

ABOUT “ABOUT BEHAVIORISM”

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ABSTRACT: A critical appraisal is done about two central issues dealt with in “About Behaviorism.” One is concerned with the postulation of behaviorism as the philosophy of science of psychology, and a second one deals with the operational analysis of so-called private events. It is advocated that both themes reflect a deficient conception of psychological behavior, as distinct from biological and social behavior, and a deep misunderstanding of the nature and functions of ordinary and scientific language.

Keywords: behaviorism, behavior, private events, psychological behavior, ordinary language

B. F. Skinner published “About Behaviorism” (AB) in 1974 revisiting a series of issues dealing with behaviorism as a philosophy of the science of behavior and/or psychology. Skinner listed what he considered twenty misunderstandings about behaviorism and its supported science of human behavior. Most, if not all, of these misunderstandings could be attributed in history to early statements by Watson and Pavlov. I obviously do not agree on this point. I think that behavior theorists (and researchers), with the exception of Guthrie (1952), misread or poorly read Watson’s and Pavlov’s proposals, and that criticisms to behaviorism are derived from conceptual and logical shortcomings still present in so called behavior analysis or operant theory. Since a reassessment of Watson and Pavlov deserves a special text, I’ll concentrate on operant theory and those assumptions considered to be a philosophy of the science of behavior, that is, behaviorism, as conceived by Skinner.

A perusal of the contents in AB reveals two major concerns, although with different extension. One deals with traditional problems of mental life as internal processes. The other is related with the causes of behavior in terms of control by contingencies of reinforcement. So-called mental processes are examined as different forms of operant behavior, whereas causes of behavior are emphasized to depend on environmental contingencies. It is a plea for moving from the inner to the outer, in the search for a technology of individual behavior which can contribute, unexpectedly, to the solutions of many of the most crucial social problems. I will attempt to show that behaviorism is far from being the philosophy of a science of human individual behavior, and that most of the issues discussed in AB arise from a misunderstanding of ordinary language practices and the nature of scientific theories and categories. Due to space limitations, I will not discuss the issues related to behavior control by reinforcement contingencies. It will be a critical appraisal of some of the fundamental concepts of operant theory, so needed to proceed in the development of a strong science dealing with psychological behavior. Regrettably, exegetic analyses rather seem to interfere with such a goal.

Behavior and behaviorism

Behaviorism, as a movement addressed to make of psychology a natural, experimental science, is formally acknowledged to begin with the publication of the so-called *Behaviorist Manifesto* by John B. Watson in 1913. Behavior was conceived as what individuals do and say. It was a “wide”

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definition of behavior, since even performance in psychometric tests were considered samples of behavior. Nevertheless, McDougall had already published in 1912 a book entitled *Psychology: the study of behavior*, in which directed actions by the organism were emphasized as the subject matter of psychology. McDougall proposed that consciousness was an inherent companion of behavior as directed activity. This was the reason advocated by McDougall to consider himself the first behaviorist in psychology. The term ‘behaviorist,’ was commonly used, even by Watson (1914), to refer to those doing research on animal behavior. Watson seemed to understand the difference between ordinary language and technical language. Consciousness did not refer to any entity, and it was just a component of verbal habits in colloquial language. It didn’t require any special explanation in a science of psychology. Private events and consciousness were not an issue to be considered. In any case, such expressions were part of verbal habits and could be analyzed as any other expression or word being used in daily language. Consciousness for a behaviorist had the same colloquial meaning that for a physicist using the word. It is not surprising that Vygotsky (1925), acknowledging his agreement with Watson, when he stated that “... indeed, in the broad sense, we can say that the source of social behaviour and consciousness lays in speech” (p. 272). Consciousness and an inner world did not seem to be a theoretical problem for a psychology grounded on behavior if the role of language and the occurrence of “mental” expressions were correctly understood.

Setting apart momentarily the problems related with “consciousness,” a first issue involves several questions, all concerned with the term itself of ‘behavior’ and the meaning of ‘behaviorism’ as a philosophy of science. Does the term ‘behavior’ cover a natural, specific, exclusive empirical domain for a science of psychology? Additionally, what is meant when a theoretical system is advocated as the philosophy of science corresponding to a specific empirical corpus? Philosophy of science has been formulated by logicians and philosophers in order to identify the criteria followed by scientists, especially physicists, in the formulation of theories and validation of evidence, although never have scientists themselves claimed their theories and research to be grounded on such criteria or to be an instance of a particular philosophy of their science. Philosophy of science began as a mixture of epistemology and logic about the criteria of true knowledge under the auspices of logical positivism and empiricism at the beginnings of last century. Discussions in philosophy of science, including so-called philosophy of mind, have never influenced the actual practice of scientists in the different domains of empirical research. In the particular case of psychology, Smith (1986) and Zuriff (1985) showed that the main ‘neobehaviorisms’ postulates were formulated previously to the emergence of the new philosophy of science represented by logical positivism and empiricism. The various ‘behaviorisms’ rather showed ‘family resemblances,’ quoting Wittgenstein, derived from the personal world views of each theorist and their personal academic background in Darwinian and pragmatists traditions. This is not surprising since, on the one hand, philosophers of science are usually not engaged in developing ongoing scientific theory and research and, on the other hand, to assume that scientific practice is ruled by universal or formal criteria external to its daily doing, is like assuming that ordinary people and even poets and novelists when speaking and writing they are following the rules of the formal grammar of the natural language involved, even when grammarians did not speak the multiplicity of colloquial language varieties in their daily life. Formal rules always are the result of retrospective analysis of actual practices, and not the obverse. I will retake later the meaning of behaviorism as a philosophy of science

Behaviorism is an *ism* of behavior and, even though behavior was advocated as the subject matter of psychology at least from 1913, its meaning seemed not to overpass the limits of its colloquial senses in which the term is used: as doing and saying. Furthermore, ‘behavior’ has been used also as a purely descriptive term by other scientific disciplines, as an equivalent of *activity*. Physics deals with the behavior of bodies and particles, chemistry with the behavior of molecules, biology with the behavior of cells, organs, and ecological systems, and historical social science with the behavior of markets, institutions, and groups. Behavior, as a term, is not specific or exclusive to describe the behavior of individual organisms, and even in this case, it does not distinguish between biological, psychological and social behaviors. It is not enough to define behavior as the activity of the whole

organism, because this occurs in the three types of behavior. Kantor (1963) called attention to the plurality of meanings of the term 'behavior' and, consequently, to the multiplicity of "behaviorisms" that could be mistakenly advocated. That was the reason Kantor postulated interbehavior (or psychological behavior) as the subject matter of psychology, without assuming that this postulation implied a special philosophy of science (Kantor, 1924-1926). In fact, until 1940, Kantor considered his system as an example of *organismic psychology*. A similar example is that of A.P. Weiss (1926), who also proposed a series of postulates about the nature of psychology, considering individual behavior as the basic referent, without appealing to behaviorisms as a philosophy of science, emphasizing the social and linguistic nature of psychological behavior. Kitchener (1977) argued that 'behavior' has no common meaning in the various instances of behaviorism. Ignoring this fact or oversimplifying a "universal" meaning of the term, accounts for the confusion and incommensurability of their subject matter among the various theoretical formulations since the past century to present days (O'Donahue & Kitchener, 1999; Zilio & Carrara, 2021).

'Behavior' is a term commonly used in ordinary language to refer to some sort of activity. When used in this way, behavior *always* describes a concrete occurrence in a particular circumstance or situation. The activity described is always different on every occasion the term is used. In the case of living organisms, animals, and humans, which can be characterized as *individuals*, behavior, like concrete acts, involves movements and actions, but it is not identifiable with them exclusively. 'Behavior' is not a technical term. Technical terms are not multivocal but univocal in their application. They can be used only in one sense. Therefore, technical terms can't describe concrete situations; likewise, non-technical terms do not have a fixed and univocal *general* meaning. 'Behavior,' as the specific subject matter of psychology, requires setting clear boundaries, not only from the multiplicity of uses in ordinary language, but very specially from biological and social behavior, which are also identifiable as *individual* phenomena. The term *cannot* be directly exported to a technical language without defining its *abstract* character, encompassing all possible concrete instances of ordinary uses whose meanings will depend upon the grammar of the technical term—that is, in the theory formulated to understand and explain psychological behavior. In ordinary language, the term 'behavior' applies to concrete situations in concrete descriptions consisting of verbs, adjectives, and adverbs. Behavior is described as occurring in certain situations, to show certain characteristics or not, and to vary in speed or form. It is referred as acts or intentions. However, when the term is used in a second level of abstraction, as a generic term, it is used as an abstract noun. As Ryle (1971) pointed out about this second level of abstraction in theoretical practice, behavior is not used to describe, assert, or account for any particular act or alteration; it is used to examine, follow through, and analyze the various neighborhoods or familiarity threads that link or contrast the application of the term in concrete assertions and descriptions. The basic question in this second level of abstraction is "what is behavior?" Depending on the way this question is answered and the arguments used for doing so, the first-level descriptions of behavior in ordinary language will be thought in different ways, and explanations, methods, and concepts about types of behavior will vary.

Even though all behavioral systems were based upon the organism's activity and movements to identify behavior as a psychological phenomenon, all of them implicitly acknowledged that behavior could not be identified only with movements and acts. Guthrie (1952) discussed at large the methodological and theoretical differences among the main behavioral systems of the time, emphasizing the way in which behavior was empirically identified, and therefore, implicitly defined. For instance, although Skinner (1938) defined behavior as movements:

By behavior, then, I mean simply the movement of an organism or of its parts in a frame of reference provided by the organism itself or by various external objects or fields of force....it is often desirable to deal with an effect rather than with the movement itself, as in the case of the productions of sounds. (p. 6)

Nevertheless. Skinner (1931, 1935) left movements aside, as a non-definitory property of behavior, considering only the stimulus correlation of the organism's activity when an effect was produced. In the case of respondent behavior, it was assumed a fixed correlation between the provoking stimulus; in the case of operant behavior, it was assumed producing the occurrence of the reinforcing stimulus was the definitory effect, irrespective of the movements being involved. In fact, operant behavior consisted in closing a microswitch and counting the frequency and temporal distribution of closures. Movements were discarded as a matter of topographic variance, spatial properties of behavior were ignored in detriment of temporal parameters, and the operant, as equivalent to behavior, was defined as the covariation of an action producing an effect and the occurrence of such effect (closing a microswitch and the presentation of a 'reinforcing' stimulus). Actual movements were never taken into account, even in the experiment on superstition in the pigeon in which the findings did not adjust to the definition of the operant: the pigeon never produced an effect (presenting the grain) and the only data to be recorded were different patterns of movements. Instead of paying attention to actual behavior of the organism, Skinner misinterpreted the stimulus contingency as a temporal relation with ongoing behavior. Contiguity, or temporal proximity, is not the same as contingency (conditionality, dependency), and it is not a proper assumption to pose that organisms (pigeons in this case) interpret possible relations between what they do and what happens in the situation.

Among the other behavioral systems, only Guthrie defined behavior in terms of movements and patterns. Movements and patterns were established by association with maintaining stimuli in a given situation. Effects, or outcomes of movement patterns, precluded the presentation of new stimuli. Changes in behavior consisted in the association with new maintaining stimuli in the same situation. Hull (1943) described behavior in terms of performance measures, such as speed, latency, and amplitude as a result of the interaction of different stimulus parameters related to habit strength, incentive, drive, and inhibition. Habit, the central concept in the theory, consisted in the association of exteroceptive stimulation and responses, conceived as specific body reactions, including movements. On the other hand, Tolman (1932) was quite ambiguous in defining the environmental conditions allowing for sign-gestalt expectancies or field expectancies, and although he considered that movement patterns were acquired when stimulus conditions changed (following Guthrie), Tolman considered behavior as a complex goal directed act. Behavior was identified through goal achievement. All systems, explicitly or implicitly considered association as contiguity between actions and present exteroceptive stimuli, as the basic condition defining functional properties of 'behavior.' Nevertheless, behavior, as criticized by Kantor, was conceived as an organocentric phenomenon, the action or reaction of the organism to present stimuli, either as a first-time occurrence or as recurrence.

Focusing the concept of behavior in terms of the activity of the organism does not allow for distinguishing between biological and psychological behavior. Additionally, when the stimulus conditions are represented by another individual (a person), as occurs in verbal behavior, the same confusion arises but between psychological and social behavior. Non behavioral psychological systems neglected this issue by postulating a fictional substance, the mind, as the locus and agency of psychological behavior, although in last instance, the mind is always finally located as a function of the brain. The identification of psychological phenomena with biological behavior persists in any of both general approaches. Kantor overcame this ambiguity by defining psychological behavior as interbehavior or as the interactive relationship between the individual organism and a particular *stimulus object* (not a generic environment). Psychological behavior is identified in the relationship in such a way that both the organism and the stimulus object are necessary and psychological in nature. Psychological behavior involves actions but is not limited to actions and movements and their effects. Psychological behavior, as a second order abstraction, consists in a relation, as many other concepts in science, as that of gravity for instance. As previously pointed out (Ribes, 2004), psychological behavior, as a technical term, is not identifiable by ostension, although it can be applied to describe the properties of multiple instances of behavior usually identifiable in ordinary language

practices through ostension. Relations cannot be defined by ostension, even though it is possible to do so with the objects or events involved.

The definition of psychological behavior as a relation between individuals and particular objects or other individuals assumes that psychological behavior always occurs as part of biological and/or social behavior, since there is no acting psychological “substance” (unless it is accepted that psychological behavior, as an individual activity is the external manifestation of the workings of the mind or an equivalent). It is necessary to qualify behavior as activity of individuals in terms of the analytical segment of science in which ‘behavior’ can be categorized. Behavior involves movements and acts but it is not identical to them. It is also involved in relations between individuals, with special emphasis in the different kinds of linguistic behavior (verbal, written and gestural). But these relations overcome the limits of individual behavior as such. Movements and acts correspond to biological behavior whereas conventional relations between individuals correspond to social behavior. Which is the place of psychological behavior in the contest of biological and social behaviors? I have advocated (Ribes, 2023) that psychological behavior can only be understood as a functional, transient coextension consisting of changes in biological and or social individual behaviors. Psychological behavior should be conceived as occurring as a transient change in ongoing biological and/or social behavior since it has no independent occurrence on its own, and its relevance is related to the biographical functional changes of individuals’ behavior. Psychological behavior does not involve common behavior among the individuals of a same species, or among the behavior of the persons pertaining to a group or social formation. Psychological behavior deals with individual differences in generically shared behaviors as a biographical outcome in the functional changes of common biological and social behaviors. An example may clarify this assertion. All dogs salivate when dry food is introduced in their mouth, but only those dogs trained to receive the food when a sound is presented seconds before the food coinciding with it show a functional change in their biological behavior by salivating to the presentation of the sound. The “acquisition” of a conditioned salivary response to the sound is an example of psychological behavior, but in the case that during the complete life of the dogs, the food was presented always associated to that sound, anticipated salivation would not represent any more an instance of psychological behavior, but it would consist in an idiosyncratic pattern of biological behavior. Psychological behavior takes place as a functional transition, but when the change becomes more or less enduring, the behavior becomes only a sample of biological and or social behavior.

It is difficult to sustain behaviorism as the philosophy of the science of behavior, when behavior itself, as a subject matter, is an ill-defined concept, setting apart the idea itself of a philosophy of science grounding theoretical and research practices without explaining how and when this philosophical process takes place before, simultaneously, or after the empirical system has developed. So called ‘behaviorism,’ from its beginnings, consisted only in the postulation of the ordinary concept of behavior as the activity of individuals, replacing consciousness as the subject matter of psychology. Introspection was rejected as a method, and conditioning was adopted (Watson, 1916), with different adaptations. The choice of conditioning as the method of the new approach not only influenced experimental procedures, but also the theoretical justification of concepts, as the further distinction by Skinner between respondent and operant behavior attests. This is not to deny philosophical influences on the behaviorally-oriented systems. Darwinism, associationism, functionalism, operationism, and pragmatism are obvious influences on the theoretical and methodological doings of ‘behaviorists,’ but this influence does not constitute a coherent and systematic body of assumptions and arguments as to be considered a “specific philosophy of science.” These influences are a blend of ideas that are not necessarily shared even by those adhered to a particular theoretical system. On the other hand, philosophy of science, as a general theory about science, has been severely questioned since last century. In the case of behaviorism or radical behaviorism, no systematic critical reflections have been formulated regarding early theoretical assumptions, the fitness of logical categories being employed, the validity and sensibility of experimental and measurement procedures. The only changes introduced were the incorporation of selectionism, in order to bridge biological evolution,

reinforcement contingencies, and cultures' survival (Skinner, 1966a), and the postulation of rule-governed behavior, as a reaction to vicarious reinforcement and modeling as relevant factors in the acquisition of behavior (Bandura & Walters, 1963; Skinner, 1966b; Ribes, 2000). The original taxonomy of respondent and operant behavior remained unchanged, in spite of its evident limitations in the analysis of linguistic behavior (Skinner, 1957; Ribes, 1999).

Private events, operational analysis, and language

The issues of private events and the “world under the skin” result from inaccuracies in the definition of psychological behavior and from a misunderstanding of the way in which ordinary language practices operate. Skinner examined these issues in 1945 in his paper on *The operational definition of psychological terms*, in which he established the distinction between radical and methodological behaviorism based upon the criteria of public verification. Although rejecting this criterion for the scientific study of events, curiously enough, the four criteria outlined by Skinner for examining “private” events consisted in procedures that emphasize public verification of directly non-observable events. These were the connections between private stimuli and accompanying public stimuli, the occurrence of collateral responses to the same stimuli, the initial occurrence of the response to an overt stimulus—after attenuated, an overt response similar to the covert response, or the private-public dual character of the stimuli (in this case it is obvious that private stimuli consist of “covert” responses, that is, not observable responses), and the response to private stimuli maintained by stimulus inductions from a formerly public stimulus. These criteria were proposed as an application of Bridgman's (1927) operational analysis. I will discuss several shortcomings and misunderstandings in Skinner's analysis.

A first problem is concerned with the very concept of psychological behavior, as suggested by the emphasis on *psychological terms* as the main target of Skinner's discussion. Skinner distinguished his position, radical behaviorism, from those who assume that non-observable events are dismissed from a scientific analysis, in reference to Boring and Stevens' criterion of public agreement to identify “objective” events. Skinner insisted that a scientific analysis of behavior, as equivalent to psychological events, should account for the “world within the skin.” In operant terms, this “internal” world may be described as the appropriate tacting of private stimuli, that is, as the stimulus control of verbal behavior by internal, non-observable, physical events, dealing with covert responses and their correlated stimuli. If behavior is conceived as the action or activity of the individual, there is a significant part of its organism (body) whose workings are not observable. In fact, most of the individual's behavior is not observable, excepting local and displacement external movements and their effects. But in fact, these private or covert responses and stimuli are only biological behavior, and nothing else. Biological science studies the workings of the organism, including its “external” movements, which, *stricto sensu*, are not actually external. Environmental conditions, events, and objects are the only things to be considered external to the organism. Undoubtedly the concern for accounting for private events is a reaction to the location of the mind or consciousness within the individual, as an internal, non-observable entity, irrespective of its identification with a brain function or not. Nevertheless, this is a false problem for psychology, at least in two respects. First, it is a problem derived from an ill-defined concept of behavior. Second, it reflects a confusion regarding the notion of public, private, observable, and non-observable.

If behavior is the activity of an entity, there is no psychological entity (excepting mind, and volition as its corresponding action) to which to endorse psychological behavior, as a separate phenomenon from biological and/or social behaviors. Kantor (1924-1926) overcame an organocentric conception of psychological behavior by identifying it with a relation between the biological and/or social behavior of an individual with a stimulus object or event. Psychological behavior, this way, was to be conceived as a *functional contact* between an individual and an object, an event, or another individual. Psychological behavior involves activity, but it should not be identified with any particular activity. Being psychological behavior, a relation involving a functional change of biological and social behaviors with respect to particular objects and events, it is senseless to refer to a

“psychological” world within the skin. Within the skin only may be found the activity of the various organic subsystems in the body, all of them consisting in biological behavior and nothing else. Sensory, motor, and endocrine subsystems (all including the participation of the nervous system) are involved in the functional change of *individual* biological behavior, functional change that may be altered in future occasions according to the particular interactions of the individual with specific stimulus objects and events in given situations. Sensory systems (and their motor components) such as those related with haptics (touch and kinesthesia) and visceroreception (Adám, 1956, 1998; Bykov, 1954; Jones, 2018) are of particular relevance to understand how individuals may discriminate their reactivity to environmental stimulation. Conceiving psychological behavior as a relation or interaction turns meaningless the inner-outer distinction. The world within the skin is only the result of confounding biological and psychological behavior.

Closely related to the confusion of biological and social behaviors with psychological events as a different kind of activity, stands out a second issue concerned with the identification of private and public events in the frame of the observable-unobservable axis. The 1945 paper by Skinner is an attempt to deal with this problem as he perceives it from the perspective of operationism. In a previous paper (Ribes, 2003) I examined what I considered a misunderstanding of Bridgman’s operational analysis by Skinner. Nevertheless, I will point out again some crucial misunderstandings both on the nature of operational analysis and on the identification and report of private events. Let me begin with the way in which Skinner conceives of operational analysis. Bridgman (1927) discussed operational analysis of concepts in the context of the new formulations in physics derived from Einstein’s relativity theory, especially in regard to the concept of relative time as contrasted with Newton’s absolute time. Operational analysis was restricted to the adequation of concepts being used in experimental situations. Operational analysis was not related with the identification of properties in nature and the validation of concepts, but rather with the use of concepts by the scientist while experimentally studying nature. This is in contrast to Stevens’ (1935) operationalism that attempted to relate semantic rules to objects and outcomes. Bridgman did not advocate any “truth” dimension of propositions depending upon the meaning of concepts as semantic rules. For Bridgman, concepts consisted of words used in doing something, and their referents were precisely those doings, physical or mental (mathematical). Objects and their properties were not the referents of operational concepts. Bridgman was not discussing definitions but rather the operations taking place when a concept is used. Operational analysis for Bridgman was a matter of pragmatics, that is, how words are used in scientific practice, whereas Stevens conceived operational analysis related to the denotation of objects and their properties, using definitions as criteria for the semantic correspondence between words and objects based upon a *discrimination act*. Bridgman illustrated operational analysis, as contrasted to traditional Newtonian abstract postulation of absolute time, emphasizing that:

... the set of operations equivalent to any concept must be a unique set, for otherwise there are possibilities of ambiguity in *practical applications* (underlined mine) which we cannot admit. Applying this idea of ‘concept’ to absolute time, we do not understand the meaning of absolute time unless we can tell how to determine the absolute time of any concrete event., i.e., unless we can measure absolute time. Now we merely have to examine any of the possible operations by which we measure time to see that all such operations are relative operations. Therefore, the previous statement that absolute time does not exist is replaced by the statement that absolute time is meaningless. An in making this statement we are not saying something new about nature, but are merely bringing to light implications already contained in the physical operations used in measuring time... It is evident that if we adopt this point of view toward concepts, namely that the proper definition of a concept is not in terms of its properties but in terms of actual operations. We need run no danger of having to revise our attitude toward nature. (p. 6)

Continuing with the argument, Bridgman poses that:

Before Einstein, the concept of simultaneity was defined in terms of properties. It was a property of two events, when described with respect to their relation in time, that one event was either before the other, or after it, or simultaneous with it... Simultaneity was a property of the two events alone and nothing else, either two events were simultaneous or they were not.... Einstein now subjected the concept of simultaneity to a critique, which consisted essentially in showing that the operations that enable two events to be described as simultaneous involves measurements on the two events made by an observer, so the “simultaneity” is, therefore, not an absolute property of the two events and nothing else, but must also involve the relation of events to the observer... and found precisely how the operations for judging simultaneity change when the observer moves, and obtained quantitative expressions of the effect of the motion of the observer on the relative time of two events. (pp. 7-9).

Operational analysis as formulated by Bridgman does not seem to correspond to Skinner’s argumentation on private events. Bridgman’s proposal is focused on the technical language of physics, assuming that it can be applied to other technical languages as those in mathematics (he talks of mental operations as equivalent to rules relating conventional mathematical objects). Operational analysis has nothing to do with ordinary terms in daily language, even though the criterion postulated to account for their meaning or sense is the same: how they are used in the context of theoretical frames one, and in social situation the other (Wittgenstein, 1953). Because of this, is the twofold surprising statement by Skinner (1945, p. 272) that “operationism has no definition of a definition, operational or otherwise. It has not developed a satisfactory formulation of the effective verbal behavior of the scientist.” Several misunderstandings about language stand out in such an assertion. First, what is meant by “effective” verbal behavior of scientists. Effective means to have an effect. Which is such effect or effects? It is possible that by effective Skinner referred to the reliable stimulus control of tacting behavior, emphasized in *Verbal behavior* (1957), as the main feature of scientific language, an enterprise akin to logical positivism and the search for a unified language of science based upon the correspondence of terms and concepts with ultimate physical properties of objects and events. According to Skinner’s classification, tacts are verbal responses under the control of the physical (non-verbal) properties of discriminative stimuli, and are established and maintained by generalized reinforcement of the verbal community. Tacts have a denotative function, that is, they describe the physical properties of objects and events, and their extension (following grammatical figures such as metaphor, metonymy, and others) operates by stimulus generalization, contiguity, or accidental reinforcement contingencies. The establishment of effective tacting behavior (irrespective of its meaning) to non-observable biological events of an individual is the opposite of the operational analysis as posed by Bridgman. Operational definitions are limited to technical concepts in a restricted discipline or domain and are not directed to describe or name the properties of objects and events but rather the doings of scientists when studying their subject matter.

Skinner sustained that radical behaviorism was not interested in truth by agreement, that is, by identifying “true” properties or events by public verification. But, surprisingly, the four criteria advanced in order to operationally define private events taking place within the skin, seem an attempt to define “subjective” terms according to “objective” criteria based upon the public observation of involved events according to their physical properties. The central argument is that subjective, private events are in fact physical events whose identification and description is possible according to public criteria. The goal of operational analysis, as understood by Skinner, is to validate appropriate stimulus control by private events when these events are *reported*. However, it is important to be aware of two facts. First, a definition, as its Latin etymology points out, consists in setting boundaries of how we use terms and words with respect to events and objects. Definitions *do not* describe objects or events. Second, mental or subjective terms in ordinary language are multivocal, and their meaning or senses depend on the context in which they are used, or in other words, on their specific grammars or the language game in which they are applied (Wittgenstein, 1953). Ordinary language terms are learned in social practice, whereas technical terms are learned according to definitions and formal training.

The distinction between private and public events does not correspond to the opposite ends of a same logical dimension, and even less, such distinction is parallel or equivalent to the subjective-objective and observable (“internal”)- non-observable (“external) dimensions. An event may be private and public at the same time. A pianist playing in a concert is public to the extent that their performance is audible to everybody in the concert-hall, but at the same time the *act of playing* is private for the performer to the extent that they are the one performing in the piano. The acts of listening by the audience are also private for each one of the attendants, and it would be absurd to assume that the concert is more or less “objective” or “subjective” due to the fact that the behavior of each person while listening is a private event of each person in the audience, or that such qualification depends on being able to observe the hands of the pianist while performing, in contrast to ignoring the sensory proprioceptive effects of such performance. It would be tantamount to qualify as a private property of a person green eye-color, and at the same time attempt to develop a public, verifiable definition of its “greenness.” The concern on these qualifications of behavior is an indicator of the continuance of the false problems raised by the mind-body dichotomy since Descartes’ times, and to a deep misunderstanding about the nature and functions of language. I will quote Kantor (1981) in this regard:

An interesting attitude is assumed by a behaviorist not completely emancipated from a dualistic background and who uses the term “private” in its popular connotation when he asserts that the individual’s response to an inflamed tooth, for example, is unlike the response which anyone else can make to that particular tooth (Skinner, 1953, p. 257). What the behaviorist overlooks is that the same statement can be made of any stimulus object, say, the catching of a frisbee, even by the same individual at a second trial. What is the case here is simply the specificity of the factors in a particular field. If the inflame tooth is in John Jones’ mouth it is *he* who is interacting with his tooth, but the inflamed tooth is a public object specifically and professionally interacted with by Dr. John Doe, dentist.

The behaviorist enlightens the reader when he says, “with respect to each individual, in other words a small part of the universe is private” (Skinner, 1953. P- 257)- The behaviorist does not realize that in a world where every event is “private”, that is unique, there is no problem of privacy. Everything is public in the sense of being directly or inferentially available for observation. There is no problem to be solved if one is concerned with fields. So that are several components of an event to supply information. Mysteries of privacy owe their source only to unacknowledgement vestiges of transcendental thinking. (p. 104).

Malcom (1971) asserts that intentional and mental expressions do not inform about private events of the speaker, and that such concepts are learned as connections between what *oneself or others say and what is said and done* in a particular situation. We don’t learn these terms and expressions by carefully observing ourselves and our behavior to discriminate our body sensations or movements:

Suppose I say “I am putting on my coat, so plainly I am intending to go home”. This remark may be made in fun. But if I gave the impression of being serious, others would regard me strangely. If I intend to go home, I should be able to announce this straight off, without recourse to observation of my behavior. Indeed, if my remark were truly based on such observation of myself, it would not be an expression of intention... I can say of another person, “I know his stomach hurts from the way he is groaning and doubling over.” But I cannot speak in the way of myself, without revealing a ludicrous misunderstanding of the concept of sensation. I can say of another person, “From the look on his face I can tell he is surprised”, but to say this of myself would show that there is some misunderstanding somewhere.” (p. 85). Malcolm concludes that “We must reject the doctrine so powerful in modern philosophy, that we acquire concepts of mental occurrences by observing those occurrences taking place in ourselves. In rejecting it we remove the chief source of the temptation to think that a human mind could exist and be provided with concepts, in isolation from a human body and from a community of living human beings. (p. 59)

Two additional observations are relevant with respect to private events and their discrimination. It is difficult to imagine that we might understand with which objects, events, or persons we are interacting in terms of a pure physical or geometrical description. Learning to perceive the world is not based on the description of geometrical or physical properties but rather on the context of what is being said by others when we interact with objects and events. Physical descriptions come afterwards when we learn to identify and speak about things and persons in context (Wittgenstein, 1953). We learn first to speak about things and later we learn to describe them in physical terms. It is questionable that we may learn to describe our own behavior and body sensations before we learn to speak about them in context when interacting with others. In fact, even when we master the use of mental terms or expressions, we do not observe first our own body reactions in order to express, for instance, that we are angry. It would be absurd to suppose that in order to express my anger first I have to observe me trembling and being flushed. Nevertheless, expressions in first person are not functionally different from those in second and third person, although we learn from others to use those expressions in our interactions, and in this way, we learn to use such expressions correctly as “referents” of our behavior in different circumstances. Mental concepts are learned as words and expressions used and applied correctly in specific circumstances and situations. We learn to recognize the circumstance in which a concept is appropriately used by others, by speaking and behaving in a particular way, and not in isolation, through the discrimination of outer and inner ostensive physical properties of oneself or others, even when the discrimination process could be meticulously guided by the verbal community. It is not plausible to assume that mental terms and expressions may be acquired as the outcome of a restricted and specialized training of “tacting” private stimuli. It should be mentioned that not all mental expressions and terms have to do with responding to bodily reactions. Other expressions, as those related with memory, thinking, seeing and perceiving, and imagining are difficult to be approached as private stimuli or responses, in terms of reproductions of “images” in present or the past, or in terms of covert verbal behavior regulating what is spoken in that circumstance. All these expressions participate in different ordinary language grammars or language games, always dealing with circumstances in social contexts.

A second observation is concerned with the very concept of a stimulus as a private event. In the case of individuals, so called private events consist in the last instance of the effects produced by the workings of striate and smooth muscles on the nervous sensors (not to use the term ‘receptor’) articulated overall in the body’s organs. These sensors are related with movement, pressure, temperature, mechanical contact, equilibrium, and unspecific intensity of provoked stimulation (pain). All these bodily produced stimuli are physical events, but they usually take place without oneself being aware of their occurrence. Body events acquire stimulus functions as a result of participating in the behavioral interactions with others, in which explicit references are made to their “belonging” to the particular episodic circumstances. Physical events per se do not have psychological stimulus functions and, therefore, they cannot be stimuli before the individual is able to recognize and speak about them. Otherwise, the procedures suggested by Skinner (1945) only could be understood as a universal method for systematically developing self-descriptive behavior involving an array of ordinary psychological phenomena as emotions, feelings, sensations, and other “mental” events. Surprisingly to many behaviorists, Skinner’s position on this issue contrasts with that sustained by J.B. Watson (1924), who identified three embryological reactions (corresponding to the three-fold classification of emotions in that time), and exposed that sentiments were the effect of differentiating such responses as verbal habits. Briefly, at least part of so-called private events were conceived as the outcome of language, and not as differentiated internal stimuli previous to the development of verbal habits.

Psychological behavior has to do with functional changes in the relation between the biological and/or social behavior of an individual and a particular stimulus object or event in circumstance. Mental terms and expressions correspond to ordinary language practices *participating* in such episodic circumstances, and their meaning or sense is the way in which they are used in those contexts. Mental terms and expression are not denotations or reports of events occurring within the

individual. Psychological phenomena are not observable or unobservable, because observability cannot be predicated about relations. Gravity and metabolism are not directly observable as such, even though all the events and entities that participate in those relations may be observed, as also occurs in psychological behavior. Regrettably, psychologists and philosophers have assumed that non-direct observability of the referent of a concept or terms means that it corresponds to a hidden event, taking place in a different locus.

References

- Adám, G. (1965). *Interoception and behavior*. Akadémiai Kiadó
- Adám, G. (1998). *Visceral perception: Understanding internal cognition*. Plenum.
- Bandura, A., & Walters, R.H. (1963). *Social learning and personality development*. Holt, Rinehart and Winston.
- Bridgman, P.W. (1927). *The logic of modern physics*. Macmillan.
- Bykov, K. (1954, edición rusa, 1958 traducción castellana). *La corteza cerebral y los órganos internos*. Editorial Cartago.
- Guthrie, E.R. (1952, revised edition). *The psychology of learning*. Harper & Brothers.
- Hull, C.L. (1943). *The principles of behavior*. Appleton Century Crofts.
- Jones, L.A. (2018). *Haptics*. The MIT Press.
- Kantor, J.R. (1924-1926). *Principles of psychology*. Alfred Knopf.
- Kantor, J.R. (1963). Behaviorism: Whose image? *The Psychological Record*, 23, 499-512.
- Kantor, J.R. (1981). Comments and queries: Concerning the principle of psychological privacy. *The Psychological Record*, 31, 101-106.
- Kitchener, R.F. (1977). Behavior and behaviorism. *Behaviorism*, 5, 11-71.
- Malcolm, N. (1971). *Problems of mind: Descartes to Wittgenstein*. Harper Torchbooks.
- McDougall, W. (1912). *Psychology: The study of behavior*. Henry Holt & Co.
- O'Donohue, W., & Kitchener, R.F. (1999). *Handbook of behaviorism*. Academic Press.
- Ribes, E. (1999). *Teoría del condicionamiento y lenguaje*. Taurus.
- Ribes, E. (2000). Instructions, rules, and abstraction: A misconstrued relation. *Behavior and Philosophy*, 28, 41-55.
- Ribes, E. (2003). What is defined in operational definitions? The case of operant psychology. *Behavior and Philosophy*, 31, 111-126.
- Ribes, E. (2004). Behavior is abstraction, not ostension: Conceptual and historical remarks on the nature of psychology. *Behavior and Philosophy*, 32, 55-68.
- Ribes, E. (2023). *Theory of psychology: Corollaries*. Co-Presencia Editorial.
- Skinner, B.F. (1931). The concept of the reflex in the description of behavior. *Journal of General Psychology*, 5, 427-458.
- Skinner, B.F. (1935). The generic nature of the concepts of stimuli and response. *Journal of General Psychology*, 12, 40-65.
- Skinner, B.F. (1938). *The behavior of organisms*. Appleton Century Crofts.
- Skinner, B.F. (1954/1961). The operational analysis of psychological terms. *Psychological Review*, 32, 270-277 and 291-294. Reprinted in B.F. Skinner, *Cumulative Record* (pp 272-286). Appleton Century Crofts.
- Skinner, D.F. (1948). "Superstition" in the pigeon. *Journal of Experimental Psychology*, 38, 168-172.
- Skinner, B.F. (1957). *Verbal behavior*. Appleton Century Crofts.
- Skinner, B.F. (1966a). The phylogeny and ontogeny of behavior. *Science*, 153, 1205-1213.
- Skinner, B.F. (1966b). An operant analysis of problem solving. In B. Kleinmuntz (Ed.), *Problem Solving: Research, method, and theory* (pp. 225-257). Wiley.
- Skinner, B.F. (1974). *About behaviorism*. Alfred Knopf.

- Smith, L.D. (1986). *Behaviorism and logical positivism*. Stanford University Press.
- Stevens, S.S. (1935). The operational definition of psychological concepts. *Psychological Review*, 42, 517-527.
- Tolman, E.C. (1932). *Purposive behavior in animals and man*. Appleton Century Crofts.
- Vygotsky, L.S. (1925). Consciousness as a problem in the psychology of behaviour. In *Undiscovered Vygotsky: Etudes in the pre-history of cultural-historical psychology (European Studies in the History of Science and Ideas*, 1990, Vol. 8, pp. 251-281). Peter Lang Publishing.
- Watson, J.B. (1913). Psychology as the behaviorist views it. *Psychological Review*, 20, 158-177.
- Watson, J.B. (1914). *Behavior: An introduction to comparative psychology*. Henry Holt & Co.
- Watson, J.B. (1924). *Behaviorism*. Routledge.
- Weiss, A.P. (1926). A set of postulates for social psychology. *Journal of Abnormal and Social Psychology*, 21, 203-211.
- Zilio, D., & Karrara, K. (2021). *Contemporary behaviorisms in debate*. Springer.
- Zuriff, G.E. (1985). *Behaviorism: A conceptual reconstruction*. Columbia University Press.