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# A Retrospective on Behavioral Approaches to Human Language--and Some Promising New Developments James L. Owen

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# Abstract

Early schools of behaviorism, namely, "classical" and "methodological," hold only limited implications for studies in human language behavior. In contrast, contemporary radical behaviorism is not only relevant, but it is dramatically more so due to its recent breakthroughs in the area of relational frame theory. Unfortunately, the few articles on behaviorism found in communication journals deal primarily with classical and methodological behaviorisms. References to radical behaviorism are rare, superficial, and out of touch with recent developments. A major purpose of this article is to draw some sharp distinctions among the three major behaviorisms: "classical," "methodological," and "radical"; and, to capture each of their unique perspectives on human language behavior. A second purpose is to show how radical behaviorism--especially in light of its recent progress in relational frame theory--provides the basis for a comprehensive behavioral theory of complex human language behavior. In doing so, it also provides a viable alternative to the cognitive theories that continue to dominate the field of communication studies.

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The *Index to Journals in Communication Studies through 1995* (Matlon & Ortiz, 1997) shows a complete absence of articles on "behavior theory" and only five on the topic of "behavioral methodology" (p. 592). In contrast, it lists 67 articles on "cognitive theory" (p. 600); 37 on "cognitive-constructivist analysis" (p. 600); and 16 on "constructivist methodology" (pp. 603-604).

Even on those rare occasions where "behaviorism" is discussed in some detail, most of what is presented in communication journals pertains only to *classical* or *methodological* behaviorisms; there is a conspicuous absence of talk about *radical behaviorism*. Ironically, it is only in the literature on radical behaviorism that we find most of the behavioral concepts that are useful in the study of ordinary *language* behavior. Radical behaviorism is unique. It not only stands in opposition to earlier behavioral perspectives, but it provides the only *compelling ecobehavioral alternative* to the cognitive perspectives that dominate the theoretical work in our field.

The purpose of this article is to draw some sharp distinctions among the three major behaviorisms: classical, methodological, and the less familiar radical behaviorism and its applied program of *behavior analysis*. Each is delineated in terms of its historical origins, its philosophical values, and its stance on key conceptual and methodological issues. Finally, each is discussed in terms of its perspective on human language behavior. For related introductory materials on these three behaviorisms, the reader can access an <u>on-line tutorial</u> developed by <u>Moore</u> (2002).

The paper concludes with a brief introduction to relational frame theory. This work provides some of the most contemporary thinking on the part of radical behaviorists. Its essential focus is *human language* 

*behavior* and it extends dramatically the ability of a behavioral perspective to encompass complex language phenomena.

#### **Classical Behaviorism**

#### **Historical Origins**

What we now call "classical" behaviorism is associated with the work of "... Pavlov, Watson, and Guthrie from the early 1900s until the 1930s" (Moore, 1995, p. 53). It appears that the term "behaviorism" was first employed by J. P. <u>Watson</u> (1913) in his seminal article, "Psychology as the Behaviorist Sees It" (<u>Schneider</u> <u>& Morris</u>, 1987, p. 28). Watson is often regarded as the father of early behaviorism. "The distinct philosophy of science explicitly named *behaviorism* was developed by Watson" (<u>Harzem</u>, 1995, p. 379).

#### **Philosophical Values**

Watson was interested in the possibility of a science of human behavior that would employ concepts and methods similar to those used in other branches of natural science. In important ways, classical, or "S-R" behaviorism, was modeled after physiology where the focus is on relations between input stimulus variables and output response variables. In his commitment to a natural science of behavior, <u>Watson</u> (1913) anticipated the impending influence of logical positivism by focusing on publicly observable stimuli and responses while discounting earlier interests that relied on introspective methods and the content of consciousness. In his basic manifesto Watson (1913) stated:

Psychology as the behaviorist views it is a purely objective experimental branch of natural sciences. ... Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness (p. 158).

Watson (1924) presumed that an objective science of behavior would progressively challenge many popular beliefs about human behavior and would eventually reveal its true nature. He notes, "As new scientific facts are discovered we have fewer and fewer phenomena which cannot be observed, hence fewer and fewer pegs upon which to hang folk-lore"(p. 238).

Consistent with a mechanistic world view (see <u>Owen</u>, 1997b), classical behaviorism adopted an "antecedent" or "billiard ball" model of causation. From this view, the causes of behavior reside in prior stimuli (S) that are vested with the power to elicit responses (R). This fundamental view of causation is captured in the basic operations that define classical conditioning.

#### The Classical Conditioning Model

For classical behaviorism, the S-R conditioning model is foundational. It directs one's focus to two distinct classes of "respondent" behaviors. The first is constituted by unconditioned or naturally occurring responses; the second is constituted by conditioned or "learned" responses.

*Unconditioned* behavioral phenomena include naturally occurring relationships such as a tap below the knee (S) followed by a knee jerk (R), or a loud noise (S) followed by a startle response (R). *Conditioned* behavioral phenomena are the product of specific operations involving *paired presentations* of unconditioned and conditioned stimuli until the conditioned stimuli on their own can elicit a learned response.

Pavlov's experimental work with dogs is commonly cited as a way of illustrating the explicit operations that constitute classical conditioning. Pavlov noted that the presentation of food (S) to a food-deprived dog would elicit salivation responses (R). He then noted that after a number of paired presentations of food (an

unconditioned stimulus) with a bell (a conditioned stimulus) the presentation of the bell by itself acquires the capacity to elicit the salivation response. In effect, due to the specific contextual operations that constitute classical conditioning, it was demonstrated that a dog can learn to salivate in response to the sound of a bell.

#### **Classical Behaviorism and Language**

The indisputable facts of classical conditioning eventually led to speculation that naturally occurring (unconditioned) behaviors might also provide a basis upon which more refined (conditioned) responses are built. Some of the more "refined responses" include our verbal "manipulative habits" (Watson, 1924, p. 225). Watson states:

In order to begin to build in manipulative habits one has to have something to start on, namely the unlearned movements of fingers, hands, toes, and the like. In language we have something similar to start on, namely, the unlearned vocal sounds the infant makes at birth and afterwards (p. 226).

Watson (1924) also speculated about the relevance of classical conditioning to "thinking" and argued that "thinking" is simply "internal speech" (Watson, 1924, p. 239). He notes: "The behaviorist advances a natural science theory about thinking which makes it just as simple, and just as much a part of biological processes, as tennis playing" (p. 238).

Watson (1924) not only relied upon the operations of classical conditioning to explain the acquisition of language and thinking behavior, but also the *affective* behaviors that accompany language. For example, he states that:

When the man on the street originally made the acquaintance of Mr. Sims, he saw him and was told his name at the same time. ... Again, when he saw Mr. Sims he heard his name. ...Finally, just the sight of the man ... would call out not only the old verbal habits, but many other types of bodily and visceral responses (pp. 235-236).

In point of fact, the classical conditioning model continues to provide a useful conceptual framework for issues related to communication anxiety, phobias, and other affective responses. For example, intervention techniques such as systematic desensitization are based on fundamental principles developed within the purview of classical conditioning. For the most part however, Watson's efforts to extend the efficacy of his conditioning operations to human language proved unsuccessful. Classical conditioning is a relatively slow process that cannot explain the impressive rate at which children learn language; further, it does not explain the complex, emergent, and creative qualities of human language behavior. In effect, classical behaviorism is based on a learning model that provides considerable precision but limited scope.

Classical behaviorism did make at least two important and lasting contributions: Firstly, by adopting publicly observable stimulus and response events as its primary data, it took human behavior out of the realm of the metaphysical and gave it a scientific grounding. Secondly, it demonstrated that *some* learned behaviors can be explained in terms of the paired presentation operations captured in its S-R conditioning model. In particular, the model *continues* to provide a useful description of the ways in which we learn many of the affective behaviors that accompany our talk.

Classical behaviorism is the forerunner of methodological behaviorism. It is methodological behaviorism that has had the most significant impact on human communication studies. However, as the name suggests, its impact is *methodological* in nature. It is a *content-free* perspective in the sense that it does not attach itself to a particular learning model. (For a brief comparative analysis of the three behaviorisms addressed in this paper, see Tables 1 and 2.)

#### Methodological Behaviorism

#### **Historical Origins**

Methodological behaviorism is, in general, the most influential successor to classical behaviorism; today, most card-carrying behaviorists are methodological behaviorists (see <u>Day</u>, 1983).

Classical behaviorism presumes that an "objective" science of behavior is achievable to the extent that we confine our talk to relations between observable inputs and observable outputs (i.e., relations between stimuli (S) and responses (R). In sharp contrast, methodological behaviorism rests on the assumption that a full account of human behavior must include a discussion of the "organismic" variables that are alleged to (1) *reside within* the individual, and (2) *mediate* stimulus inputs and response outputs--hence the "O" in its S-O-R formulation.

Most methodological behaviorists presume that one's previous experiences play an important role in shaping one's current attributes (e.g., see <u>Cronkhite</u>, 1997, p. 225). Nevertheless, the central interests of methodological behaviorists focus on the *structure* and *organization* of one's *current* organismic attributes and their alleged mediational effects on other attributes, or on one's overt behaviors; these interests do not require a discussion of historical processes and their contributions to one's current attributes or behaviors.

Early "mediational" behaviorists include <u>Tolman</u> (1932), <u>Hull</u> (1943), and <u>Spence</u> (1948) (<u>Moore</u>, 1995, p. 54). Eventually, the interests of these "mediational neo-behaviorists" gave rise to the systematic position that is now termed methodological behaviorism.

Unlike other important schools of behaviorism, a distinguishing feature of methodological behaviorism is that it did not developed around an explicit *learning model*; rather, as the name implies, it developed around *methodological concerns*. In particular, these concerns focus on the construction and refinement of research methodologies that are designed to accommodate an interest in the structure and role of mediational variables alleged to reside within us.

#### **Philosophical Values**

Methodological behaviorism was shaped by a variety of appeals to the logical positivism and operationism of the 1940s (Day, 1983, p. 91). In particular, methodological behaviorism is based on the positivists' foundational position that intersubjectively verifiable empirical observations provide a basis for "truth by agreement."

Bridgman's (1927) concept of an *operational definition* is also foundational for methodological behaviorism. Essentially, this definition requires that an event of interest be defined in terms of its observable features; it speaks directly to the issue of *structure*, that is, the observable *topographies* of the event. Clarity on relevant observables is necessary in order to achieve observer reliability and "truth by agreement."

Eventually, two psychologists, E.G. <u>Boring</u> (1929, 1950) and S. S. <u>Stevens</u> (1939) adapted Bridgman's operational definition to the interests of methodological behaviorists (see <u>Moore</u>, 1975; 1985). In making this move, they retained Bridgman's basic idea that a phenomenon is to be defined in terms of its observable topographies. However, they argued that in the human domain, alleged *mental* phenomena can be admitted to a science of behavior so long as they are defined in terms of their *observable manifestations*.

In effect, the methodologist behaviorist's appeal to positivism maintained the classical behaviorist's focus on publicly observable events as the basic data for a science of behavior. However, its appeal to the operationism of Boring and Stevens gave scientific credibility to talk about unobservable mediational variables--often described in the vernacular--by translating them into their publicly observable "behavioral manifestations." By adopting this version of an operational definition it was hoped that numerous common sense organismic variables could be retained.

- 1. The insistence on intersubjective techniques for securing and expressing empirical data.
- 2. The advocacy of stimulus-and-response variables as the only legitimate independent and dependent variables, with conventional operational definitions of hypothetical, mediating variables.
- 3. The accommodation of causal processes in terms of the model of antecedent causation, where causal efficacy is vested in a chain beginning with the independent variable, continuing with the mediational, intervening variable, and terminating with the dependent variable.
- 4. The position that psychological knowledge is to be regarded as theoretical inference about the mediating processes or events going on somewhere else, at some other level of observation, described in different terms, and using behavior as evidence to support the inferences (p. 54).

While methodological behaviorism does not attach itself to a particular learning theory, it rests on assumptions that accommodate all types of mediational theories. These theories provide their own content in the form of concepts about hypothetical variables alleged to reside inside "O," the organism.

#### **Methodological Paradigms**

The methods of methodological behaviorism have taken on the aura of *orthodox experimentalism*; indeed, the lion's share of experimental work in communication studies is a product of this view. Orthodox experimentalism--as generally understood--is characterized by its use of professionally endorsed methods of experimental design and inferential statistics in order to test hypotheses about mediational activities alleged to be located inside us (Day, 1983, pp. 91-92).

Eventually, methodological behaviorists proposed two very different standards for acceptable talk about alleged mediational variables (see <u>MacCorquodale & Meehl</u>, 1948). The conservative approach treats mediational activities as *intervening variables*. According to this standard, talk about mediational constructs should not include *surplus meanings*; inferred constructs are simply verbal abstractions that are tied closely to the observations actually made. The more liberal standard treats alleged mediational activities as *hypothetical constructs*. This standard allows almost any type of surplus meanings; it allows speculative talk that goes well beyond the observation actually made. As noted by <u>Moore</u> (2002, Part 1, Sec. 3, Page 1) the liberal standard for interpreting mediational constructs has come to dominate the work of methodological behaviorists.

In practice then, the effect of the Boring-Stevens operational definition was to give scientific credibility to unrestricted notions of alleged mediational variables. In 1974, B. F. <u>Skinner</u> provided a partial list of proposed mediational events and processes:

In the traditional mentalistic view: ... a person is a member of the human species who behaves as he does because of many internal characteristics or possessions, among them sensations, habits, intelligence, opinions, dreams, personalities, moods, decisions, fantasies, skills, percepts, thoughts, virtues, intentions, abilities, instincts, daydreams, incentives, acts of will, joy, compassion, perceptual defenses, beliefs, complexes, expectancies, urges, choice, drives, ideas, responsibilities, elation, memories, needs, wisdom, wants, a death instinct, a sense of duty, sublimation, impulses, capacities, purposes, wishes, an id, repressed fears, a sense of shame, extraversion, images, knowledge, interests, information, a superego, propositions, experiences, attitudes, conflicts, meanings, reaction formations, a will to live, consciousness, anxiety, depression, fear, reason, libido, psychic energy, reminiscences, inhibitions and mental illnesses (pp. 207-208).

In the field of communication studies inferred mediational processes are often metaphorical in nature and are based on a variety of engineering technologies: balance mechanisms, filters, governors, thermostats, interfacing gears, and the load capacities of telephone lines. Since the 1980s, major advances in computer

technology have seen a corresponding increase in speculative talk about the ways in which people are alleged to process, store, and retrieve discrete pieces of data. The ease with which mediational events are invented should arouse one's -- "suspicions."

#### Methodological Behaviorism and Language Studies

Unlike classical behaviorism, methodological behaviorism does not attach itself to a particular learning model. Nevertheless, by adopting the basic values of logical positivism and operationism, it has helped to generate a repertory of research methodologies that lend themselves to the testing of hypotheses about mediational events that are alleged to influence our overt behaviors. These methodologies, along with inferential statistics, provide the basis for orthodox experimentalism in the field of communication studies.

While a mediational perspective does not suggest a particular theory of language, it rests on the basic assumption that we do not respond to the world, but to mental *copies* of it. The result is a variety of mediational "copy theories." Concurrently, this dualistic perspective favors a *referential* theory of *meaning* which suggests that the significance or meaning of a language "symbol" is to be found in the observable events to which it refers (Moore, 2000).

A major limitation of methodological behaviorism is its commitment to an operational definition that focuses on the *structure* of a phenomenon. This approach is useful in the hard sciences where the topography of an event is a good predictor of what that thing can do. In contrast, however, the structure of a language event is seldom a reliable predictor of its effects in a particular context. Where studies do reveal a degree of predictability between the *structure* and *function* of language phenomena, the causes are often related to a third factor, that is, the relatively stable reinforcing practices of a particular social-language community.

Due to the lack of *necessary* relations between the form of communication behaviors and the effects they produce, there are questions to be raised about the contribution of many of our experimental studies to a *progressive* body of knowledge. For many years it was commonplace for methodological behaviorists to presume a mechanistic world in which discrete categories of things are related to each other in particular ways (<u>Owen</u>, 1997b). From this view, each new discovery should eventually contribute to an increasingly detailed picture of the way things are. It is clear, however, that the "pieces of the puzzle" discovered through experiential methods are not always cumulative; on the contrary, they are often situated and transitory.

The third and last school of behaviorism addressed in this paper is radical behaviorism. Radical behaviorism is radical in the sense that--like classical behaviorism--its explanatory appeals are based on an ecologically oriented learning model. That is, speculative mediational events are entirely abandoned. However, unlike the classical conditioning model, the one introduced by radical behaviorism is applicable to a far more inclusive repertory of human behaviors, including most of our verbal behaviors. In recent decades radical behaviorists have also developed a body of work that deals with *relational frame* phenomena. While this effort is compatible with its earlier interests, it expands considerably the ability of a behavioral perspective to encompass complex language phenomena. (Again, please see <u>Tables 1</u> and <u>2</u> for a brief comparison.)

#### **Radical Behaviorism**

#### **Historical Origins**

The origin of radical behaviorism, and its applied program of *behavior analysis*, is associated primarily with the work of B. F. Skinner (see <u>Catania and Harnad</u>, 1988, for some of Skinner's most important papers, along with contemporary commentary). It appears that Skinner first used the term "radical behaviorism" in 1945 in order to distinguish it from what he called "methodological behaviorism" (<u>Day</u>, 1980, 1983; Leigland, 1996).

Radical behaviorism is radical in a particular way; it is radically ecobehavioral or contextual (see Rogers-

<u>Warren</u>, 1977). In sharp contrast to methodological behaviorists who attempt to explain behavior in terms of the "real" or imagined mediational variables that are alleged to reside within us, radical behaviorists focus on our interactions with the world and how we are affected by them. In the case of human communication behaviors, interactive processes of particular interest include the instructional and reinforcing practices of our language community.

Many of the basic principles of radical behaviorism were first developed in Skinner's seminal book <u>The</u> <u>Behavior of Organisms</u> (1938). The last of his many books, <u>Recent Issues in the Analysis of Behavior</u> (1989) was published more than a half-century later and just a year before his death. From a communication studies point of view, Skinner's most important book is <u>Verbal Behavior</u> (1957). Here he develops in considerable detail an ecobehavioral-contextual interpretation of human written and spoken language.

Although Skinner did his graduate studies in psychology at Harvard, he did his undergraduate work at Hamilton College in Clinton, New York. Hamilton prided itself in requiring *eight semesters* of public speaking; accordingly, while majoring in English, his extensive work in speech is likely to have introduced him to topics that continue to lie at the center of contemporary interests in communication studies. (Skinner received a "B" in all eight of his public speaking classes.) (Skinner, 1976, pp. 196-197).

Skinner's robustly contextual view was influenced by J. B. Watson (<u>Skinner</u>, 1989, p. 110), and like Watson he was committed to the idea of a natural science of human behavior. Skinner also acknowledges a particular debt to the empiricism and operationism of Ernst <u>Mach</u> (1915), Bertrand <u>Russell</u>'s behavioristically considered psychological terms (1927), and the experimental work of Edward L. <u>Thorndike</u> (1898) on the effects of rewards and punishment (<u>Skinner</u>, 1989, pp. 61-62; 110).

In important ways Skinner's work is also a product of his own extensive history of observing the interaction of behaving organisms with their external environments. It was this history that contributed significantly to one of his most important discoveries: that many of the *learned* behaviors of organisms--including human language behaviors--are selected, maintained, or extinguished by the kinds of *consequences* they produce in a particular setting.

Over the last six decades numerous scholars have explored and refined the radical behavioral perspective. Importantly, some of the most recent advances have occurred in the area of *human verbal behavior*. The behavior analysis perspective now guides the activities of the <u>Association for Behavior Analysis</u>-<u>International</u> with a current membership of approximately 3,000. (This website provides additional links to ABA affiliated chapters in the United States and around the world, and, to numerous other resources.)

#### **Philosophical Values**

It will be recalled that methodological behaviorism relies heavily on positivist's values, including the concept of "truth" through observer agreement, and, the Boring-Stevens operational definition that defines a behavior in terms of what it looks like. The result is a profoundly *structural* approach to knowledge. In sharp contrast, radical behaviorism is based on a *pragmatic* perspective and provides a *functional* approach (see <u>Day</u> 1969b; <u>Moore</u>, 1991).

Topographically similar behaviors can function in very different ways in different settings. Concurrently, behaviors that are topographically different can function in similar ways. Radical behaviorists conclude that while a behavior of interest must be *identified* in terms of its structure, the meaning or significance of that behavior alludes us until it is *defined* in terms of its function in a particular setting.

The pragmatist's criterion for "truth" is "workability" or "enableability" (S. C. <u>Hayes</u>, 1993; <u>S. C. Hayes &</u> <u>Grundt</u>, 1997, p. 118). From this view, one discovers the "truth" about something when one learns how that thing works in a particular setting, or, how that thing *enables* one to get something done. For example, one can hammer a nail in a variety of ways before finding the behavior that produces the best results. Importantly, a single individual can find this pragmatic "truth" and can do so in the absence of agreement from others.

A pragmatic perspective is foundational for a "family" of social-contextual theories of human communication. Radical behaviorism is an important member of this family and has carved out its own unique niche. The following values capture the essence of radical behaviorism:

- A commitment to the idea that behavior "can be most fully understood in its context" (S. C. Hayes <u>& Grundt</u>, 1997, p. 117). This commitment includes a focal interest in the functional relationships among environmental variables, both past and present, and the behavior of organisms (<u>Day</u>, 1969a).
- 2. A focal interest in the study of behavior as a subject matter in its own right (Day, 1980). Explanatory appeals based on ecobehavioral processes obviate the need for appeals to the reductionistic and mentalistic processes invoked by methodological behaviorists (Skinner, 1974, pp. 240-241; see also S. C. Hayes & Grundt, 1997, pp. 128, 132; Leigland, 1993, 1996, pp. 108-117). Radical behaviorists attempt to account for behaviors solely in terms of natural contingencies of survival (the field of ethology), contingencies of reinforcement (the field of behavior analysis), or social contingencies (the field of culture) (Skinner, 1989, p. 27).
- 3. A commitment to the idea that things going on inside us are also behavior, and that many of these "private" behaviors are learned. This perspective leads to an exclusively ecobehavioral treatment of all learned behaviors whether they occur on the "public" or "private" sides of our skin (Day, 1969b; Harzem & Miles, 1978, p. 55; S. C. Hayes & Grundt, 1997, p. 117; Owen, 1989, p. 50). Radical behaviorists do make a basic distinction between introspectively observed private behaviors--such as a toothache--and those alleged behaviors such as a "death wish" that are simply based on inference. Private behaviors observable to the person who is experiencing them include "thoughts," "feelings," "images," etc. (S. C. Hayes & Grundt, 1997, p. 117; Harzem & Miles, 1978, p. 55; Owen, 1989, p. 50).
- 4. A commitment to the practical goal of "workability" or "enableability" as opposed to "truth by agreement" (<u>S. C. Hayes & Brownstein</u>, 1986, p. 181; <u>S. C. Hayes & Grundt</u>, 1997, p. 118). From this view, "causality in science is not a matter of ontology but of successful working--it is a way of speaking designed to accomplish scientific goals" (<u>S. C. Hayes & Grundt</u>, 1997, p. 118).
- An interest not only in the description and prediction of behavior, but also in the use of environmental intervention strategies that promote more effective and more satisfying behavioral outcomes (Day, 1969a, 1969b). This interest includes a commitment to social planning through environmental design (Day, 1976b).
- A focal interest in the behavioral nature of language (Day, 1969b; Moore, 1985, 1991; Owen, 1993). Verbal behavior is studied as the product of identifiable ecobehavioral processes (Day, 1969a), especially the instructional and reinforcing practices of our social-language community.

### The Radical Behavior Model

The essence of radical behaviorism is its primary focus on learned *operant* behaviors. Operant behaviors are constituted by a large class of behaviors that "operate" on the environment and produce consequences for the operator (<u>Skinner</u>, 1957, p. 20).

An operant behavior is described in terms of a three-term contingency (Sd-R-Sr) where Sd pertains to prior discriminal stimuli that "set the occasion" for a behavior; R pertains to a behavioral response; and, Sr pertains to reinforcing stimuli that follow a behavior and influence its likely recurrence in similar settings. One learns, for example, that when entering a dark room (discriminal stimulus), one can flip a light switch (behavior) in order to illuminate a room (reinforcing stimulus). In effect then, an operant describes the ways in which a behavior is influenced by events that lie outside that behavior and both *precede* and *follow* it.

While a history of reinforcing consequences is the critical *determinant* of future behavior in a similar setting, prior *discriminal stimuli* gain the ability to "set the occasion" for particular behaviors due to their historical membership in the three-term contingency that defines an operant. It might be said that discriminal stimuli are effective because they *signal the occasion* on which a particular behavior is likely to

produce reinforcing consequences.

An operant interpretation of flipping a light switch illustrates how *naturalistic* conditions that reside in our external environment can enter into our acquisition of learned behaviors. But important *social* conditions also reside in our external environment and influence the acquisition of other operant repertories including language behaviors.

From a radical behavioral view, we get at the *functional* meaning of a behavior when we are able to locate that behavior in the three-term contingency that describes an operant (see <u>Skinner</u>, 1988). The description of this operant, in turn, constitutes a *functional-operational definition* of that behavior relative to a particular setting. The operational definition of a particular language term is achieved in the same way. Specifically, a functional-operational definition of a particular term is achieved when we can state, (1) the antecedent conditions that "set the occasion" for its use, (2) the term emitted, and (3) the consequences that result (L. J. Hayes, 1991; <u>Hineline</u>, 1988; <u>Moore</u>, 1981, 2000; <u>Owen</u>, 1997c). From a radical behavioral view, the smallest *meaningful* unit of behavior is one described in the language of this three-term contingency.

In effect then, the behavior analytic perspective embraces both "meaning-as-reference" and "meaning-asuse" accounts of language (see <u>S. C. Hayes and Grunt</u>, 1997, pp. 133-136). From this view, "meaning-asreference" is shaped through our encounters with the natural world; "meaning-as-use" is shaped by social practices. This is to say that referential talk is subject to the consequences provided by our natural environments; conventional talk is subject to the consequences provided by our language community--and may or may not reference empirical realities.

Knowledge about ecobehavioral contingencies satisfies the scientific goal of *predictability--*given, of course, that prediction is always limited by the ever-changing conditions within and without a behaving organism. Also, when effective environmental variables are both *accessible* and *changeable* knowledge about ecobehavioral contingencies can contribute to the scientific goal of *influence*.

In matters of intervention, emphasis is placed on instruction and the use of *positive reinforcement* following the successful learning of targeted behaviors. For obvious ethical reasons targeted behaviors are those that enhance an individual's ability to respond effectively and responsibly towards one's self and others. Change agents and clients are encouraged to develop a close partnership and to engage in programs of intervention and change only after arriving at advice and consent from all to be affected by this intervention.

#### The Operant Model and "Private" Behaviors

Methodological behaviorists talk about covert behaviors--such as *feelings*--but usually for the purpose of *explaining* overt ones. For example, one might appeal to "performance anxiety" in attempting to explain a speaker's "quaky voice." In contrast, behavior analysts take things back one step further. They look for environmental conditions--past and present--that account for both the anxiety *and* the quaky voice. In effect, behavior analysts do not view private behaviors as independent variables to be invoked for the purpose of explaining public ones; they view them as additional dependent variables in need of an ecobehavioral explanation (Skinner, 1974, pp. 19, 86, 90-95; 1989, p. 5; see also Day, 1976a, 1983; Leigland, 1996; Moore, 1980, 1984; Owen, 1990a, p. 111).

Radical behaviorists recognize that private and public behaviors may co-occur and that one is sometimes a good *predictor* of the other. Influence, however, is another matter. Behavior analysts argue that effective intervention is only possible when one addresses the ecobehavioral circumstances--past and present--that are responsible for both public and private behaviors. One of the most important findings of the behavior analyst is that operant behaviors, covert or overt, are shaped and maintained by similar ecobehavioral processes.

While behavior analysts do not take *learned* private behaviors to be the causes of overt behavior, they do recognize that listening to what a speaker has to *say* about introspectively observed private experiences can be useful. Firstly, talk about feelings, thoughts, images, etc. can provide important *clues* as to past and

present environmental conditions that are functionally related to their occurrence (<u>Skinner</u>, 1974, p. 35; 1989, p. 11). Secondly, speakers sometimes do what they say they "feel" like doing or "plan" to do. On these occasions, listening to what a speaker has to say about covert feelings and thoughts can provide a basis for predicting some of the things that a person might be expected to say or do (<u>Skinner</u>, 1989, p. 11).

#### Methodologies

Radical behaviorism provides an alternative account of behavior that is both contextual and functional. This account is contextual in the sense that it points to antecedent and consequential conditions that lie outside a particular behavior and are *functionally* related to its occurrence (<u>Skinner</u>, 1957; see also <u>Leigland</u>, 1989, 1996, 2000; <u>Owen</u>, 1989, 1990a, 1990b, 1993). Most of the conditions of interest are those that lie both outside a behavior and outside the behaving organism.

The basic methodology of a behavior analyst is called a *functional analysis of behavior*. A functional analysis is an empirical investigation that focuses on historical antecedent and consequential events and their cumulative effects on a person's current behavior; the method shares important properties with other historical-analytical investigations.

A functional analysis becomes an *experimental analysis* when the investigative method includes the systematic manipulation of antecedent, behavior, or consequential events for the purposes of determining their effects on one or both of the other two classes of events. (For a recent critique of the behavior analyst's functional and experimental methodologies, see Leigland, 1996.)

#### **Radical Behaviorism and Language**

The essential focus of an applied behavior analysis is on the set of past and present antecedent and consequential events that lie *outside* one's behaviors and influence their likely recurrence. Accordingly, where one's verbal behavior is at issue, the focus is on those past and present contingencies outside talk that contribute to the acquisition and maintenance of that talk (see Leigland, 1989, 1996, 2000).

For example, consider a note written by the very young daughter of a colleague; it reads: "Dear Mother, I hate you, Love, Laura." Clearly, previous instruction played a role in the composition of this message, but prior consequences also enter into the equation. Contextualizing the message in terms of the immediate setting reveals that:

- 1. Laura had been behaving badly and was sent to her room by her mother (antecedent events);
- 2. Laura wrote the note and taped it to the outside of her door where her mother would see it (verbal and nonverbal behavior events);
- 3. Laura's mother eventually saw the note and told Laura that she was very hurt by it (reinforcing consequences for Laura).

From a radical behavioral view, we get at the *meaning* of what someone says when we understand the conditions that lead them to say it. Indeed, what better way to get at the meaning of, "I hate you," than to discover the conditions that contributed to one's saying it.

It appears that much of our talk is "contingency-governed" in the sense that it is directly influenced by the antecedent and consequential events provided by particular listeners in specific settings. Members of our language community are influential in at least two direct ways: firstly, they "set the occasion" for certain kinds of talk due to previous instruction and the kinds of consequences that they have provided on similar occasions; secondly, they continue to reinforce particular aspects of our talk as it occurs in the current setting (see <u>Skinner</u>, 1989, p. 37).

A history of interaction with particular listeners can influence virtually any aspect of our language behaviors: whether we talk or remain silent, whether we talk more or less, the content we contribute, the stylistic devices we use, our nonverbal responses, and so forth. A very comprehensive review of different communication behaviors and the ways in which they can be influenced by the reinforcing practices of listeners is available in <u>Guerin</u> (1997). Also, Guerin's ambitious study shows in detail the ways in which the three-term contingency model can provide a parsimonious way of unifying many of our otherwise diverse studies on human communication. In a similar vein, <u>Place</u> (1997) and <u>Leigland</u> (2000) illustrate how the three-term contingency analysis can complement contemporary efforts in the area of conversation analysis.

Some problems have remained. In particular, it is a stretch to show how the contingency model--by itself-can effectively explain (1) the *rate* at which humans acquire language, or (2) the *emergent, novel,* and *creative* aspects of human language behavior. Importantly however, when the basic contingency model incorporates the concept of relational frames, it appears to resolve these problems.

#### The Three-term Contingency Model and Relational Frames

The pivotal investigation leading to relational frame theory was conducted by Murray <u>Sidman</u> (1971). In this study, a developmentally-disabled subject who had learned to match spoken words to pictures and spoken words to printed words, spontaneously matched printed words to pictures in the absence of training to do so. As noted by <u>S. C. Hayes et al.</u> (2001), these results "... are unexpected from a strict operant or classical conditioning viewpoint" (p. 18). Sidman suggested that the results occurred because visual words and pictures became *equivalent* to each other and, independently, became *equivalent* to the same auditory words (<u>Sidman</u>, 1971, p. 11). Since 1971, literally hundreds of studies have supported Sidman's work on equivalence phenomena.

The essence of equivalence theory is the concept that "a limited number of directly trained [language] performances can lead to a large number of *derived* performances" (<u>S. C. Hayes & Grundt</u>, 1997, p. 119). The metaphor, for example, is a distinctive type of relational frame that points to the similarities in two different sets of events. In effect, the *function* of a metaphor is to allow "a set of relations in a verbally available domain ... to be transferred to less well understood domains"(p. 119).

Due largely to the efforts of S. C. Hayes, equivalence theory has evolved into a more comprehensive *relational frame* theory (for a detailed synthesis of this work, see <u>S. C. Hayes et al.</u>, 2001). While retaining the concept of an equivalence type of relational frame, relational frame theory embraces additional frames that serve other relational functions. These include frames of: coordination, opposition, distinction, comparison, hierarchical relations, temporal relations, spatial relations, relations of conditionality and causality, and, deictic relations, that is, relations that reflect the perspective of the speaker: "left-right" and "I-you," etc. (see S. C. Hayes et al., 2001, pp. 35-39).

Radical behaviorists have consistently demonstrated how their basic three-term contingency model can effectively account for the acquisition of particular words, phrases, complete sentences, and even larger verbal units. More recently, empirical work on relational frame theory demonstrates how this model can also account for the acquisition of verbal behaviors in the form of distinctive *relational frames*. Specifically, a language community can provide its members with *multiple exemplars* of specific types of relational frames, and, can *reinforce* individuals for effective use of appropriate frames in different contexts (see <u>S. C.</u><u>Hayes et al.</u>, 2001, pp. 147-150). Eventually then, these frames become *arbitrarily applicable* to a wide spectrum of new events and contexts.

The effect of relational frame phenomena is to provide a plausible account for both the impressive rate at which we expand our verbal repertories, and, the emergent quality of much of our talk. The metaphor, for example, "serves the function of supercharging the listener's relational abilities by equating seemingly disparate sets of relations" (S. C. Hayes & Grundt, 1997, pp. 138-139; see also Stewart & Barnes-Holmes, 2001). Further, since one's repertory of relational frames can be traced to the multiple exemplar training of one's language community, an account that points to this training maintains a strictly behavioral approach to these phenomena; one that makes no appeal to alleged "cognitive" processes.

Relational frame theory also suggests an entirely new theoretical approach to the *nature of language*.

Specifically, it suggests that *language behavior is relational framing behavior* (see <u>S. C. Hayes</u>, 1994; <u>S. C. Hayes</u>, 1994; <u>S. C. Hayes</u> et al., 2001, p. 144). That is, to talk about something is to frame that thing relationally in a particular way, and thereby to make a particular kind of "sense" out of it. The value of this "sense" can then be checked out against one's experiences.

In light of relational frame theory, some radical behaviorists now distinguish between (1) the *historical processes* involved in the acquisition and maintenance of verbal behaviors--including relational frame behaviors, and (2) the *implications* of those behaviors, once acquired (see <u>Barnes-Holmes et al.</u>, 2000). That is, a distinction is made between a focus on the instructional and reinforcing history that leads us to talk in a particular way (an observer perspective) and, the implications of talking that way in the current setting (an event perspective) (see <u>L. J. Hayes</u>, 1992, p. 98). As noted by L. J. Hayes, "An analysis made from the standpoint of the events themselves is an attempt to describe what is occurring now, not when or under what conditions a *similar* event may have occurred or be likely to occur" (p. 98).

Briefly then, with the advent of relational frame theory, radical behaviorism now provides both *historical* and *event* perspectives on language behaviors. The *historical* perspective advances the concept that much of a speaker's talk is a function of the instructional and reinforcing practices of a verbal community. Accordingly, a functional analysis looks for (1) antecedent events that--for historical reasons--set the occasion for a particular kind of talk, (2) the topography of that talk, and (3) the consequences experienced by the speaker and their effects on that speaker's future talk. The *event* perspective advances the concept that a functional analysis should also focus on a speaker's use of specific *relational frames*, their *relational functions*, the actions they promote, and the consequences produced by those actions. Finally, relational frame theory advances the proposition that the essence of language behavior is relational framing. (Again, please see Tables 1 and 2 for a brief comparison.)

#### **Summary and Conclusions**

Classical behaviorism took human language behavior out of the realm of the metaphysical and provided a perspective based on an empirically grounded learning model. While its conditioning operations fall far short of an adequate explanation for most complex language behaviors, these operations remain useful in addressing many of the affective behaviors that accompany talk.

Methodological behaviorism provides the basic perspective for orthodox experimentalism. As the name implies, it focuses on methodological issues--especially those designed to accommodate explanatory appeals to inferred mediation activities that are alleged to occur on the private side of our skin. Alleged mediational activities include a disparate set of mentalistic and reductionistic explanatory systems that tend to be long on scope but short on precision. Methodological behaviorism is "content free" in the sense that it does not attach itself to a particular learning model.

Radical behaviorism recognizes the legitimate but highly restrictive role of classical behaviorism; however, it stands in direct opposition to methodological behaviorism. It is radical in the sense that its explanatory efforts are radically *contextual*. That is, explanations focus entirely on the ways in which behaviors are influenced through interactions with one's physical and social environments. An advantage of this approach is that it is able to avoid all speculative appeals to alleged mediational processes. Further, since contextual explanations focus on environmental events that are often accessible and changeable, they lend themselves to the scientific goals of both prediction *and* strategic intervention.

Radical behaviorism carves out its own unique approach to the study of human language behavior. Its traditional focus is on the instructional and reinforcing practices of one's language community; these practices effectively explain the acquisition and maintenance of our learned language repertories, including our repertory of "relational frames." Its new focus on relational frame theory takes things a major step further; it provides a plausible explanation for the complex and often creative relational framing that appears to characterize the essence of talk. In brief, radical behaviorism can now provide a robust *contextual* perspective on human language phenomena; one that is strictly behavioral--as opposed to attributional--and one that challenges the cognitive approaches that continue to dominate our discipline.

## **Works Cited and Tables**

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### Works Cited

Barnes-Holmes, D., Barnes-Holmes, Y, & Cullinan, V. (2000). Relational frame theory and Skinner's *Verbal behavior*: A possible synthesis. *The Behavior Analysis, 23, No.* 1, 69-84.

Boring, E. G. (1929). A history of experimental psychology. New York: Century.

Boring, E. G. (1950). A history of experimental Psychology (2nd ed.). New York: Appleton-Century-Crofts.

Bridgman, P. W. (1927). The logic of modern physics. New York: Macmillan.

Catania, A. C., & Harnad, S. (Eds.). (1988). *The selection of behavior--the operant behaviorism of B. F. Skinner: Comments and consequences*. Cambridge: Cambridge University Press.

Cronkhite, G. (1997). Cognitive representation of rhetorical situations. In J. L. Owen (Ed.), *Context and communication behavior* (pp. 218-228). Reno, NV: Context Press.

Day, W. F. (1969a). Radical behaviorism in reconciliation with phenomenology. *Journal of the Experimental Analysis of Behavior*, *12*, 315-328.

Day W. F. (1969b). On certain similarities between the Philosophical investigations of Ludwig Wittgenstein and the operationism of B. F. Skinner. *Journal of the Experimental Analysis of Behavior*, *12*, 489-506.

Day, W. F. (1976a). Analyzing verbal behavior under the control of private events. Behaviorism, 4, 195-200.

Day, W. F. (1976b). The case for behaviorism. In M. H. Marx & F. E. Goodson (Eds.), *Theories in contemporary psychology* (2<sup>nd</sup> ed., pp. 534-545). New York: MacMillan.

Day, W. F. (1980). The historical antecedents of contemporary behaviorism. In R. W. Rieber & K. Salzinger (Eds.), *Psychology: Theoretical-historical perspectives* (pp. 203-262). New York: Academic Press.

Day, W. F. (1983). On the difference between radical and methodological behaviorism. Behaviorism, 11, 89-102.

Guerin, B. (1997). Social contexts for communication: Communicative power as past and present social consequences. In J. L. Owen (Ed.), *Context and communication behavior* (pp. 133-179). Reno, NV: Context Press.

Harzem, P. (1995). Searching in the ruins for truth; the life and works of John B. Watson: A review of modern perspectives on John B. Watson and Classical behaviorism. *The Behavior Analyst, 18,* 377-384.

Harzem, P., & Miles, T. R. (1978). Conceptual issues in operant psychology. New York: John Wiley & Sons.

Hayes, L. J. (1991). Substitution and reference. In L. C. Hayes, & P. N. Chase (Eds.), *Dialogues on verbal behavior* (pp. 3-18). Reno, NV: Context Press.

Hayes, L. J. (1992). Equivalence as process. In S. C. Hayes & L. J. Hayes (Eds.), *Understanding verbal relations* (pp. 97-108). Reno, NV: Context Press.

Hayes, S. C. (1993). Analytic goals and the varieties of scientific contextualism. In S. C. Hayes, L. J. Hayes, H. W. Reese, & T. R. Sarbin (Eds.), *Varieties of scientific contextualism* (pp. 11-27). Reno, NV: Context Press.

Hayes, S. C. (1994). Relational frame theory: A functional approach to verbal events. In S. C. Hayes, L. J. Hayes, M. Sato, & K. Ono (Eds.), *Behavior analysis of language and cognition* (pp. 9-30). Reno, NV: Context Press.

Hayes, S. C., Barnes-Holmes, D., & Roche, B. (2001). *Relational frame theory: A post-Skinnerian account of human language and cognition*. New York: Kluwer Academic/Plenum Publishing.

Hayes, S. C., & Brownstein, A. J. (1986). Mentalism, behavior-behavior relations, and a behavior-analytic view of the purpose of science. *The Behavior Analyst*, *9*, 175-190.

Hayes, S. C., & Grundt, A. M. (1997). Metaphor, meaning and relational frame theory. In C. Mandell & A. McCabe (Eds.), *The problem of meaning: Behavioral and cognitive perspectives* (pp. 117-146). Netherlands: Elsevian Science B.V.

Hayes, S. C., Hayes, L. J., Reese, H. W., & Sarbin, T. R. (Eds.). (1993). Varieties of scientific contextualism. Reno, NV: Context Press.

Hineline, P. N. (1988). What, then, is Skinner's operationism. In A. C. Catania & S. Harnad (Eds.), *The selection of behavior* (pp. 183-184). Cambridge: Cambridge University Press.

Hull, C. L. (1943). Principles of behavior: An introduction to behavior theory. New York: Appleton-Century.

Leigland, S. (1989). A functional analysis of mentalistic terms in human observers. The Analysis of Verbal Behavior, 7, 5-18.

Leigland, S. (1993). The case against physicalism in the analysis of behavior. The Behavior Analyst, 16, 351-355.

Leigland, S. (1996). The functional analysis of psychological terms: In defense of a research program. *The Analysis of Verbal Behavior*, *13*, 105-122.

Leigland, S. (2000). A contingency interpretation of Place's contingency anomaly in ordinary conversation. *The Analysis of Verbal Behavior*, *17*, 161-165.

MacCorquodale, K., & Meehl, P. (1948). On a distinction between hypothetical constructs and intervening variables. *Psychological Review*, *55*, 95-107.

Mach, E. (1915). The science of mechanics: A critical and historical account of its development. Chicago: Open Court.

Matlon, R., & Ortiz, S. (Eds.). (1997). *Index to journals in communication studies through 1995*. Annandale, VA: National Communication Association.

Moore, J. (1975). On the principle of operationism in the science of behavior. Behaviorism, 3, 120-138.

Moore, J. (1980). Behaviorism and private events. The Psychological Record, 30, 459-475.

Moore. J. (1981). On mentalism, methodological behaviorism, and radical behaviorism. Behaviorism, 9, 55-77.

Moore, J. (1984). On privacy, causes, and contingencies. The Behavior Analyst, 7, 3-16.

Moore, J. (1985). Some historical and conceptual relations among logical positivism, operationism, and behaviorism. *The Behavior Analyst*, *8*, 53-63.

Moore, J. (1991). A retrospective appreciation of Willard Day's contributions to radical behaviorism and the analysis of verbal behavior. *Analysis of Verbal Behavior*, *9*, 97-104.

Moore, J. (1995). Some historical and conceptual relations among logical positivism, behaviorism, and cognitive psychology. In J. T. Todd & E. K. Morris (Eds.), *Modern perspectives on* B. F. Skinner *and contemporary behaviorism* (pp. 51-74). Westport, CT: Greenwood Press.

Moore, J. (2000). Words are not things. The Analysis of Verbal Behavior, 17, 143-160.

Moore, J. (2002). Behavioral tutorial. http://server.bmod.athabascau.ca/html/Behaviorism

Owen, J. L. (1989). Interpersonal surrogates and communication theory (a behavioral view). Communication Reports, 2, (2) 48-50.

Owen, J. L. (1990a). A closer look at the behaviorists' agenda. Communication Reports, 3, (2), 109-113.

Owen, J. L. (1990b). *Resolved: That phenomenological surrogates for behavior offer no improvement over the observations themselves.* Debate, first affirmative constructive speech, National Speech Communication Association, annual conference, Chicago, IL.

Owen, J. L. (1993). On contextual interpretations of behavior. In S. C. Hayes, L. J. Hayes, H. W. Reese, & T. S. Sarbin (Eds.), *The varieties of scientific contextualism* (pp. 222-225). Reno, NV: Context Press.

Owen, J. L. (Ed.). (1997a). Context and communication behavior. Reno, NV: Context Press.

Owen, J. L. (1997b). World views as context for communication studies. In J. L. Owen (Ed.), *Context and Communication behavior* (pp. 17-39). Reno, NV: Context Press.

Owen, J. L. (1997c). A referent is not a thing: It's a process. In L. J. Hayes & P. M. Ghezzi (Eds.), *Investigations in behavioral epistemology* (pp. 236-239). Reno, NV: Context Press.

Place, U. T. (1997). Contingency analysis applied to the pragmatics and semantics of naturally occurring verbal interaction. In J. L. Owen (Ed.), *Context and communication behavior* (pp. 369-385). Reno, NV: Context Press.

Rogers-Warren, A. (1977). Planned change: Ecobehaviorally based interventions. In A. Rogers-Warren & S. F. Warren (Eds.), *Ecological perspectives in behavior analysis* (pp. 197-210). Baltimore: University Park Press.

Russell, B. (1927). Philosophy. New York: Norton.

Schneider, S., & Morris, E. (1987). A history of the term radical behaviorism: From Watson to Skinner. *The Behavior Analyst, 10,* 27-39.

Sidman, M. (1971). Reading and auditory--visual equivalences. Journal of Speech and Hearing Research, 14, 5-13.

Skinner, B. F. (1938). The behavior of organisms. New York: Appleton-Century-Croft.

Skinner, B. F. (1945). The operational analysis of psychological terms. Psychological Review, 52, 270-277.

Skinner, B. F. (1957). Verbal behavior. New York: Appleton-Century-Croft.

Skinner, B. F. (1974). About behaviorism. New York: Alfred A. Knopf, Inc.

Skinner, B. F. (1976). Particulars of my life. New York: Alfred A. Knopf.

Skinner, B. F. (1988). The operational analysis of psychological terms. In A. C. Catania & S. Harnad (Eds.), *The selection of behavior (The operant behaviorism of B. F. Skinner: Comments and consequences)* (pp. 150-164). Cambridge: Cambridge University press.

Skinner, B. F. (1989). Recent issues in the analysis of behavior. Columbus: Merrill.

Spence, K. W. (1948). The postulates and methods of behaviorism, *Psychological Review*, 55, 67-78.

Stevens, S. S. (1939). Psychology and the science of science, Psychological Bulletin, 36, 221-263.

Stewart, I., & Barnes-Holmes, D. (2001). Understanding metaphor: A relational frame perspective. *The Behavior Analyst, 24, No. 2,* 191-199.

Thorndike, E. L. (1898). Animal intelligence. An experimental study of associative processes in animals. *Psychological Review, Monographic Supplement, 2, No.* 8, 1-16.

Tolman, E. C. (1932). Purposive behavior in animals and men. New York: Century.

Watson, J. B. (1913). Psychology as the behaviorist views it. Psychological Review, 20, 158-177.

Watson, J. B. (1924). Behaviorism. New York: W. W. Norton.

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#### Tables

Table #1

#### **Basic Features of Three Major Behaviorisms**

Classical	Methodological	Radical
Behaviorism	Behaviorism	Behaviorism

Philosophical Influences	Anticipates logical positivism: Presumes objective observers.	Logical positivism: Presumes objective observers.	Pragmatism: Presumes observer's reports are a function of one's interaction with natural/social contingencies.
Locust of Explanatory	Environment:	Organism:	Interaction:
Appeals	Environment impacts passive organism.	Inferred covert attributes mediate overt behaviors.	Organism operates on natural or social environments and experiences the consequences.
	Environment determines behavior.	Mediational events determine behavior.	
			Organisms and environments co- determine each other.
Focus of Learning Theory	Classical conditioning operations: The paired presentation of unconditioned and conditioned stimulus events.	No learning theory: Its perspective is open to the construction of all types of mediational theories.	Operant learning operations: Organisms operate on the environment and are influenced by the consequences.

Type of Knowledge Generated	Statements about: Learned associations among directly observable overt events.	attributes on other	Statements about: Learned functional relations among directly observable covert and/or overt events.
Truth	Implicitly truth by	Truth by agreement:	Truth by workability:
Criterion	agreement:		
	Anticipates logical positivism.	Truth is achieved through agreement among "objective" observers who share an "objective" language.	Truth is achieved as one or more people gain experience with how something works; i.e., how it functions in a particular setting.

# Table #2

**Behavioral Treatments of Human Language** 

Classical	Methodological	Radical
Behaviorism	Behaviorism	Behaviorism

Perspective on Language	Monistic:	Dualistic:	Monistic:
	Presumes that language is a form of learned behavior.	Language and behavior occupy different domains. Symbolic activities are separate from ways of behaving.	Everything we do or say is behavior. Symbolic activity is a specialized form of social behavior.
	Implicitly referential:	Referential:	Contextual:
on Language and Meaning	The meaning of a language event is acquired through its "association" with another event. Eventually, words come to "signal" or "signify" those other events.	The meaning of a language event is discovered by identifying the thing to which it refers. Words refer to things; they "denote," "describe," or "signify."	The meaning of a language event is discovered by identifying the natural and/or social contingencies that occasion its use. Words refer people to things. They "frame" things relationally.
Operational Definitions	Implicitly structural:	Structural:	Functional:
	Anticipates conventional operationism. Overt events are defined in terms of their topographical features.	Inferred covert/ observable overt events are defined in terms of their topographical manifestations/ features.	Directly observable covert/overt events are defined in terms of their functional relatedness to other events in a specific setting. Talk is relational framing.