Verbal Behavior and Cultural Practices

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Abstract

Three kinds of selection are reviewed with primary focus on the relations between behavioral and cultural contingencies. Operant behavior is briefly examined with regard to cultural materialist theory. The functions of verbal behavior in infrastructural and superstructural practices are suggested. Discrepancies between rules promulgated in the superstructure and the requirements of the infrastructure are viewed as potentially threatening to cultural survival as metacontingencies change.

Key Words: verbal behavior, cultural practices, cultural materialism, metacontingencies, kinds of selection

In "Selection by Consequences" Skinner (1984) discussed selection as a causal force and suggested a role for three kinds of selection in producing behavior. The three kinds of selection were natural selection with its contingencies of survival, behavioral selection with its contingencies of reinforcement, and cultural selection with its "special contingencies maintained by an evolved social environment" (p. 478). The "special contingencies" are primarily those maintained by a verbal community and they involve the behavior of speakers and listeners as environmental events in the contingencies supporting the behavior of others.

Although cultures exist only in the interlocking behavioral patterns of their members, a "culture" is a unit that cannot be "reduced" to behavior (cf. White, 1949). This statement is similar to saying that although operants exist only in living organisms, an "operant" is a unit that cannot be "reduced" to neural and muscular activity. Thus, to explore the relation between the behavior of individuals and the evolution of a culture is to attempt a conceptual integration of phenomena studied at differing levels of analysis. Such an integration would appear most feasible if data and theory at each level were fairly well developed and if the theories were basically compatible.

After Catania (1984), Lloyd (1985) and Vargas (1985) introduced to behavior analysts the cultural anthropology known as *cultural materialism*, behavior analysts have continued to pursue a goal of integrating the concepts of behavior analysis and cultural materialism (e.g., Glenn, 1988; Malott, 1988; Malagodi & Jackson, 1989). One area that provides some thorny issues for any such integration is the different ways that behavior analysts and cultural materialists approach verbal behavior. In this paper, I will explore a behavior analytic view of the role of verbal behavior in cultural practices and suggest how the behavior analytic view is consistent with the key cultural materialist principle of "infrastructural determinism,. The related issue of the fundamental differences between the cultural materialist and behavior analytic epistemologies, and the role of verbal behavior in them, will not be addressed in this paper.

In the next section, I briefly review relations among three kinds of selection with special attention to the relation between behavioral and cultural contingencies. Following that, a few key cultural materialist concepts are introduced and examined with respect to the role of operant behavior in cultural practices. The possibility of discrepancies between verbal behavior directly involved in infrastructural practices and verbal behavior involved in superstructural practices is examined; and the potential for such a discrepancy to suppress changes needed in the infrastructure is suggested.

Three Kinds of Selection

Contingencies of Survival: Natural Selection

The origin of species is attributed to the process of natural selection acting on genetic variation manifested in the structure and function of individual members of a species (cf. Campbell, 1969; Dawkins, 1976). Since the process of natural selection requires consecutive generations of organisms, it is slow relative to time as experienced by humans. It is also cumbersome and wasteful from the human vantage point. Continuation of a species as a unit (cf. Ghiselin, 1980) depends on continued reproduction of the genes characterizing the species and this depends on the "fit" of the interactions between members of the species and their environment. Changes can occur only in successive generations.

Perhaps it was inevitable that the selection process would eventually produce species whose functioning was not fully specified by previous contingencies of selection. Any process that allows increased sensitivity to fluctuations in the environment that occur on a time scale too short to enter into evolution of species might allow for greater survival and reproductive potential. One of these processes involved another kind of selection.

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Contingencies of Reinforcement: Behavioral Selection

"Behavior" is a slippery concept in that instances of behavior may be defined in many ways, including in terms of the form of the activity, the distribution of the activity over time, or the relation of activity to another empirical event (inside or outside the skin of the behaving organism). A given behavioral unit is defined for scientific purposes by isolating a repeated observed relationship between dimensions of organismic activity and dimensions of the environment (Branch, 1977). The environment may be said to select behavior when a consequent change in the environment leads to survival of the behavioral unit in the behaving organism's repertoire.

The capacity of organisms to be changed during their lifetime is, of course, a capacity that evolved through natural selection. As an evolved process, behavioral selection is unique because it supports ontogenic evolution of individual functioning that is loosely constrained by genetic specification. The role of natural selection in ontogenic evolution appears to be an enabling one, resulting from earlier contingencies of selection. Contingencies of survival produced organisms with genetically uncommitted behavior susceptible to selection by consequences (Skinner, 1984). The emergence of operant behavior amounted to emergence of a new kind of selection. Natural selection produced the process of behavioral selection.

In behavioral selection the developing relations between organisms and environmental events are mediated by organismic characteristics that were selected through contingencies of survival. The automaticity of the reinforcement process is due to those organismic characteristics. Selection automatically occurs if certain kinds of events follow activity within a given interval of time or in other systematic ways. The relation may include that between certain *patterns* of behavior and certain *patterns* of consequences (Hineline, 1977).

Metacontingencies: Cultural Selection

From a behavior analytic perspective a culture is "the contingencies of reinforcement which generate and sustain ... behavior [of members of the culture]" (Skinner, 1969, p. 3). Human cultures always include verbal behavior, which requires speakers and listeners, and involves interlocking contingencies among individuals. The individuals whose behavior is so interlocked are members of the culture. The behavior of each, as speaker and listener, enters into the behavioral contingencies supporting the behavior of the others. These interlocking contingencies may be termed "cultural practices" and they have outcomes beyond the consequences of individuals' behavior (cf. Glenn, 1988).

The unit of analysis at the cultural level, then, involves a functional relation between cultural practices and their outcomes. These "metacontingencies" are to be distinguished from contingencies of reinforcement; the unit of analysis differs. A cultural practice is not an operant (class of responses of a particular individual) but a bundle of functionally related operants of different individuals (cf. Glenn, 1986). Some cultural practices produce outcomes that increase the likelihood that the practice will continue over time and others fail to produce outcomes that maintain the practice's continued existence over time. Practices that promote survival might include those that promote 1) effective action *vis a vis* the physical environment, 2) effective action *vis a vis* people engaging in other kinds of practices (other cultures), and 3) promotion of cohesion among individuals participating in cultural practices. Maximally effective cultural engineering would involve developing practices that led to all three of the outcomes simultaneously.

Just as a certain kind of genetic structure is the link between natural selection and behavioral selection, a certain kind of organismic activity — operant behavior — is the link between behavioral selection and cultural selection. The form of a cultural practice is defined by the pattern of interlocking operants comprising the practice.

Cultural Materialism and Operant Behavior

Because cultural analyses have to do with the ways in which the form and function of the behavior of individuals is consistent across members of a culture, anthropologists are interested in precisely that operant behavior which participates in more complex units involving several individuals. (See Harris, 1964, for a thorough and useful taxonomy.) The following exposition briefly reviews some key cultural materialist concepts from the perspective of one behavior analyst. The reader should not assume that cultural materialists would necessarily agree that cultural materialist concepts are adequately represented.

Behavior analysts (e.g. Skinner 1984) have used the term "cultural practices" as a generic term for consistencies in behavior across individuals behaving in different places at the same time or at different times. In the interlocking contingencies of reinforcement comprising a cultural practice, each individual participating in the practice provides critical components of the behaviorally potent environment for the other participants. The entire set of repeatedly replicated interlocking contingencies (the practice) is the cultural unit of analysis.

Practices evolve and survive, ultimately because the nonverbal behavior in the practices produces outcomes that enhance the likelihood of the continued existence of the practices. In cultural materialist theory, cultural practices on which all else hinges are the practices of production and reproduction — the cultural *infrastructure* (Harris, 1979). When interlocking contingencies, in which an extended group of individuals participate, fail to maintain outcomes

that keep the individuals alive and behaving with respect to one another, the culture ceases to exist. Of course, some of its member organisms may survive and enter into the interlocking contingencies of another culture, carrying elements of the earlier culture with them.[1]

The cultural materialist "principle of infrastructural determinism" states that cultural survival ultimately rests on the nonverbal behavior involved in production and reproduction practices (i.e. subsistence technology and sexual and birth control practices). The cultural *structure* is comprised of political and domestic practices that regulate relations among individuals in the system and that function to support infrastructural practices. Structural practices include those having to do with domestic division of labor, socialization and education, discipline and sanctions. They also include the practices involved in political socialization and education, police functions, war, division of labor, and political organization. Finally, the cultural *superstructure* is comprised of the practices of science, art, games, ideology, taboos and other verbal and nonverbal activities that emerge from and support both structure and infrastructure.

Although no behavior analyst is likely to disagree with the cultural materialist claim that the origin as well as the survival (or disappearance) of cultural practices depends ultimately on the nonverbal behavior of its members, cultural materialists and behavior analysts approach *verbal behavior* from different perspectives. In cultural materialist theory, verbal behavior is played down because it is apparently taken to be a function of (or intimately related to) cognitive processes, ideas, intentions, wills, hypotheses, etc. (Harris, 1979).

Apparently many anthropologists (called cultural *idealists* by Harris) take as their primary data what people *say* about what they do and why they do it. Furthermore, they take what people say about why they do what they do as equivalent to the actual causes of their behavior. Cultural idealists are not interested in whether verbal reports are veridical in terms of other observable events. What the native informants say is considered important because of its presumed relation to the (individual or collective) minds, wills, etc. of the people studied.

Cultural *materialists*, on the contrary, are certain that the explanation for the evolution of cultures is not to be found in the minds of people. Behavior analysts are in complete agreement with cultural materialists in this matter but would go further. Radical behaviorists do not accept the basic premise that verbal behavior is a function of cognitions, wills, ideas, etc. but insist that it is a function of the same kinds of environmental events of which nonverbal behavior is a function.

There are crucial differences, though, between the contingencies maintaining verbal behavior and those maintaining nonverbal behavior; and these differences may be important to the various roles verbal behavior may play in cultural evolution. One difference is that the origin and maintenance of verbal behavior in individuals (and cultures) requires mediation by other people who have undergone explicit training to function as listeners (Skinner, 1957). Reinforcing consequences of nonverbal operant behavior can (and usually do) involve a changed environment as a direct result of the operant behavior producing those consequences; reinforcing consequences of verbal behavior ultimately hinge on the action of listeners.[2]

Verbal behavior may prove to be a two-edged sword.[3] On the one hand, verbal behavior allows individuals (and therefore cultural groups) to respond to their environment in ways that would probably be impossible without a verbal community. For example, verbal behavior allows abstract dimensions of the environment to enter into highly specified stimulus control over uniquely differentiated behavior (verbal responses). On the other hand, powerful contingencies of reinforcement may maintain verbal behavior that precludes effective action, thus maintaining behavior that participates in practices of decreasing cultural value. The next sections of the paper briefly explore such a hypothesis.

Verbal Behavior in Cultural Practices

The role of verbal behavior in the evolution of cultural practices must itself have evolved as a function of contingencies supporting nonverbal behavior. Skinner (1986) provided a scenario in which verbal operants emerge and function to coordinate the behavior of two people fishing. Although the historical particulars must be speculative in such a construction, a similar sort of evolutionary process seems highly likely unless we are to hypothesize linguistic practices springing full blown (as from the head of Zeus) in a previously non-verbal community.

Two important points follow from such a perspective of cultural evolution. First, the origin of verbal communities (speakers and listeners) lies in the contingencies of natural selection and the contingencies of reinforcement responsible for nonverbal behavior. Second, verbal communities support survival only so long as they support nonverbal behavior that is conducive to survival of enough

[1] Since the culture is defined not in terms of specific individuals but in terms of the interlocking contingencies comprising the practices, a behavioral unit of some individual that enters into the interlocking contingencies of another culture has a conceptual status similar to a gene that two species have in common.

[2] The fact that speakers may eventually behave as their own audience on some occasions does not lessen the importance of a verbal community in the origin and maintenance of verbal behavior in individuals.

[3] The notion that verbal behavior can "cut both ways" was first introduced to me in 1972 when I found myself faced with the following test question: "Why might verbal behavior be considered a two-edged sword?" In answering Don Whaley's out-of-the-blue question I generated more questions for myself than I will ever answer.

individuals to maintain the contingencies of reinforcement that comprise cultural practices. The possibility appears to exist that behavior comprising structural and superstructural practices that supported infrastructures that originated under one set of metacontingencies might be maintained by reinforcement contingencies that become increasingly out of line with changing infrastructural metacontingencies, and thus with infrastructural requirements.

The proclivity of cultural idealists to seek explanations of culture in terms of the value statements, ideologies, religious myths and other such superstructural creations has resulted in the cultural materialist relegation of verbal behavior to a "mental" realm. The placing of verbal and nonverbal behavior in different worlds precludes clarification of the role of verbal behavior in infrastructural practices.

In order to integrate behavior analytic and cultural materialist theories, the role of verbal behavior in infrastructural, structural and superstructural practices will need clarification.

A cultural materialist example of different kinds of verbal behavior

Examples are given by Harris (1979, 1985) of various kinds of verbal behavior having to do with how farmers in a certain area of India behave toward their cattle. The farmers report "No calves are starved to death" and they claim to follow the rule "All calves have the right to life". Such statements are contrary to reports of the ethnographer, who concludes "Male calves are starved to death" based on the facts — the ratio of male to female calves in the area. The ethnographer deduces that farmers or family members engage in unreported behavior (and possibly unobserved by themselves) that results in more male calves dying than female calves. The ethnographer derives a rule statement (that appears to more accurately reflect the behavioral contingencies): "Let the male calves starve to death when feed is scarce".

The act of starving male calves is supported by an environment that does not have the resources to feed all the cattle born, and cows furnish a significant amount of the people's animal protein (milk) while (in some parts of India) only a few bulls are needed for reproduction and plowing (Harris, 1985). Harris's main concern in making these distinctions regarding verbal reports and rule statements is to address the anthropologists' dilemma regarding the source of their data. Harris concludes that the verbal behavior of the Indian farmers is peripheral to understanding bovicide among Indians. The farmer's verbal behavior is inconsistent with the nonverbal (bovicidal) practices of the infrastructure.

But are all verbal reports peripheral to understanding cultural practices? What about the ethnographer's report regarding Indian bovicide? And are all rule statements as inaccurate as those of the Indian farmers? What about the ethnographer's rule purporting to describe the contingencies controlling the Indians' behavior? Harris (1979, 1985) clearly allows for a role for verbal behavior in cultural practices but a behavior analytic clarification of the role of verbal behavior could be helpful.

From a behavior analytic perspective, the verbal behavior of both the Indian farmers and the ethnographer is under control of additional variables. Furthermore, the verbal behavior of neither, in the present example, is directly involved in the infrastructural practice of bovicide. These verbal responses of farmers and ethnographer are part of the *superstructural* practices of their respective cultures. In this part of India, bovicide is, on the contrary, part of the *infrastructure* — those practices having to do with production and reproduction and which must satisfy the contingencies imposed by the natural environment if the individuals maintaining the cultural practices are to survive and propagate in enough numbers to sustain the practice.

Even though the verbal behavior described above is not part of the infrastructure in India, it seems likely that a great deal of verbal behavior *is* part of India's infrastructure. Although the act of preventing male calves from eating is not a verbal act, verbal behavior seems very likely to participate functionally in the behavior stream resulting in starved male calves. For example, as gestation in the family cow proceeds, family members seem likely to say things like "I hope its female" or "It'll be a female this time because last time it was a male."

The importance of a statement like "I hope it's female" is not, of course, in its supposed relation to a cognitive or emotional condition of "hope." It may, however, be important as a part of the behavior that comprises the infrastructural stream. For example, as an environmental event, it may establish the reinforcing value of the presence of a female calf in the environment of those too young or inexperienced to have been affected directly by those benefits. As an establishing operation, it would also increase the probability of behavior that makes the presence of female calves more likely over time.

Further, in the feeding process, the younger members of the family may be differentially instructed when a newborn calf is male as opposed to female: "Keep Elmer away from Elsie today" and "Give little Elsie plenty of time to suckle." The importance of such instruction is that it can produce effective behavior quickly in the repertoires of those who have not yet come into contact with the contingencies giving rise to the instructing. Since infrastructural practices often involve the coordinated behavior of several people operating on the environment in ways that produce consequences affecting them all, verbal behavior is likely to be the part of the practice that coordinates the behavior of the group members and speeds up the

transmission of a practice to new members. The point important to behavior analysts is that verbal behavior participating in infrastructural practices can be accounted for by the same metacontingencies as account for the nonverbal behavior of the practice.

The Indian farmers' description of their own behavior must be accounted for, however, by contingencies of reinforcement other than those immediately involved in production and reproduction contingencies. Their "verbal report" is part of the superstructural ideology that has functioned to support the infrastructure in the past. Harris (1985) gives a detailed account of the superstructural practice of "cow worship" and the prohibition of eating beef as these practices emerged from infrastructural requirements. Specifically, the land could not support enough cattle to provide adequate amounts of beef to meet nutritional needs for animal protein. Those needs could be met, however, if each family maintained a cow that provided milk over extended periods of time. Out of these infrastructural requirements emerged the superstructural practice of cow worship with its associated prohibition against eating beef. As long as Indian farmers *in general and over time* survive better by engaging in these infrastructural practices, and *in general* the superstructural verbal behavior assists in maintaining the infrastructure, the culture's practices are conducive to survival of the farmers, the practices, and the culture itself.

However, as the above example suggests, certain requirements of the infrastructure may be inconsistent with the ideology of the superstructure. Even though the rules generated by the superstructure prohibit starving any cattle, the need for female calves to survive and produce milk promotes the behavior of selectively culling males. Because the behavior involved in production and reproduction ultimately determines the continued evolution of the culture, the infrastructural requirement of starving males under certain conditions is an imperative. It is not surprising that individuals learn to behave in ways that are conducive to the survival and well being of themselves and their families despite such behavior's being expressly prohibited.

If contingencies of reinforcement involving production and reproduction practices support bovicide, the contingencies of reinforcement generating what the farmers *say* about what they do support mis-describing their own behavior.

We are led, then, to consider the possibility that the verbal behavior of individuals can be shaped and maintained as part of a cultural practice that obfuscates the relation between individuals and their environment; and that cultural practices comprised of such verbal behavior may at times contribute to the survival of the culture. Environments change, however, and the environment of homo sapiens changes very rapidly as a result of cultural transmission of operant repertoires. Whatever the role of current cultural practices in supporting extant cultural infrastructures, the danger of mis-describing the relations between ourselves and our environment seems apparent. Given the rapidity with which infrastructural metacontingencies are changing as a result of the human race's production (and reproduction) practices, the danger of superstructural verbal practices that misdescribe relations between ourselves and our environment appears to be significant.

Scientific Description and Cultural Survival

Skinner (e.g. 1971) suggested that our own cultural survival is endangered by the ideology of "autonomous man" — whose behavior is typically explained in terms of cognition, will, and intention. The literatures of freedom and dignity are superstructural practices that supported reduced aversive control, political countercontrol, and the freeing of people from daily subservience to powerful individuals who controlled access to many primary reinforcers. Although those changes in practice can only be seen as progress, and while they probably contributed to viable infrastructural practices suitable to the environments of western Europe and North America, we are faced with rapidly changing infrastructural metacontingencies.

If the human race is to survive, methods must be devised for controlling population worldwide, conserving natural resources, reducing risk of nuclear holocaust, educating masses of people to participate effectively in increasingly complex environments, enhancing interpersonal relations, and providing opportunities for productive work. New practices are required. Accurate descriptions of behavioral and cultural contingencies appear critical. Just as critical is the incorporation of these accurate descriptions into our standard verbal practices. Both a science of behavior and a science of culture seem critical for developing accurate descriptions of the relations between humans and their environment.

Superstructural practices that involve inaccurate descriptions of the relations between humans and their environment forestall adaptive infrastructural change and thus threaten cultural survival. Inaccurate descriptions compete with accurate descriptions and may support practices that no longer meet infrastructural requirements. Especially in complex cultures, the superstructure may become isolated from infrastructure; and the negative feedback function (Harris, 1979) of superstructure may prove especially dangerous in rapidly changing environments. For all of these reasons, it seems important that behavior analysts and cultural materialists continue to explore the relations between the subject matters of their respective fields. Perhaps there is a chance that a behavioral synthesis could provide direction for practical action directed toward bettering the human condition.

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