

RADICAL BEHAVIORISM AND THE REST OF PSYCHOLOGY: A REVIEW/PRÉCIS OF SKINNER'S ABOUT BEHAVIORISM

John C. Malone, Jr.
Natalie M. Cruchon
University of Tennessee, Knoxville

ABSTRACT: Radical behaviorism is fundamentally different from traditional psychology, so it is not surprising that it has been widely misunderstood. It offers an alternative to the traditional treatments of mind that avoids some of the insoluble problems raised by those views. B. F. Skinner attempted many times to describe this alternative with limited success, partially attributable to the opacity of his prose and the excessiveness of his proposed applications. We offer annotated excerpts from one of his books dedicated to this end in an effort to show how his approach deals with topics usually viewed as “cognitive psychology.” While modern radical behaviorism has progressed beyond Skinner’s conception in important ways, his writings remain instructive.

Key words: Skinner’s behaviorism, radical behaviorism, methodological behaviorism, cognitive psychology, radical behaviorism after Skinner.

The psychology of the late 20th Century took two forms: one was radical behaviorism, distinctly the minority position. The majority position was the “rest of psychology.” The “rest of psychology” was and is *mediational*, what B. F. Skinner would call “theoretical,” and all of it can be viewed as subdivisions of cognitive psychology, broadly defined.¹ That is, the rest of psychology relies on explanations expressed in terms of underlying mechanisms.² While there are as many of these “cognitive psychologies” as there are authors, there are really only two “behaviorisms.”³ *Methodological* behaviorism is the kind most often described and criticized by outsiders—although it was never characteristic of Skinner’s thinking. *Radical* behaviorism is very different and that is the name of Skinner’s view and of variants on it. Leigland (1997) provides an excellent discussion of

AUTHORS’ NOTE: Please address all correspondence to John C. Malone, Psychology Department, University of Tennessee, Knoxville, TN 37996-0900. Email: jcmalone@utk.edu.

¹ Hiline & Wanchisen (1990) discuss the implications of mediationism from the radical behavioral point of view.

² The lay public believes that “cognitive” refers to thinking, remembering, and other functions, construed as aspects of conscious experience. In fact, cognitive theories often have little to do with conscious experience—but they *always* deal with underlying mechanisms or mediators.

³ One could list 14 or more variants of behaviorism, including classical behaviorism, neobehaviorism, interbehaviorism (of J. R. Kantor), crude behaviorism and molar behaviorism (of H. Rachlin), theoretical behaviorism (of J. E. R. Staddon), cognitive behaviorism, systemic behaviorism (of R. Wahler), psychological behaviorism (of A. Staats), emergent behaviorism (of P. Killeen), and others. Nonetheless, only the two kinds discussed are widely influential.

methodological and radical behaviorism—the interested reader will find no better source for clarification of this important distinction.⁴

Radical behaviorism is not above criticism, of course. Skinner extrapolated far beyond his data, hoping to gain popular acceptance of his views. The strategy backfired—not only were the extrapolations often unconvincing (cf., Malone, 1975; 1982; Staddon, 1993), but he often “dumbed down” his version of behaviorism to promote communication with the public. This only provoked further criticism from those who had no way to distinguish the simplified from the sophisticated version (Hineline, 1990). For this and other reasons, very few critics have understood Skinner’s behaviorism well enough to criticize it competently. We attempt here to present radical behaviorism clearly, showing how its interpretations apply to diverse areas. To this end, we use excerpts from one of Skinner’s writings, hoping to prevent at least *some* future misguided critiques. We argue that Skinner was correct in criticizing mainstream psychology, which is irretrievably damned by its failure to correct the errors of history.

Traditional psychology carries the burden of basic assumptions that agree with folk psychology and, therefore, lend popular appeal to its theories (cf., Baum, 1994). Needless to say, these assumptions also feature primitive ways of casting some important questions. For example, the assumption that “we” are minds “inside” bodies agrees with millennia of popular opinion, but it is neither a necessary nor a wise psychology. Similarly, the facts of sensation and perception do not require that we take in copies of the world around us. Whatever the popular appeal, radical behaviorism does not accept such folk psychology.

Two Kinds of Behaviorism

In 1945, Skinner published an influential piece on the operational analysis of terms in which he attacked the prevailing philosophy of science that he called *methodological behaviorism*. This is the view that there is a distinction between public and private events and that psychology (to remain scientific) can deal only with public events. According to this view, private events are “mental” and, therefore, beyond our reach. This is the “arid philosophy of truth by agreement”(Skinner, 1945): something is meaningful or scientific (objective) only if at least two observers agree on its existence. Thus, private experience is excluded because it is subjective (by definition) and we can deal only with that which is objective. Methodological behaviorism and almost all cognitive theories leave the mind to philosophers.

It is almost invariably assumed that Skinner held the views of the methodological behaviorists and would not let us study the mind because it is unscientific (Anderson, 1990). That is absolutely false. Indeed, Skinner presented his own position, radical behaviorism, in *contrast* to methodological behaviorism! Radical behaviorism is Watsonian in that it does not distinguish between private

⁴ Other authoritative treatments include Baum (1994) and Rachlin (1994). Both discuss the philosophical antecedents of radical behaviorism and the implications of the radical behavioral approach.

and public events. In so doing, it omits nothing commonly thought of as mental, but it treats “seeing” as an activity similar in kind to walking (cf., Malone, 1990).

Skinner did not deny the existence or the importance of personal experience any more than did Watson, but he did deny the mind/body dualism of the mentalists and the methodological behaviorists. Thinking is something that we do, just as is walking, and we do not think mental thoughts any more than we walk mental steps. Personal experience is not necessarily “private” experience. That part of the world within our bodies⁵ is difficult to describe because society has a difficult time teaching us to name it. How can a parent, who tells us that a ball is “blue,” tell us that we have a stomachache? The parent must assess public accompaniments such as swellings or wounds, collateral behavior such as wincing or crying out, and verbal reports established by past teaching when questions like “where does it hurt?” are answered. Furthermore, the parent or other questioner must expect metaphors in the answers of the child who will report such things as “sharp” pains or “dull” aches.

Our experience does not force us to believe in an “inner private world” that is different from the “outer” world. However, we are raised to believe, according to the folk psychology that has been passed on for thousands of years, that there are two worlds. That information is transmitted through our language and that is why Skinner was so interested in etymology. We inevitably assume, as William James noted in 1890, that the existence of a word means that some referent must exist, though this is often not the case. Many words descriptive of observable behavior come to be reified and “implanted” in an inner mental world that otherwise does not exist. Thus, a lucky person behaves in a manner called “happy,” rather than hapless, and eventually happiness is ascribed to a state within the person (Skinner, 1989).⁶ Though we do not endorse all aspects of phenomenological views, they do treat experience and epistemology in a way compatible with radical behaviorism, as noted by Kvale and Grenness (1967), Day (1969), and others.

Selections Illustrating Radical Behaviorism

Skinner’s vision of radical behaviorism as an approach to the whole subject matter of psychology was presented in 1974 in a popular book, *About Behaviorism*. Little mention was made there of operant conditioning as a theory of behavior and learning, though many concrete examples of applications of operant conditioning are informally given. This book provides all that is necessary for a general understanding of Skinner’s conception of behavior analysis even for those readers who will never try to understand an article published in the *Journal of the Experimental Analysis of Behavior*. But the book is surprisingly difficult to read—though it seems to be simple and clear prose, it is extremely dense. Anyone who

⁵ Skinner often referred to private experience as occurrences “inside the skin,” but that is misleading. Experience need not be inside or outside.

⁶ *Happy* did originally mean “lucky,” just as *glad* meant “shining and bright,” as the etymological dictionary tells us.

reads Skinner knows that his writing is deceptive. It reads like a novel or even a magazine article, yet if one stops at mid-page and asks, “what have I just read?”, the answer is often elusive (cf., Malone, 1999).

Yet, Skinner is worth the effort because some of his ideas are excellent and well put. The trouble is that they are often embedded in less lofty, “ho hum, wallpaper” prose that might be better deleted. This means that Skinner, like Francis Bacon and Friedrich Nietzsche,⁷ may better be appreciated in aphorism form. *About Behaviorism* lends itself to this form; it is aimed at a popular audience, but contains the gist of Skinner’s doctrines. The aphorisms below are chosen from that book and appear with commentary and the page numbers from whence they came. They begin with comments about private experience, and continue through a variety of topics in psychology.

Thoughts and Causes

What are the causes of our behavior? If they are not the stimuli of S-R psychology, one might think that they are mental causes. They are not that either—we need to find the actual causes and they are not discrete stimuli or thoughts. The problem is that it may feel to us like thoughts cause actions, but thoughts may *themselves* be treated best as actions; they are also caused, at least in the sense that observable actions are caused (cf., Mook, 1996). The real causes of both private and public actions lie in our histories, as well as our present contexts, and they are difficult to sort out. But, if we forget about causes and remain purely descriptive as some anthropologists do, we find that we tacitly accept the most primitive of explanations.

- The person with whom we are most familiar is ourself; many of the things we observe just before we behave occur within our body, and it is easy to take them as the causes of our behavior. (pp. 10-11)
- Structuralism and developmentalism do not tell us why customs are followed, why people vote as they do or display attitudes or traits of character. . . . When explanations are demanded, primitive cultural practices are attributed to “the mind of the savage,” the acquisition of language to “innate rules of grammar,” . . . (pp. 12-13)

Methodological behaviorists, such as Clark Hull and his associates, were disingenuous in their treatment of private experience. They confused, as did many others, private experience and “mental activity” or mind. Thus, they rejected both private experience and mind, a foolish act that did psychology no good in the public eye (Hull, 1952; Malone, 1990). The fact is that private experience must be included, just as “mind” is excluded.

⁷ Authors of sets of aphorisms titled *Novum Organum* (Bacon, 1620/1939) and *Also Sprach Zarathustra* (Nietzsche, 1883-5/1999), respectively.

RADICAL BEHAVIORISM AND THE REST OF PSYCHOLOGY

- Most methodological behaviorists granted the existence of mental events while ruling them out of consideration. Did they really mean to say that . . . feelings and states of mind were merely epiphenomena? . . . Freud's demonstration of the unconscious, in which an awareness of feelings and states of mind seemed unnecessary, pointed in the same direction. . . . Must all this [private experience] be ignored because it cannot be studied objectively? (p. 17)

Radical behaviorism is different from and a great improvement over both mentalism, which is solely concerned with the description of private experience, and methodological behaviorism, which rules it out. Skinner saw radical behaviorism as remedying the defects of both.

- Mentalism kept attention away from the external antecedent events. . . by seeming to supply an alternative explanation. Methodological behaviorism did just the reverse . . . it turned attention away from self-observation and self-knowledge. Radical behaviorism restores some kind of balance. It does not insist on truth by agreement and can therefore consider events taking place in the private world within the skin. It does not call these events unobservable and it does not dismiss them as subjective. It simply questions the nature of the object observed and the reliability of the observations. (p. 18)

"Objectivity" used to be defined as interobserver agreement, or intersubjectivity, and it still is so defined in many of the textbooks of psychology and other disciplines. But this was the view of logical positivism, a position no longer held by knowledgeable philosophers of science (cf., Leahy, 2000). The truth is that people have "agreed" on many preposterous things over the centuries, from astrology to the divine right of kings, and that has made the objects of belief no truer.

- To spend much time on exact redefinitions of consciousness, will, wishes, sublimation, and so on would be as unwise as for physicists to do the same for ether, phlogiston, or *vis viva*. (p. 21)
- A small part of the universe is contained within the skin of each of us. There is no reason why it should have any special physical status because it lies within this boundary . . . (p. 24)

Talking to Oneself and Eating to Oneself

We have no difficulty using the expression, "I was talking to myself," or "thinking to myself," when referring to covert activity—things that happen "inside my skin," or "privately." Others cannot know such things unless I tell them or give

myself away through my actions.⁸ But can I say that “I am eating to myself?” Why not?

- “I am hungry” may be equivalent to “I have hunger pangs” . . . “I am eating actively.” . . . “It has been a long time since I have had anything to eat” . . . “I feel like eating” . . . “I have felt this way before when I have started to eat” . . . “I am covertly engaging in behavior similar to that involved in getting and consuming food” . . . “I am fantasizing eating” . . . “I am thinking of things I like to eat” . . . I am eating to myself.” (pp. 32-33)

The Social Origin of Private Experience

All that we know about our private experience comes from the teaching, not necessarily explicit, of the society in which we live—and that society does not have a clear idea of what our experience is. It has to rely on clues that it can see and hear and touch—what George Romanes called “the ambassadors of the mind” (1882/1912, 1888).

- Self-knowledge is of social origin. It is only when a person’s private world becomes important to others that it is made important to him A person who has been “made aware of himself” by the questions he has been asked is in a better position to predict and control his own behavior. (p. 35)
- There is an old principle that nothing is different until it makes a difference, and with respect to events in the world within the skin the verbal community has not been able to make things different enough. As a result, there is room for speculation, which over the centuries has shown the most extraordinary diversity [as various descriptions of mind]. (p. 35)

Natural Selection and the Nominal Fallacy

Skinner opposed explanations in terms of reflexes or instincts simply because he felt that they explained nothing—they only named things. Naming is not explaining, which is why it is called the nominal fallacy. But evolutionary theory was clearly the model for both species-typical behavior and for operant behavior as well.⁹ For the last 30 years of his life, Skinner became increasingly sure that variation and selection of behaviors was the key, just as it is in the origin of species.

⁸ Rachlin (1994) argued that this is *always* the case—we cannot keep secrets from those who know us well.

⁹ Staddon (1993, p. 56) pointed out that Skinner’s use of the terms “phylogenic” and “ontogenic” was unusual—the terms ordinarily used are “phylogenetic” and “ontogenetic.”

RADICAL BEHAVIORISM AND THE REST OF PSYCHOLOGY

- To say that a baby breathes or suckles because it possesses appropriate reflexes is simply to say that it breathes or suckles, presumably because it has evolved in such a way that it does so. (p. 38)
- Selection is a special kind of causality that is not properly represented as a force or pressure. To say that there is “no obvious selection pressure on mammals that explains the high level of intelligence reached by primates” is simply to say that it is hard to imagine conditions under which slightly more intelligent members of a species would be more likely to survive. (p. 41)
- Contingencies of survival are more easily imagined . . . if the contingencies prevail over long periods of time. Conditions within the body . . . and some features of the external environment, such as the cycles of day and night, or the seasons, or temperature, or the gravitational field, are long-lasting. And so are other members of the same species, a fact that explains the prominence given by ethologists to courtship, sex, parental care, social behavior, play, imitation, and aggression. But plausible conditions of selection are hard to find in support of such an assertion as that “principles of grammar are present in the mind at birth,” since grammatical behavior can hardly have been sufficiently important for survival, for a long enough time, to explain its selection. (p. 42)

The Subject Matter is Always Activity

All of the phenomena of psychology—observable behavior, as well as mentality—are best viewed as action—selected, shaped, and strengthened by contingencies. For some people, this is a difficult conception—it is easy to conceive thinking as action, but must not there be images or other “materials” to be stored and retrieved? As the Harvard psychologist of the early 20th century Hugo Munsterberg observed, such people must wonder where their laps go when they stand (1914).

- What has evolved is an organism, part of the behavior of which has been tentatively explained by the invention of the concept of mind. (p. 50)
- Important consequences of behavior which could not play a role in evolution because they were not sufficiently stable features of the environment are made effective through operant conditioning during the lifetime of the individual . . . (pp. 51-52)

We must keep explanations *outside* the organism, a hard task indeed. A good reason to do so is illustrated when we ask ourselves why we salivate to good tastes and why we pull our hand off the hot stove burner. Easy questions, you think? A fresh corpse pulls its hand from a hot plate—because it hurts? Much of what we do occurs because of spinal reflexes or other involuntary causes. True, the burner *hurts*, but that is not why the spinal cord causes the hand to withdraw.

- . . . a susceptibility to reinforcement is due to its survival value and not to any associated feelings. . . . A person may report that a substance tastes good, but it does not elicit salivation because it tastes good. Similarly, we pull our hand away from a hot object, but not because the object *feels* painful. The behavior occurs because appropriate mechanisms have been selected in the course of evolution. The feelings are merely collateral products . . . (p. 52)
- As a result, the human species, like other species, is powerfully reinforced by sugar, salt, and sexual contact. This is very different from saying that these things reinforce because they taste or feel good. (p. 53)

The excerpt above shows that Skinner found it difficult to follow his own advice and is only one of a series of examples that appeared regularly over the years. It was difficult even for Skinner to be a Skinnerian and follow the rule that “behaviors are reinforced, not organisms.”¹⁰

Skinner on Motives and Emotions

Aristotle wisely treated many “emotions,” such as love, happiness, and the like, as patterns of action extended over time. Thus, to understand “love,” one must refer to behavior over days, weeks, months, and years. It is not simply an emotion that may be acutely evoked. Skinner agreed, though he never realized it. He also saw such entities as action, not states of mind.

- The statement “I love my wife” seems to be a report of feelings, but it also involves a probability of action. We are disposed to do to a person we love the things he likes or loves to have done. . . . to “love” is to behave in ways having certain kinds of effects, possibly with accompanying conditions that may be felt. (p. 54)
- “I miss you” could almost be thought of as a metaphor based on target practice, equivalent to “My behavior with respect to you as a person cannot reach its mark” or “I look for you and fail to find you.” (p. 56)

Taking the Long View

It is almost never the case that what we do is elicited by present stimuli. Our history/context is far more important and knowledge of its influence is absolutely essential in understanding our actions and their causes.¹¹ Just as we understand

¹⁰ See Malone (1987) for criticisms of Skinner’s failures to clearly understand his own doctrine.

¹¹ This is what makes the experimental analysis of behavior (EAB) so different from cognitive psychology, “pop” psychology, and old-time methodological behaviorism. Those views all assume causes acting *now*, whether as intervening variables that summarize the effects of history, as “memories,” as “states,” or whatever. This makes the EAB position incomprehensible to many.

love and honor as patterns of activity over time, we must take the long view of learning, memory, perception, and everything else.

- But the conditions that determine the form of probability of an operant are in a person's history . . . they are easily overlooked. It is then easy to believe that the will is free. . . . The spontaneous generation of behavior has reached the same stage as the spontaneous generation of maggots and microorganisms in Pasteur's day. (p. 59)
- Like "idea," "will" is used almost interchangeably with behavior . . . A willingness is a readiness or likelihood. A health authority has said that the important thing in maintaining a regimen of exercise or diet is will power; all he means is that the important thing is that a person continues to exercise or diet. (p. 60)

Homesickness, Hitler, and Gambling

It is possible, albeit not completely satisfying, to account for many states of mind and motivational conditions solely in terms of environment and contingencies of reinforcement. Such an account does seem to apply to many cases, from Hitler's behavior to the prevalence of gambling.

- The behavior of the homesick, forlorn, lovelorn, or lonely is commonly attributed to the feelings experienced rather than to the absence of a familiar environment. (p. 65)
- The condition is sometimes called "abulia," defined as a lack of will power, or a neurotic inability to act, and this is often cited as the source of the trouble, in spite of the fact that the [FR] schedule produces a similar effect in a wide range of species. (p. 66)
- It is said that Hitler prolonged the Second World War for nearly a year "by an incredible exercise of will power . . ." but his behavior . . . can be plausibly attributed to an extraordinarily favorable program . . . in which each of a series of reinforcing successes required an increasingly greater amount of effort [hence, a kind of VR schedule]. (p. 66)
- All gambling systems are based on variable-ratio schedules of reinforcement, though their effects are usually attributed to feelings . . . excitement . . . sense of mastery, to dominate, to win—in spite of the fact that gamblers almost always eventually lose. (p. 67)
- His behavior is "abnormal" in the sense that not everyone has been exposed to a program through which a highly unfavorable ratio is made effective. The same variable-ratio schedule affects those who explore, prospect, invent, conduct scientific research, and compose works of art, music, or literature . . . (p. 67)

- . . . but operant reinforcement is effective quite apart from any ultimate gain, as the negative utility of gambling abundantly demonstrates. (p. 79)

Sensation and Perception

Like Thorndike before him, Skinner viewed sensation and perception as activities. His treatment brings to mind Thorndike's subsidiary laws dealing with elective attention and set.¹² And, like Thorndike, Skinner was quick to emphasize the influence of heredity in sensation and perception.

- . . . the genetic endowment of the species plus the contingencies to which the individual has been exposed still determine what he will perceive. (p. 82)
- For example, perception is in a sense purposive or intentional. A person is not an indifferent spectator soaking up the world like a sponge. (p. 82)
- We are not merely "mindful" of the world about us; we respond to it in idiosyncratic ways because of what has happened when we have been in contact with it. (p. 83)
- It has often been pointed out that a person who has been driven over a route as a passenger cannot find his way as well as one who has himself driven the route . . . Animals carried about in a given setting do not then move about in it as well as animals who have already moved about. Both have been exposed to the same visual stimuli, but the contingencies have been different. (p. 83)
- Level of deprivation makes a difference; one mistakenly "hears the telephone" if a call is important . . . In other words, a person sees one thing as something else when the probability of seeing the latter is high and the control exerted by the former is low. (p. 84)

Radical Behaviorism and the Brain

During the 19th and 20th centuries, the human brain took on almost supernatural aspects as the most complex, intricate marvel in the universe. Similar status could well be extended to structures nearly as marvelous like the brains of apes, dogs, and fish, but those brains are usually thought to lack the attribute that interests us no end—the mind. Furthermore, during the 20th century, if not during the 19th, the brain and mind became synonyms. This is strange, particularly if the brain is still viewed as an organic copying machine! Here is what Skinner thought of it, reality, and the copy theory—there is more than a passing resemblance, once again, to the theory of belief of John Stuart Mill and to Helmholtz's adaptation, the

¹² This is what Wundt meant by "assimilation" (Boring, 1950, p. 337) and Helmholtz (Boring, 1950, pp. 308-311) by "unconscious inference." It is a functionalist view (see Malone, 1990).

unconscious inference. Skinner never made the connection, a pity, because it historically situates his view and gives it added plausibility lent by familiarity.

- The brain is said to use data, make hypotheses, make choices, and so on, as the mind was once said to have done. In a behavioristic account it is the person who does these things. (p. 86)
- The copy theory of perception is most convincing with respect to visual stimuli. They are frequently copied in works of art . . . and hence it is not difficult to imagine some plausible system of storage. It is much less convincing to say that we do not hear the sounds made by an orchestra, but rather some inner reproduction. Music has temporal patterns and only recently have copies been available which might lend themselves to a mental metaphor. The argument is wholly unconvincing in the case of taste and odor, where it is not easy to imagine copies distinguishable from the real thing . . . (pp. 89-90)

Don't We See Images?

What do we see, if not copies? In particular, how do we imagine, which means to see or hear or smell something that is not present? How do we deal with fantasy, imagination, and dreaming? And consider this—how has television, or even illustrated books, stifled our imaginations?

- When a person recalls something he once saw, or engages in fantasy, or dreams a dream, . . . is he then not seeing a copy? . . . He is simply doing in the absence . . . some of the things he did in its presence. (p. 91)
- Technology has made it much easier to see things in their presence and hence has reduced the chance to see them in their absence. Two or three generations ago a child read, or was read to, from books with few or no illustrations; today he watches television or reads books with colored pictures on every page, and he is therefore much less likely to acquire a repertoire of seeing under the control of verbal stimuli. (p. 92)
- There are many ways of getting a person to see when there is nothing to be seen, and they can all be analyzed as the arrangement of contingencies which strengthen perceptual behavior. (p. 94)
- It is only when we ask how either the world or a copy of the world is seen that we lose interest in copies. (p. 95)

Skinner was not the first to point out the ill effects of visual media—the fact that we lose our ability to imagine when stock illustrations fill all of our books. It is likely that the imagination—the “seeing” and “hearing” things not present—was even greater when books were unavailable (Duby, 1988, p. 619):

Examples abound of the power and precision of memory in the middle ages, when a scarcity of books made imagery, particularly religious imagery, a crucial

reference. This was true not only in cultivated circles, where the memory was sharpened by long training, but also among the common people, as is shown by court testimony. The most personal aspects of private life drew on memories that combined the fruits of study and experience with the oral traditions of the social group.

Verbal Behavior: Language as Function

Noam Chomsky, a famous linguist of the mid-20th century, never grasped Skinner's views on language, blinded as he was by a vision of "the behaviorist" viewpoint—which was actually Clark Hull's, not Skinner's. In 1959, he critiqued Skinner's *Verbal Behavior* (1957), which had come out two years before (MacCorquodale, 1970). What is language but verbal behavior?¹³ Just as "talking" was more than words for Watson, verbal behavior is more than "verbal" for Skinner. It includes anything that could be called communicative: a word, a chess move, or a right hook to the jaw. And we can talk to ourselves, of course, not as a surrogate for thinking, but as speaker to listener. Skinner wholeheartedly agreed with James' thesis that we are many different selves and that these selves can communicate with one another (e.g., Skinner, 1953). What is communicated are meanings of course, and meaning is more than a cluster of associations. It has to be, because there really are no associations! Meaning is a complex interaction among environments and behaviors and dictionaries do not provide meanings. When we look up a word in a dictionary, it gives us only other words. The following aphorisms appear to be as straightforward as can be, but they have proven unbelievably difficult for psycholinguists to understand.¹⁴

- . . . only because it is reinforced by its effects on people—at first other people, but eventually the speaker himself. . . . different verbal communities shape and maintain different languages in the same speaker, who then possesses different repertoires having similar effects upon different listeners. (p. 99)
- There are no meanings which are the same in the speaker and listener. Meanings are not independent entities . . . dictionaries do not give meanings . . . We must come to a dictionary already "provided with meanings." (pp. 102-103)
- Until fairly recently, linguistics and literary criticism confined themselves almost exclusively to the analyses of written records. If these had any meaning, it was the meaning for the reader, since the circumstances under which the behavior had been produced by the writer had been forgotten, if

¹³ Language may seem more than "just behavior" because it is organized, but so is all behavior.

¹⁴ Psycholinguists seem trapped in a strange version of the nature/nurture controversy—they favor a faculty/soul model over an extreme associationist model, to use James' 1890 terms. James' positivism, like Skinner's position, fits neither of these models and so remains mysterious to many readers.

they were ever known. . . . By dividing such records into words and sentences without regard to the conditions under which the behavior was emitted, we neglect the meaning for the speaker or writer, and almost half the field of verbal behavior therefore escapes attention. (p. 109)

- A great deal has been made of the fact that a child will “invent” a weak past tense for a strong verb, as in saying “he goed” . . . he must have created a new form. But we do not speak of “creation” if, having acquired a list of color words and a list of object words, he for the first time says “purple automobile.” The fact that the terminal “-ed” suggests “grammar” is unnecessarily exciting. (p. 112)

The Trouble with Mentalism

After all this, we may still wonder what is “inside us.” How do we seem to have “inner” experience and faculties like attention and thinking? How did Skinner deal with what has always been “mental life?” I am afraid that inner experience is a fraud, a conclusion that should not alarm us. Wundt and (even) Titchener did not view experience as “inner,” nor did James, Perry, and Holt.¹⁵ Why should any of us be doomed to believe in the ghost-and-puppet that Plato and Descartes envisioned?

- In mentalistic formulations the physical environment is moved into the mind and becomes experience. Behavior is moved into the mind as purpose, intention, ideas, and acts of will. Perceiving the world and profiting from experience become “general-purpose cognitive activities,” and abstract and conceptual thinking has sometimes been said to have no external referent at all. (p. 113)
- . . . we should like to have, it must be remembered that mental or cognitive explanations are not explanations at all. (p.114)
- The present argument is this: mental life and the world in which it is lived are inventions. They have been invented on the analogy of external behavior occurring under external contingencies. Thinking is behaving. The mistake is in allocating the behavior to the mind. (p. 115)

But why does it seem that things are *inside* me, at least sometimes? I look at something and then look away and I can still see it. Am I not then seeing an image in my head? The answer to that question requires a reminder—seeing and hearing and feeling are activities, they are not the making of copies. Consider Skinner’s opinion:

- The ancient view that perception is a kind of capturing or taking possession of the world is encouraged by the real distinction we make between seeing

¹⁵ Nor did Hume, Berkeley, Aristotle, Protagoras, and so on.

and looking at, hearing and listening to . . . where the second term in each pair does indeed refer to an act. It is an act which makes a stimulus more effective. (p. 115)

- We attend to a stimulus or ignore it without changing any physical condition (for example, we can listen to a particular instrument in recorded music, in part by suppressing our responses to the other instruments). (p. 116)

What is Memory?

It should be no surprise to learn that memory is not really a storage of images or ideas or anything else. The storage story arose out of the practice of keeping records and assuming that a similar process occurs in us. Do computers store data as “our brain” does? Simon, Newell, and their colleagues made the case for computer simulation of human memory and other cognitive processes decades ago (e.g., Newell, Shaw, & Simon, 1958; Simon & Newell, 1964). More recently, the same argument has been made for simulation with parallel processors (Ramsey, 1989). Thigard (1986, p. 309) described “PI,” a simulation of inductive inference and associated processes that “simulates the discovery of the wave theory of sound by the Roman architect Vitruvius.”

To argue that we made computers and thus they work (remember, think) as we do invites the question of whether we run like automobiles because we made them. In both cases, we made them to do things that we were unable to do—we cannot remember in an errorless way great quantities of data and we cannot run at 60 miles per hour.

- For various reasons, suggested by such terms as “memorandum,” “memento,” “souvenir,” and “memorial,” people have made copies of the world around them, as well as records about what has happened in that world, and have stored them for future use. Familiar examples are scratches on clay tablets, engraved legends on monuments, books, paintings, photographs, phonographic recordings, and the magnetic stores of computers The practice has led to the elaboration of a cognitive metaphor, no doubt antedating by centuries any psychological system making, in which experiences are said to be stored in memory, later to be retrieved or recalled. (p. 119)
- In recalling a name it is useful to go through the alphabet, not because we have stored all the names we know in alphabetical order but because pronouncing the sound of a letter is pronouncing part of the name; we prompt the response in ourselves as we prompt it in someone else whom we are helping to recall it. (p. 122)

Skinner on Problem Solving

“Problem solving” is one of those misleading category labels that includes a myriad of activities that may be related only in the eyes of the observer. The observer either interprets some ongoing behavior as goal directed, and thus “problem solving,” or perhaps he places an organism in a situation meant to “pose a problem.” There are many varieties of so-called problems, but some cases of problem solving may be dealt with easily.

- Solving a problem is, however, more than *emitting* the response which is the solution; it is a matter of taking steps to make that response more probable, usually by changing the environment. (p. 123)
- Thus, if the problem is to say whether two things are the same or different, we may put them side by side to facilitate a comparison . . . separate them . . . group similar things in classes . . . put things in order . . . restate a verbal response by translating it from words into symbols . . . represent the premises of a syllogism with overlapping circles . . . clarify quantities by counting and measuring . . . (p. 123)
- When consequences are important and the probabilities of two or more responses are nearly equal, a problem must be solved. A person usually solves it and escapes from indecision by changing the setting. (pp. 124-125)

Skinner went on to point out that what we designate as a “problem” is very likely not a single task, hence, what is ordinarily interpreted as “insight” is the product of familiarity with similar situations that are subparts of the current problem. Harlow (1949) showed how insight is itself learned, as *learning sets*, dependent on experience with problems of the same general type, such as two-choice discrimination tasks. Learning set applies as well to what we call “creativity.”

Creativity is the Norm for Skinner’s Theory

Creativity was a tough nut for the old S-R psychologies to crack, but it follows easily from Skinner’s conception of classes of behavior. Skinner became increasingly convinced that the evolutionary analogy was the key to understanding the behavior of individuals as well as the physical characteristics and the behavior of populations. Thus, chance variation provides an endless supply of new behaviors and the environment selects some of them, just as it selects physical characteristics that appear in a species.

- The creative mind . . . was an insoluble problem for stimulus-response psychology because if behavior were nothing but responses to stimuli, the stimuli might be novel but not the behavior. (p. 126)

- That chance can play a part in the production of anything as important as mathematics, science, or art has often been questioned. . . . for the strict Freudian, no one can . . . call a person by the wrong name or make a slip of the tongue by chance . . . Yet the biographies of writers, composers, artists, scientists, mathematicians, and inventors all reveal the importance of happy accidents . . . (pp. 126-127)
- The concept of selection is again the key. The mutations in genetic and evolutionary theory are random, and the topographies of response selected by reinforcement are, if not random, at least not necessarily related to the contingencies under which they will be selected. . . . Explicit ways of making it more likely that original behavior will occur by introducing “mutations” are familiar to writers, artists, . . . (p. 127)

Child Psychology

Skinner was not an advocate of mainstream developmental psychology for obvious reasons. There is probably no area where interpretation is so difficult and this must be in large part because of the subjects involved. Children fairly beg for anthropomorphic treatment, especially from the sort of researchers who are attracted to child psychology. Furthermore, unless we are careful, the emphasis always falls toward heredity, as true today as in the time of John B. Watson. We are left with a vacuous “unfolding” of the child’s potential as the key to development, both physical and psychological. While there is some truth in this view, the hereditary component that “unfolds” is usually grossly overemphasized.

Ernst Moerk (e.g., 1990; 2000) spent decades showing that psycholinguistic theory promoted by Chomsky (e.g., 1957) amounts to assuming a “language-related faculty of mind,” that provides “invented, easy pseudo answers” to questions of language development (2000, p. 5). He amassed data showing that language acquisition is *not* essentially complete at age four and that only if we ignore changes that occur from age four to twenty can we assume “innate language creativity.” The rapid acquisition of language that is used as evidence for a hereditary acquisition “device” applies only to vocabulary—the acquisition of which no one calls innate. The learning of syntax is painfully slow. Moerk (2000, p. 191) criticized hereditarian interpretations of language acquisition as “bad old backward-looking romantic ideologies,” because they rely on the old faculty psychologies of “human nature” that were popular centuries ago. Skinner would agree wholeheartedly, as the aphorisms below indicate. Notice that the third aphorism considers the possibility of the innate ability to apprehend the primary qualities of Boyle and Locke.

- We have noted that those who study the “development of language” in the child tell us much about vocabulary, grammar, and length of sentences but very little about the hundreds of thousands of occasions upon which a child hears words and sentences spoken or the many thousands of times he himself speaks them with results, and that no adequate account of the “development of language” is therefore possible. (p. 128)

RADICAL BEHAVIORISM AND THE REST OF PSYCHOLOGY

- The behavior which is said to indicate the possession of the concept of inertia and the age at which it normally appears are no doubt important facts, but we should also know something about the many thousands of occasions upon which a child has pushed, pulled, twisted, and turned things in “developing” that concept. (pp. 128-129)
- In the absence of any adequate account of the development or growth of a person’s exposure to an environment, the almost inevitable result is that important aspects of thinking are assigned to genetic endowment. Not only is verbal behavior said to show the operation of innate rules of grammar, but “innate ideas such as size, shape, motion, position, number, and duration” are . . . features of the *environment*. They have prevailed long enough and behavior with respect to them has been crucial enough to make the evolution of appropriate behavior possible, but contingencies of reinforcement are at work every day in the life of the individual to generate supplementary behavior under the control of the same features. The greatest achievements of the human species (not of the human mind) have occurred too recently to make a genetic explanation defensible . . . (p. 129)

Skinner and Cognitive Psychology

Skinner was especially contemptuous of cognitive psychology and he became more so with age. What troubled him greatly was the notion of mind, mind as equivalent to brain, and especially mind as a wonderful computer. This makes the mind an explanatory entity. Although it is actually an intervening variable and thus an abstraction, it appears to be concrete, identified as it is with the brain. This was the subject of his APA address a week before he died and he did not neglect the topic in his 1974 book.

- In all these roles it has been possible to avoid the problems of dualism by substituting “brain” for “mind.” . . . Both the mind and the brain are not far from the ancient notion of a homunculus—an inner person who behaves in precisely the ways necessary to explain the behavior of the outer person in whom he dwells . . . A much simpler solution is to identify the mind with the person. (p. 130)
- By attempting to move human behavior into a world of nonphysical dimensions, mentalistic or cognitive psychologists have cast the basic issues in insoluble forms. They have probably also cost us much useful evidence, because great thinkers . . . have been led to report their activities in subjective terms, focusing on their feelings and what they subjectively observe . . . (p. 131)

Rule-Governed Behavior

Much of our behavior is rule-governed rather than directly shaped by contingencies. We do not want to find out through direct experience what eating

mercury or running stop signs does to us. We follow the advice of those who have already tried such things, so when we are told that “a stitch in time saves nine,” we are wise to listen.

- Folklore, maxims, and proverbs are often especially effective because many of the advantages of the behavior they strengthen are long deferred and do not function well as reinforcers. (p. 135)
- The laws of religions and governments codify contingencies of reinforcement maintained by social environments. The laws of science describe contingencies which prevail in the environment quite apart from any deliberate human action. (p. 138)

Contingency-shaped behavior is strengthened through action, not through words and rule-following. The “school of hard knocks” educates the self-made business tycoon, while Harvard Business School teaches rules to those who wish to avoid the tycoon’s school. We admire contingency-shaped behavior more than rule-governed behavior, as reflection quickly verifies:

- The planned or well-made work may suffer from the suspicion which attaches to any calculated behavior. The intuitive mathematician seems superior to one who must proceed step by step. We naturally object to the calculating friend who has learned how to make friends and influence people. Possibly that is why contingencies sometimes go unexamined or unreported; a description would destroy some of their effect. (p. 140)

Neither the “rule-governed world” or the intuitive “contingency-shaped world” of the musician or mystic is “more real.”

- It is a mistake . . . to say that the world described by science is somehow or other closer to “what is really there,” but it is also a mistake to say that the personal experience of the artist, composer, or poet is closer . . . All behavior is determined, directly or indirectly, by consequences, and the behaviors of both scientist and nonscientist are shaped by what is really there but in different ways. (pp. 140-141)

Usually we cannot verbalize the rules that govern contingency-shaped behavior, but that does not mean that they are not effective.

- We do not need to describe contingencies of reinforcement in order to be affected by them. . . . Certainly for thousands of years people spoke grammatically without knowing that there were rules of grammar. (p. 141)

Rationality

This is a difficult matter for philosophers, who are concerned with technical definitions of what may be the most fundamental concept in philosophy. We do

not wish to enter into a debate over rationality's definition or its existence, but we can treat it in a simple and practical way: by leaving metaphysics to others, just as Skinner did.

A practical definition of rationality and irrationality refers to the degree to which rules can be supplied to account for behaviors—whether the behavior is rational, in the sense of *beneficial* to the organism displaying it, is another matter. When we can give no rules, we are acting intuitively and perhaps, but not necessarily, irrationally. Skinner clearly saw intuition as far more common and perhaps more admirable than is rational behavior, just as most of us do. Psychoanalytic writers sometimes confuse rational and irrational with conscious and unconscious. All behavior, effective or not, is at first nonrational in the sense that the contingencies responsible for it have not been analyzed. All behavior is at first unconscious, but it may become conscious without becoming rational: a person may know what he is doing without knowing why he or she is doing it.

- Faith is a matter of the strength of behavior resulting from contingencies which have not been analyzed. . . . Deliberate behavior proceeds through an analysis of reasons; impulsive behavior is the direct effect of contingencies. (p. 147)

In the 1960s it was hoped, by Herbert Simon and others, that we could analyze the rules that people use when they solve problems and otherwise reason. That assumed that thought was essentially verbalizable and that examination of verbal protocols produced by people who were solving problems aloud would tell us how they solved problems. That did not work out and a few decades later it was widely recognized that thought is not wholly, or even largely, verbalizable.

- Newton could hold a problem in his mind for hours and days and weeks until it surrendered to him its secret. Then, being a supreme mathematical technician, he could dress it up, how you will, for the purposes of exposition, but it was his intuition which was preeminently extraordinary—"so happy in his conjectures," said de Morgan "as to seem to know more than he could possibly have any means of proving." (pp. 149-150)

What is Truth, Really?

The truth of a statement—the only "truth" there is—depends on the contexts in which things are said, the contexts in which the speaker learned the language, and the context of the listener. If this seems odd, consider William James' "many worlds" (1890, Vol.II, p. 291)—that is merely another way of putting it. Truth is thus a complicated affair, as it was for James, but the extreme contextualism of Skinner goes further than did James.

- The truth of a statement of fact is limited by the sources of the behavior of the speaker, the control exerted by the current setting, the effects of similar settings in the past, the effects upon the listener leading to precision or to

exaggeration or falsification, and so on. There is no way in which a verbal description of a setting can be absolutely true. . . . Absolute truth can be found, if at all, only in rules derived from rules, and here it is mere tautology. (p. 150)

Contemplation

The following aphorisms tell us what an operant analysis of contemplation, perception, and “getting the point” means. They also illustrate that reinforcement is usually not conspicuous, pleasant, adaptive, or anything like a pellet of food for a rat. Look at the subtle cases of reinforcement that are referred to and you may appreciate the way that behavior analysis sees things.

- Verbal behavior plays a principal role in contemplative knowledge . . . because it is well adapted for automatic reinforcement: the speaker may be his own listener. (p. 155)
- Perceptual responses which clarify stimuli and resolve puzzlement may be automatically reinforcing. “Getting the meaning” of a difficult passage is similar. The whole world of fantasy is perceptual behavior which is automatically reinforcing . . . contemplation of this kind would be impossible, however, without a previous exposure to contingencies in which action is taken and differentially reinforced. (pp. 155-156)
- We ourselves often acquire a deeper understanding of a rule in this sense through exposure to the natural contingencies it describes. . . . we discover, for example, that “it really is true” that procrastination is the thief of time . . . the understanding gained by moving from rule-governed to contingency-shaped behavior is usually reinforcing, in part because the reinforcers in the latter case are less likely to be contrived and hence less likely to work in the interest of others. (pp. 156-157)
- The facts and laws of science are descriptions of the world—that is, prevailing contingencies of reinforcement. . . . they exist only because of their effects on people. Only a living person knows science in the sense of acting under its control with respect to nature. (pp. 158-159)
- It is absurd to suppose that science is what a scientist feels or introspectively observes. (p. 160)

How Many Selves? Is There an Unconscious?

It is a great mistake, as the “New Realists” who followed William James’ radical empiricism argued, to translate outer experience into inner experience. Wundt would also agree that experience does not come as inner versus outer.

Skinner never realized his kinship with the Harvard group of 1912.¹⁶ However, they followed William James in the belief that there is no unitary self and Skinner was certain that different contexts produce different selves. These contexts also account for Freud's divisions of personality.

- The behavior a young person acquires in the bosom of his family composes one self, the behavior he acquires in, say, the armed services composes another. The two selves may exist in the same skin without conflict until the contingencies conflict . . . (pp. 164-165)
- As Marx and many others have pointed out, the individual is born of society, and his indivisibility depends upon the coherence of the society which gives birth to him. (p. 165)

Upon examination, Skinner's interpretation of conscious and unconscious "mind" are not so different from Freud's conception. But Skinner insisted that neither has causal efficacy. Socialization is the source of consciousness and our species' heritage accounts for part of personality. Skinner attempted to rephrase Freudian theory into more effective terms, to use his words.

- It requires a special verbal environment to impose consciousness on behavior by inducing a person to respond to his own body while he is behaving. If consciousness seems to have a causal effect, it is the effect of the special environment which induces self-observation. (p. 169)
- Marx and others have tried to "throw people into a higher level of consciousness" in bringing them under the control of aspects of their environment which were previously ineffective. (p. 169)

The Stages of Life

Development takes place on many fronts so that behaviors, abilities, and thoughts in one domain continuously interact with those in other domains. These developing "things" are interdependent, so that good speech and language skills tend to produce positive self-esteem, which in turn may promote effective communication. There are complicated dynamics in the development of the child and our goal must be to understand the child as a whole. Conceiving the physical, perceptual, and emotional development as separate entities appearing at certain times during the child's life is not prudent. There is no single component in development that presents itself in isolation from the rest.

- A person is said to pass through various stages from infancy to maturity to senescence . . . but the stages are in the contingencies generating the conditions felt or introspectively observed. The child of one or two may be said to show trust versus mistrust; his behavior is reinforced mainly through

¹⁶ As far as we can determine.

the mediation of others; and consistent contingencies breed trust, while inconsistent breed mistrust . . . autonomy versus doubt. . . . initiative and guilt . . . industry is contrast with inferiority. . . . are all stages in the development not of an ego but of a world. (pp. 175-176)

Did Skinner Neglect the “Real” Person?

The “real” person, the *I*, the *ego*, is not neglected—but it is a constantly changing thing, the totality of one’s learning and environment. What we call “oneself” is subdivided into particular situations in which one regularly finds oneself. There is no independent entity, the “mind,” that causes certain behaviors to occur—the person is a sum of current activities, including overt behavior, verbal behavior, and visceral activity. There is nothing in the subject matter of psychology that can be distinguished as the “real” person.

- It is often said that a science of behavior studies the human organism but neglects the person or self. What it neglects is a vestige of animism traces of the doctrine survive when we speak of a *personality*, or an *ego* . . . of an *I* who says he knows what he is going to do and uses his body to do it . . . (p. 184)
- In a behavioral analysis a person is an organism . . . which has acquired a repertoire of behavior. It remains an organism to the anatomist and physiologist, but it is a person to those to whom its behavior is important. (p. 184)

Free Will and the Self

Locke (1690/1961) and Hume (1740/1969), in the 17th and 18th Centuries, respectively, viewed the question of the freedom of the will as a false issue. Wundt (1894/1907), in the 19th Century agreed—we can deliberate and attend to that which we “choose,” but that choice is not free. “Freedom of the will” refers the causes of our acts to the past and it is only freedom from *current* circumstances that we feel. No one is free from personal history¹⁷ and the more that such a history is in control, the more that we act “freely.” That is, we are less controlled by immediate circumstances.

- The person who asserts his freedom by saying, “*I* determine what I shall do next,” is speaking of freedom in or from a current situation: the *I* who thus seems to have an option is the product of a history from which it is not free . . . (p. 185)
- A person is not an originating agent; he is a locus, a point at which many genetic and environmental conditions come together. (p. 185)

¹⁷ Both Wundt (1894/1907) and Skinner emphasized that the society we live in has an important historical influence, as does our species membership.

RADICAL BEHAVIORISM AND THE REST OF PSYCHOLOGY

- It is difficult to maintain an identity when conditions change, but a person may conceal from himself conflicting selves, possibly by ignoring or disguising one or more of them . . . “I was not myself.” (p. 187)

Acting and Feeling

The social community is very concerned with verbal behavior that predicts future action by an individual. To obtain a useful answer to the question, “How do you feel?” one must have some knowledge of an individual’s general behavior as well as verbal behavior. The feelings that are reported are not causes for overt behavior—they are themselves behavior. But the questions asked are limited to those that can be answered and reports of feelings are not always reliable predictors of actions. If an individual’s outward behavior can be changed, moods and feelings often change as well, as attribution theory has also shown us.

- The verbal community asks, “How do you feel?” rather than “Why do you feel that way?” because it is more likely to get an answer. (pp. 186-187)
- We mistrust reports of feelings, especially when they conflict with other evidence . . . in the early days of anesthesia. . . . many people resisted a major operation on the grounds that the damage done to the body was clearly associated with pain and that it was possible that the anesthetic merely blocked the expression, together with its later recollection . . . (p. 191)
- When we are helping people to act more effectively, our first task may seem to be to change how they feel and thus how they will act, but a much more effective program is to change how they act and thus, incidentally, how they feel. (p. 193)

Self Actualization and Zen

Skinner’s contextual epistemology shows how the pigeons trained to learn concepts, such as “water surface,” or “person,” or “tree” (e.g., Herrnstein & Loveland, 1966; Herrnstein, Loveland, & Cable, 1976) are not very different from the realist artist or the Zen master. They do what Plato did when he extracted universals from the flux of constantly-changing experience. And, in a way, they are doing what the self-actualizer does.

- The artist who paints photographically is under the powerful control of his model, but if he can bring his personal history into play . . . he will have “extracted the essentials” by attenuating the control exerted by the current setting. The same principle underlies the practice of Zen, in which the archer . . . learns to minimize the particular features of a single instance. Both . . . “transcend” the immediate situation . . . (pp. 196-197)

- Actualization seems to have more to do with maximizing genetic and environmental histories in order to free a person from immediate settings. (p. 197)

Self-Control

The riddle of the origins of self-control may finally be solved—it depends on skill in controlling other people! If you do not learn to control others, which is your primary task in infancy and childhood, how can you possibly learn to control yourself?

- The control of others, learned at an early date, comes at last to be used in self-control, and eventually a full-fledged technology of behavior leads to skillful self-management. (p. 207)

Radical Behaviorism after Skinner

B. F. Skinner died in 1990, but radical behaviorism had already progressed beyond his 1970s thinking. For example, his contention that private experience may be best construed as activity occurring “inside the skin” was greatly modified by Rachlin (e.g., 1994) and others. Baum (1994) wrote a nice introduction to radical behaviorism that attempted to carry on the essence of Skinner’s views while adding modern amendments. Others proposed more radical versions of radical behaviorism, while some rejected Skinner’s most fundamental theses.

One “radical-radical behaviorism” was proposed by Rachlin (1994) and represents one of the significant modern amendments that Baum incorporated in his book. Rachlin has long espoused *molar behaviorism*, a view consonant with Aristotle’s *Nicomachean Ethics* (4th C BC/1908), as well as with Gilbert Ryle’s (1949/1984) “the ghost in the machine.” Both Aristotle and Ryle believed in the identifying of many “mental states,” motives, and traits with patterns of activity occurring over time—maybe very long periods. Hence, for Aristotle, a child cannot know happiness, because “being happy” is a style of life—a pattern of virtuous activity extended over many years. This also applies to love, virtue, intelligence, and many other psychological terms. Although this does not contradict Skinner’s views, it is certainly not emphasized in his writings.

Rachlin argued that if we construe “mental” as “temporally extended, overt, observable patterns of behavior,” we can actually *see* a person’s “mental activity” unroll before us. Others such as Staddon took a different tack. He published a brief but clever book (Staddon, 1993) providing a history of behaviorism and a critique of Skinner’s (1948) famous “superstition” experiment and of his extrapolation from basic laboratory findings to the problems of human societies. Staddon, a student of Richard Herrnstein, wrote from the insider’s point of view, not from that of humanist or cognitive critics.¹⁸ He argued that Skinner was mistaken regarding

¹⁸ Herrnstein was a longtime student and later colleague of Skinner who served as department chairman at Harvard during a part of the period of Skinner’s retirement.

fundamentals of operant conditioning and that this is particularly unfortunate because he spent the second half of his life in a literary venture, extending operant fundamentals to all aspects of human life. If the argument for the environmental shaping of behavior is unsound, so too are the conclusions drawn from the shaping thesis.

Nonetheless, despite his limitations, Skinner left much for us to appreciate. He showed that it is possible and profitable to treat the whole subject matter of psychology as activity—the same in kind as other activity.¹⁹ More importantly, Skinner showed that it is possible to relate all behavior, public and private, to causes in the environment, as long as that includes the environments in which a species evolved its main characteristics. In so doing, Skinner showed that theories are unnecessary—we need no mediators as internal causes, and that means that we do not need Casper the Ghost!

References

- Anderson, J. R. (1990). *Cognitive psychology and its implications*. New York: W. H. Freeman.
- Aristotle (1908). *Nicomachean Ethics*. In W. D. Ross (Ed.), *The works of Aristotle* (Vol. 9). Oxford: Clarendon Press. (Original work published 4th C BC)
- Bacon, F. (1939). *Novum Organum*. In E.A. Burt (Ed.), *The English philosophers from Bacon to Mill*. New York: Random House. (Original work published 1620)
- Boring, E. G. (1950). *A history of experimental psychology*. New York: Appleton-Century-Crofts.
- Baum, W. M. (1994). *Understanding behaviorism: Science, behavior, and culture*. New York: Harper Collins.
- Chomsky, N. (1957). *Syntactic structures*. The Hague: Mouton.
- Day, W. (1969). Radical behaviorism in reconciliation with phenomenology. *Journal of the Experimental Analysis of Behavior*, 12, 315-328.
- Duby, G. (1988). *A history of private life: II. Revelations of the medieval world*. (A. Goldhammer, Trans.). Cambridge, MA: Harvard University Press.
- Harlow, H. F. (1949). The formation of learning sets. *Psychological Review*, 56, 51-65.
- Herrnstein, R. J. & Loveland, D. H. (1966). Complex visual concepts in the pigeon. *Science*, 146, 549-551.
- Herrnstein, R. J., Loveland, D. H., & Cable, C. (1976). Natural concepts in pigeons. *Journal of Experimental Psychology: Animal Behavior Processes*, 2, 285-301.

¹⁹ That was not original with Skinner, of course, but he pursued the argument much further than did Thorndike, Watson, or other predecessors.

- Hineline, P. N. (1990). Getting Skinner straight. [Review of A. C. Catania & S. Harnad (Eds.), *The selection of behavior: The operant behaviorism of B. F. Skinner: Comments and consequences*]. New York: Cambridge University Press.
- Hineline, P. N., & Wanchisen, B. A. (1990). Correlated hypothesizing and the distinction between contingency-shaped and rule-governed behavior. In S. C. Hayes (Ed.), *Rule-governed behavior: Cognition, contingencies, and instructional control*. New York: Plenum.
- Hull, C. L. (1952). *A behavior system*. New Haven, CT: Yale University Press.
- Hume, D. (1969). *A treatise of human nature*. (E. C. Mossner, Ed.). Baltimore: Penguin Books. (Original work published 1740)
- James, W. (1890). *The principles of psychology*. New York: Holt.
- Kvale, S. & Grenness, C. E. (1967). Skinner and Sartre: Towards a radical phenomenology of behavior. *Review of Existential Psychology*, 7, 128-149.
- Leahy, T. H. (2000). *A history of psychology*. Upper Saddle River, NJ: Prentice-Hall.
- Leigland, S. (1997). Systems and theories in behavior analytic science: An overview of alternatives. In L. J. Hayes & P. M. Ghezzi, (Eds.), *Investigations in behavioral epistemology* (pp. 11-31). Reno, Nevada: Context Press.
- Locke, J. (1961). *An essay concerning human understanding* (Vols 1-2, J. W. Yolten, Ed.). New York: Dutton. (Original work published 1690)
- MacCorquodale, K. (1970). On Chomsky's review of Skinner's "Verbal behavior." *Journal of the Experimental Analysis of Behavior*, 13, 83-100.
- Malone, J. C. (1975). William James and B. F. Skinner: Behaviorism, reinforcement, and interest. *Behaviorism*, 3, 140-151.
- Malone, J. C. (1982). The second offspring of general process learning theory: Overt behavior as the ambassador of the mind. *Journal of the Experimental Analysis of Behavior*, 38, 205-209.
- Malone, J. C. (1987). Skinner, the behavioral unit, and current psychology. In S. M. Modgill, & C. M. Modgil (Eds.), *Consensus and controversy: B. F. Skinner* (193-206). London: Falmer Press.
- Malone, J. C. (1990). *Theories of learning: A historical approach*. Belmont, CA: Wadsworth.
- Malone, J. C. (1999). Operants were never "emitted," feeling is doing, and learning takes only one trial: A review of B. F. Skinner's *Recent issues in the analysis of behavior*. *Journal of the Experimental Analysis of Behavior*, 71, 115-120.
- Moerk, E. L. (1990). Three-term contingency patterns in mother-child verbal interactions during first-language acquisition. *Journal of the Experimental Analysis of Behavior*, 54, 293-305.
- Moerk, E. L. (2000). *The guided acquisition of first language skills*. Stamford, CT: Ablex Publ. Corp.
- Mook, D. G. (1996). *Motivation: The organization of action*. New York: Norton.
- Munsterberg, H. (1914). *Psychology: General and applied*. New York: Appleton.
- Newell, A., Shaw, J. C., & Simon, H. A. (1958). Elements of a theory of human problem solving. *Psychological Review*, 65, 151-166.
- Nietzsche, F. (1999). *Thus spake Zarathustra* (Thomas Common, Trans.). New York: Dover. (Original work, *Also sprach Zarathustra*, published 1883-5)
- Rachlin, H. (1994). *Behavior and mind*. New York: Oxford University Press.
- Ramsey, W. M. (1989). Parallelism and functionalism. *Cognitive Science*, 13, 139-144.
- Romanes, G. J. (1888). *Mental evolution in man: Origins of human faculty*. London: Kegan Paul, Trench & Co.

RADICAL BEHAVIORISM AND THE REST OF PSYCHOLOGY

- Romanes, G. J. (1912). *Animal intelligence*. New York: Appleton. (Original work published 1882)
- Ryle, G. (1984). *The concept of mind*. Chicago: University of Chicago Press. (Original work published 1949)
- Simon, H. A. & Newell, A. (1964). Information-processing in computer and man. *American Scientist*, 53, 281-300.
- Skinner, B. F. (1945). The operational analysis of psychological terms. *Psychological Review*, 52, 270-277.
- Skinner, B. F. (1948). "Superstition" in the pigeon. *Journal of Experimental Psychology*, 38, 168-172.
- Skinner, B. F. (1953). *Science and human behavior*. New York: Macmillan.
- Skinner, B. F. (1957). *Verbal behavior*. New York: Appleton Century Crofts.
- Skinner, B. F. (1974). *About behaviorism*. New York: Knopf.
- Skinner, B. F. (1989). The origins of cognitive thought. *American Psychologist*, 44, 13-18.
- Staddon, J. E. R. (1993). *Behaviorism*. London: Duckworth.
- Thigard, P. (1986). Parallel computation and the mind-body problem. *Cognitive Science*, 10, 301-318.
- Wundt, W. (1907) *Lectures on human and animal psychology*. (J. Creighton & E. B. Titchener, Trans.). New York: Macmillan. (Original work published 1894)