaviorist. But from whence derives the behaviorist requirement to eschew Graham's kind of sensations? A basis that could be given for the requirement is that sensations are supposed to be experiences or mental events and these do not exist. It could be argued that radical behaviorism has an unwavering commitment never to make knowing use of concepts that would refer to fictional entities or occurrences. That which other psychologists may consider heuristic, radical behaviorists consider a snare. In that case, the matter would be entirely clear: Graham is simply mistaken in his ontology. However, Skinner did not state or imply anything to this effect in his reply to Graham; Graham was saying something else, and not attempting to talk of mental fictions. Nevertheless, the answer to why behaviorism must stay clear of sensations in Graham's sense has to do with what sensations are supposed to be. As I have already noted, sensations are nonbehavioral effects of stimulation, according to Graham's understanding of them, and they presumably transpire in the brain. They are transitory states or processes of the brain or of a part of the brain. *All occurrences that take place in the brain are themselves neither stimulatory nor behavioral* (see next section for a qualification). That is the reason that sensations and any other occurrences in the brain lie beyond the behaviorist's purview. When radical behaviorists treat of their special subject matter, they are committed to using exclusively the concepts of stimulus and response and concepts that refer to properties of stimuli and responses. Other terms that behaviorists employ for this purpose must be definable in terms of these concepts. Needless to add, behaviorists also apply language that is descriptive of the individual's environment. The radical behaviorist restriction of the vocabulary of psychological science does not mean, however, the denial of all causes of behavior that radical behaviorism does not treat of or mention. Other causes are held to be the province of the physiologist or other scientist. In this way, a division of labor among the sciences is maintained, and a place in this division is reserved for a purely behaviorist science. This division of labor is aided by the fact, a fact according to Skinner, that the brain never enters into a state or involves any other occurrence that can serve as occasion for operant verbal responses.

If occurrences in the brain could serve this function, a case could be made in favor of their inclusion in radical behaviorist science; they would have as much claim in this regard as private stimuli do. It is crucial for radical behaviorism not to err in favor of occurrences in the brain qua controlling occasions for operant behavior. Such an error (or correct recognition to the same effect) would open the door to perhaps *many new concepts*, that is, to concepts that radical behaviorists have not countenanced; provided, of course, that the respective occurrences in the brain could not be construed as stimuli or responses. The introduction of new concepts that do not refer to stimuli, to responses, to environmental causes, to effects of behavior on the environment, or to characteristics of any of the above (e.g., Graham's sensations) will begin the evolution of radical behaviorist science into its natural successor.

Third Part of Skinner's Reaction to Sensation Classification

A third part of Skinner's response to Graham's introduction of sensations will elicit, no doubt, the charge of inconsistency from some of the psychologists who do not proceed as I advised near the start of the present article. As a consequence, they will miss something of importance that is now taking place within the radical behaviorist movement (cf. Killeen, 1984). Immediately following the sentence from Skinner (1984a) that I quoted in the previous section, there appears this most intriguing paragraph:

I allowed for that possibility in a passage in [Skinner, 1945b, p. 276] that I am surprised has gone unnoticed by those who are critical of behaviorism. The passage reads as follows: "See' is a term acquired with respect to one's own behavior in the case of overt responses available to the community, but according to the present analysis it may be evoked at other times by *any private accompaniment* of overt seeing. Here is a point at which a nonbehavioral private seeing may be slipped in." (p. 575)

In the original text, this passage seems to be referring only to private stimulation and covert responding; see the subsequent sentence in Skinner (1945b, p. 276). Evidently, however, Skinner in that sentence meant to include in "some sort of state or condition" a state or condition of the brain or part of the brain. And in the context of his reply to Graham, Skinner was using the phrase *any private accompaniment* broadly enough to include Graham's sensations as "possible" controlling occasions for introspective behavior. Again, Skinner has not fallen into self-contradiction; it is simply wrong to understand him as first rejecting "sensation classification" and then turning around and immediately allowing it. Skinner has always possessed a high degree of awareness as regards what he is up to, and his positions are often more subtle than his critics believe. In this case, he made his position very clear in the introduction to the set of replies that includes his reply to Graham. Skinner

(1984b) stated that he "was not trying to bring *sensations* back into behaviorism. By toothache [he meant] only the stimulation arising from a damaged tooth. We must wait for physiology to supply further details" (p. 573). By including the quotation from his early article and using the quotation as a limited kind of concurrence with Graham's view, I believe that Skinner was implying that *he does not absolutely oppose the direction of evolution of radical behaviorist theory that Graham indicated*. That is, Skinner saw himself as already having anticipated this possible new direction should it prove necessary to take. As a behaviorist, he did not approve of Graham's "sensation classification." But if Skinner had to modify his account of consciousness in order to fit certain clamorous facts into the account, he could begin to modify the account by explicating the meaning of *any private accompaniment* in the above passage. Of course, the word *any* would be too strong, since Skinner does not believe that literally any private accompaniment of an operant behavior can acquire the behavior-controlling function.

A Closing Argument and Question for Radical Behaviorists

In his reply to Lyons (1984), Skinner (1984b) exhibited, near the response end of the behavioral process, an analogous tendency to liberalize his conception of consciousness:

I agree that the kind of thinking which seems to be merely covert behavior ("truncated, unemitted, reduced, impotent behavioral acts") may be so reduced that there is no muscular involvement to be sensed proprioceptively. Must we appeal to some minute behavior which never reaches a muscle? If so, it is a problem for the physiologist. (Skinner, 1984b, p. 659)

However, if that which Skinner described does take place, the problem cannot be simply passed along to the physiologist; to do so would be arbitrarily to limit the domain of radical behaviorist science. The argument that I shall make in this section applies to the case of sensations as well; these, too, cannot be left to the physiologist, as Skinner also suggested, and for the same reason. Again, Skinner is in all likelihood not unaware of the argument that I shall make. Notice this passage:

Do we see red as a property of an object, as a retinal response to a given frequency of radiation, as nerve impulses in the optic tract, or as activity in the occipital cortex? As a behaviorist, I must reply that what is happening in retina, optic tract, and occipital cortex are part of seeing red. As a behaviorist, I leave that to the physiologist, who has more appropriate instruments and methods. As a behaviorist, I am concerned only with the way in which a discriminative response (whether it be a key press, saying "red," or stepping on the brake of a car) is brought under the control of red objects. Also as a

behaviorist, I am concerned with how a person learns to say "I see red" in both the presence and absence of red objects. It is the word "see" that causes the trouble. (Skinner, 1984a, p. 578)

What sort of trouble? In this passage, the latter concern of the behaviorist seems very much to be a problematic afterthought that Skinner *had* to add to what is otherwise, in his view, straightforward. The trouble arises because a part of (actually or apparently) seeing red can be a controlling occasion for behavior. The trouble arises because the part of seeing red that achieves this control may be a state or process that Skinner would prefer to leave to the physiologist. So too, the problem of thinking without muscular involvement belongs within the purview of the radical behaviorist, or within the purview of the radical behaviorist's successor, for the reason that we are introspectively aware of these highly reduced behaviors. Needless to point out at this late stage, introspection is part of the subject matter of radical-behaviorist science. If we are introspectively aware of the thinking without muscular involvement that goes on in us, then this thinking serves as controlling occasion for verbal operant behavior, notwithstanding the lack of proprioceptive stimulation produced by such thinking. An implication would seem to be that we have evolved differently from the way that Skinner suggested. Moreover, if operant behavioral control by events, states, or processes in the brain is a fact, then *Skinner (or others) will have to find a way by which such "behaviors in the brain" produce other than proprioceptive forms of private stimulation*. Radical behaviorists must come up with such private stimulation or else give up the requirement of stimulus control for introspection. I believe that Skinner may be on the verge of making such suggestions concerning alternative stimulation, since he has now more than once admitted to the control of verbal operants by occurrences in the brain. He has admitted to *control* and not just to causation; the latter is not at issue, of course, since all operant behavior is produced by processes in the brain. Skinner (1984b) stated, "I can observe the same kind of thinking silently when it has little if any muscular involvement" (p. 657). No muscular involvement means that we are sometimes introspectively aware of instances of thinking that transpire entirely in the brain. But how is it possible for us to be introspectively aware of thinking that goes on entirely in the brain? Do we have, after all, nerves going to the right places? Absent a postbehaviorist modification in the radical behaviorist account of consciousness, the Skinnerian answer must be that silent thinking provides us with an other than proprioceptive kind of private stimulation whereby we can be aware of it. But what kind? Analogously, if sensations are included among the private accompaniments of overt behavior that may become occasions for the behavior's occurrence, then sensations will provide private stimulation. What kind can Skinner or other radical behaviorists propose?

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