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Some Applied Implications of a Contemporary Behavior-Analytic Account of Verbal Events

Steven C. Hayes and Kelly G. Wilson
University of Nevada

Behavior analysts have always intended to develop the principles adequate to the analysis of complex human behavior. Unlike some other wings of the animal learning tradition, behavior analysts were never interested in "the behavior of rats for its own sake" (Skinner, 1938, p. 441). Rather, the hope was that the analysis of relatively simple nonhuman behaviors in relatively simple environments would pay off as a research strategy (see S. Hayes & L. Hayes, 1992). Whether this strategy would actually work was an empirical matter, because we "can neither assert nor deny continuity or discontinuity" (Skinner, 1938, p. 442), but in fact it worked amazingly well. The extension of behavior-analytic principles derived from the study of nonhumans to human conduct has led to the development of interventions that have had a powerful impact on many areas of human concern.

Skinner (1938) at first worried that his approach might not be sufficient for the analysis of verbal behavior. By 1957 he was convinced that a straightforward operant analysis worked there as well. But now, over 35 years later, Skinner's analysis of verbal events has become increasingly threadbare. Holes have emerged, on both empirical and theoretical grounds. As a result, the analysis of verbal events from a behavior-analytic viewpoint is more open to alternatives. Skinner's analysis, after all, was never *the* behavior-analytic account—it was only *a* behavior-analytic account.

The need for an adequate behavior-analytic account of verbal events is perhaps felt the most among clinical radical behaviorists. This wing of the applied arena is distinguishable on the one hand from traditional applied behavior analysis by its strong interest in complex adult clinical problems that are often seen on an outpatient basis, such as personality disorders, chronic anxiety, and similar maladies. It is distinguishable on the other hand from traditional behavior therapy in its strong interest in clinical issues that transcend traditional syndromal classifications, such as the therapeutic relationship, the nature of emotion, existential angst, and similar topics, and a resultant interest in philosophy and theory (rather than pure technology). As one becomes interested in a theoretically sound approach to the problems of adults seen in the outpatient setting, one is confronted immediately with verbal behavior. Part of what distinguishes the outpatient from the inpatient setting is the decreased ability to manipulate environmental contingencies directly and the reliance on verbal reports for data collection and verbal exchanges as a form of intervention. Thus, the entire field of clinical radical behaviorism is dependent upon an adequate analysis of verbal events.

WEAKNESSES IN SKINNER'S ACCOUNT: AN EXAMPLE

Some behavior analysts resist the idea that Skinner's theory of verbal behavior is inadequate. Thus, it seems worthwhile to give a detailed example of the ongoing dismemberment of Skinner's theory of verbal events. Many examples could be given, but one of the clearest is provided by the conflict between Skinner's concept of the tact and the empirical work on stimulus equivalence.

The Tact

In the presence of a wire, a child says "wire." Why did the child do so? In any

Address correspondence concerning this article to Steven C. Hayes, Department of Psychology, University of Nevada, Reno, NV 89557-0062.

functional account, including Skinner's, we cannot say unless we know the contingencies controlling the verbal event. If the child says "wire" because of a history of generalized reinforcement for saying "wire" in the presence of such objects, the statement is a tact. Putting aside the notion of "generalized reinforcement," which has received minimal empirical attention, the account is a straightforward example of a discriminated operant.

The concept of a tact seems reasonable, and we can readily find examples in which children have been trained in much this way. But is this how children generally learn to name events?

Stimulus Equivalence

The phenomenon of stimulus equivalence is by now well known to the readers of this journal, and a detailed summary does not seem necessary. When a normal human learns a linked set of conditional discriminations in an arbitrary matching-to-sample procedure, say, given Sample A1 pick B1, not B2, and pick C1, not C2, given A1, all three of the "1" stimuli (A1, B1, and C1) become mutually related: Given B1, A1 will be selected (symmetry), given B1, C1 will be selected (equivalence), and so on. We can think of the basic phenomenon in terms of a triangle: Train any two sides in one direction and get all three sides in both directions. Four of the six relations will have been derived.

The relevance of stimulus equivalence to the tact can be seen if we use a practical example. Suppose we train the following: Given the written word d-o-g, say "dog," not "cat," and point to dogs, not cats. With these two trained relations (written word–oral name, written word–class of objects), four derived relations will likely emerge: being able to select the written word given either the oral name or the object, finding the object given the oral name, and saying the oral name given the object. If the child now says "dog" given actual dogs, is this a tact?

It clearly is not. A tact is a technical term, not just another word for the commonsense action of naming. Saying "dog" in the presence of dogs in this case (assuming no other experience with these names, words, or objects) is not based on a direct history of generalized reinforcement for saying "dog" in the presence of dogs; thus, it is not a tact.

Symmetry is clearly seen in 16-month-old infants (Lipkens, S. Hayes, & L. Hayes, in press), and full-blown equivalence emerges at least by the age of 2 years (Devany, S. Hayes, & Nelson, 1986; Lipkens et al., in press). The kinds of conditional discriminations that lead to equivalence are ubiquitous in the normal environment (especially the language environment) of children. Thus, it is quite reasonable to assume that many of the tact-like activities of children are not tacts, but instead are based on derived relations among events.

This is only one example of several empirical problems faced by Skinner's (1957) theory. The theory has many conceptual difficulties as well, including how it handles the role of the listener, the nature of reference, the nature of verbal stimuli, and other topics (S. Hayes & L. Hayes, 1989). Skinner's theory is over 35 years old, but it is based upon a set of behavioral findings and principles that are considerably older; most of the book relies on nothing that was not known by 1938. Given the long time frame, it is not surprising that the theory is encountering increasing difficulties. The question being faced by behavior analysts is how to integrate new empirical findings and new theory without throwing overboard the worthwhile aspects of Skinner's approach.

DEVELOPING A CONTEMPORARY ALTERNATIVE

Over the last several years, we have attempted to develop a contemporary behavior-analytic approach to verbal events that spans the range of phenomena from basic verbal relations to rule-governed behavior, and that is consistent with modern findings. The account (which we term "relational frame theory") starts

with stimulus equivalence as a jumping-off point (S. Hayes, 1991; S. Hayes & L. Hayes, 1989, 1992). Equivalence is viewed as a historically established, overarching class of operant responding that is only one example of a host of similar forms of relational learning. As a matter of definition, verbal behavior is argued to be based on such relational learning.

In this paper we will very briefly summarize this approach. We will then consider several applied issues that seem to be central to the concerns of clinical radical behaviorists, in an attempt to show that new approaches to old topics can emerge from this contemporary behavior-analytic account of verbal events. In a subsequent article in this series, we will address the psychotherapeutic implications of our approach.

Background Considerations

Suppose relating itself can be learned. Relational frame theory begins with the supposition that organisms can respond relationally to various stimulus events, and that performances such as stimulus equivalence can be analyzed as generalized instances of such responding. This idea is not odd, because we know that nonarbitrary stimulus relations can be learned. For instance, mammals, birds, and even insects can readily be trained to select such stimuli as "the dimmest" of several options (see Reese, 1968, for a review of studies of this kind). With sufficient history, animals will even avoid previously reinforced options if, in context with the other comparisons, it is no longer "the dimmest."

It does not seem to be a big step to suppose that at least some organisms can learn to respond relationally to events for which relations are not defined solely by the related events but by other contextual features. For instance, one might be taught, using nonarbitrary examples, the relational response "greater than." This might be done with many sets of comparisons: "Which plate has the greater number cookies?," "Which glass has the greater amount of juice?," and so on. Eventually the cue "greater than" (or some other similar cue) might become a discriminative stimulus (S^D) for the relational response "greater than" even when the related events are arbitrary. Suppose a person has been trained to select some unfamiliar visual Stimulus B rather than some other unfamiliar Stimulus A in the presence of the cue "greater than." Then, in the presence of this same cue, suppose selecting a third unfamiliar Stimulus C rather than B is trained. We might then expect an organism with the ability to acquire arbitrarily applicable relational responding to now select C over A in the context of "greater than," with no history of differential reinforcement for making that specific selection. If "less than" relations had also been learned, the persons might select A over C given "less than" cues. What is crucial is that it is not the formal properties of A, B, or C that led to the performance, but rather a history of reinforcement for the application of a particular relational response. Such performances have already been demonstrated in children (e.g., Steele & S. Hayes, 1991).

The idea of overarching behavioral classes that contain virtually unlimited numbers of members is not unknown to behavior analysts. Generalized imitation might be a good example. Having trained a generalized imitative repertoire, a virtually unlimited variety of response topographies can be substituted for the topographies used in the initial training (e.g., Baer, Peterson, & Sherman, 1967; Gewirtz & Stengle, 1968).

What is *relating* in a psychological sense? To relate psychologically is to respond to one event in terms of another. More precisely, in its broadest sense a relation exists if the stimulus functions of one event depend upon the stimulus functions of another event. Stimulus relations, so defined, can be directly trained or derived, based on formal properties or arbitrary ones.

The relational frame theory provides a technical language to describe the psychological properties of the type of relational responding that is involved in verbal behavior: what we term "arbitrarily applicable relational responding."

Such relational responding is said to involve the following properties:

Mutual entailment. In a given context, if A is directly related to B, then, in that context, a derived relation between B and A is mutually entailed. More technically, if by direct training the stimulus functions of B depend upon A, then by derivation those of A depend upon B. The specific derived relation depends upon that which was trained. For example, if B is equivalent to A, then A is equivalent to B; this is termed "symmetry" in the equivalence literature. Symmetry is an inadequate general term because not all forms of mutual entailment are symmetrical. If B is larger than A, then A is smaller than B.

Combinatorial entailment. In a given context, if A is directly related to B and B is directly related to C, then, in that context, a derived relation between A and C is mutually entailed. In the case of mutual entailment, the degree of specificity is the same between the trained and derived relation, but this is not so in combinatorial entailment. If A is different than B and B is different than C, we can say little about the relation between A and C, but we can say definitely that we cannot say. Combinatorial entailment is a more generally applicable term than the parallel concepts in the equivalence literature ("transitivity" or "equivalence") that are not applicable to many derived relations.

Transformation of stimulus function. In a given context, if there is a mutual relation between A and B and A has some additional psychological function, then, in a context that selects that function as relevant, the stimulus functions of B may be transformed consistent with its mutual relation to A. The specific stimulus functions that are transformed must be under contextual control, for a simple reason. Consider the example of an equivalence relation. If all the stimulus functions of A were transferred to B, A and B would no longer be distinct stimuli in a psychological sense.

The transformation of stimulus functions has been studied primarily with equivalence relations. Transfer has been shown with conditioned reinforcing functions (S. Hayes, Brownstein, Devany, Kohlenberg, & Shelby, 1987; S. Hayes, Kohlenberg, & L. Hayes, 1991), discriminative functions (S. Hayes et al., 1987), elicited conditioned emotional responses (Augustson, Dougher, & Markham, 1993), and extinction functions (Augustson et al., 1993), among others.

Relational Frames Defined

The term *relational frame* (S. Hayes, 1991; S. Hayes & L. Hayes, 1989, 1992) is used to specify a particular pattern of contextually controlled, arbitrarily applicable relational responding involving mutual entailment, combinatorial entailment, and the transformation of stimulus functions that is based on a general history of relational learning rather than on a history of direct nonrelational training with respect to the stimuli involved or solely on the formal properties of the related events. By defining relational frames this way, relational frame theory is a recognizably operant theory: relational frames are a type of generalized operant. (Some types of relational responding may be unlearned, but it seems very likely that most of it is learned, much as generalized imitation is an operant but is based on some degree of unlearned imitation.) The general behavior is termed *arbitrarily applicable relational responding,* whereas the specific pattern is a relational frame (see S. Hayes, 1991, for a description of several such frames, including coordination, comparison, opposition, and distinction).

Although the term *relational frame* is a noun, it always refers to the situated act of an organism rather than a structure. Except as a behavior–behavior relation, the organism does not respond to a relational frame; instead, it responds to historically established contextual cues, and the response is to frame events relationally. Although "framing relationally" may be preferred from a technical perspective (see S. Hayes & L. Hayes, 1992, and Malott, 1991, for further discussion), we will use the less cumbersome noun form.

Evidence for Relational Frame Theory

The empirical data on relational frame theory are growing but are admittedly still limited. Several pieces of evidence support the theory's basic outlines. For example, we now know that equivalence, exclusion, and other forms of relational responding emerge developmentally in human infants (Lipkens et al., in press). This finding is important, because if relational responding is learned operant behavior, it should not occur without a history. We also know that being able to relate events consistently seems to function as a conditioned reinforcer for relational responding (Leonhard & S. Hayes, 1991). This finding, too, is important, because it makes more plausible the view that relating is an operant class. Schusterman and Gisiner's (1992) apparent success in obtaining equivalence in sea lions fits the present analysis, because these derived performances seemingly resulted after symmetry was trained as an operant class.

The strongest evidence for relational frame theory, however, comes from studies that show that a wide variety of relations other than coordination can operate in matching-to-sample situations (we use the term *coordination* to encompass a family of relations from "same" to "similar"). In the usual study of this kind, subjects are pretrained in particular contexts to select comparisons that differ in a consistent, formal way from a sample. For example, in the studies of Steele and S. Hayes (1991), subjects were trained in the presence of three different contextual cues to select a comparison that was either different from, the same as, or the opposite of the sample stimulus. For example, given the cue "O" and a short line, picking a long line was reinforced; given the same cue and a few dots, selecting many dots was reinforced. Conversely, given the cue "S" and a short line, picking a short line was reinforced; given the same cue and a few dots, selecting a few dots was reinforced. Over time, "O" came to control opposite relations, "S" same relations, and so on, as was shown by the perfect performances on new, nonarbitrarily related sets of stimuli. The pretrained contextual cues were then used in an arbitrary matching-to-sample procedure. As a result, equivalence emerged in the presence of the "S" cue, but other forms of derived relational responding emerged in the presence of the "O" cue. For example, if in the presence of the "O" cue, subjects were trained to pick B3 and C3 given A1 and D1 given C3, subjects now picked B3 given D1 in the presence of an "O" cue but avoided B3 given C3 and an "O" cue, selecting B3 only when an "S" cue was present. From the point of view of conditional equivalence classes this result makes no sense, but it does make sense of the cue controlled relational responding. An opposite of an opposite of an opposite is opposite (D1, B3), but an opposite of an opposite is the same (B3, C3). Several studies in different laboratories have used similar methods with the same basic outcome (e.g., Barnes & Keenan, 1993; Lipkens & S. Hayes, 1993). It now seems clear that equivalence or nonequivalence can emerge from arbitrary matching to sample when cues are pretrained to control nonarbitrary relational responding.

RELATIONAL FRAME THEORY AS AN APPROACH TO VERBAL EVENTS

We argue that arbitrarily applicable relational responding is the definitional core of verbal events: Verbal behavior is framing relationally. Both speakers and listeners frame events relationally: When a speaker does so, he or she is speaking with meaning, and when a listener does so, he or she is listening with understanding (S. Hayes & L. Hayes, 1989). Verbal behavior can thus be defined simply as speaking with meaning and listening with understanding. Neither meaning nor understanding is a mental event, and the ground of verbal communication between the two is not an idea in the mind; rather, the ground of verbal communication is a set of conventional, contextually controlled relational frames and a set of conventional stimulus relations established through these frames.

This simple idea provides an alternative, behavior-analytic approach to verbal events that is theoretically consistent, is built on existing principles, is in contact with some of the latest empirical evidence, and is fully subject to experimental analysis directed toward prediction and control. It suggests new forms of behavioral regulation (S. Hayes & L. Hayes, 1992) and integrates the processes that influence the speaker and listener. It also reflects on Skinner's core conceptions.

Skinner and Verbal Events

Skinner attempted to define verbal behavior functionally: "In defining verbal behavior as behavior reinforced through the mediation of other persons we do not, and cannot, specify any one form, mode or medium" (1957, p. 14). Because this unrefined definition was imprecise and encompassed a wide variety of social behaviors (e.g., sexual behavior, social aggression), he refined the definition: "The listener must be responding in ways which have been conditioned precisely to reinforce the behavior of the speaker" (1957, p. 225). Unfortunately this definition, too, has unwanted scope. For example, if a rat pushes a bar and gets food pellets according to a variable-ratio (VR) 10 schedule, this bar pressing is verbal behavior by Skinner's definition: The reinforcement of bar pressing is socially mediated, and experimenters are trained to deliver the food on schedule precisely so as to reinforce the bar pressing of the rat. Skinner recognized this, and suggested that the experimental animal and the experimenter form a "small but genuine verbal community" (1957, p. 108). If even such a simple operant behavior is "verbal," however, we have a definition that is functionally distinct only at the level of the formal modes of reinforcement delivery.

We can partially integrate relational frame theory and the Skinnerian approach, however, through a simple step (Chase & Danforth, 1991; S. Hayes, 1991). Skinner never really specified the training that a listener actually needed in order to reinforce most speakers' verbal behavior. In the normal verbal community, what seems to be needed is training sufficient to form a reasonable set of conventional, contextually controlled relational frames and a set of conventional stimulus relations formed through these frames. In lay language, both the speaker and the listener need a set of symbols and methods of combining them.

Skinner's focus on trained social mediation reemerges from a focus on arbitrarily applicable relational responding. Framing relationally necessarily involves trained social mediation, precisely because it is arbitrarily applicable. Only the social verbal community can arrange reinforcement for such activities, because, at least initially, the activities are not based on the formal properties of the related events and the natural contingencies they engage; that is, they are inherently conventional. Only a trained audience, themselves verbally competent, could or would teach such conventional and arbitrary relations.

Is the Listener's Behavior Verbal?

Unlike Skinner's (1957) approach, in which the behavior of the listener qua listener is not verbal in any important sense, relational frame theory puts the listener and speaker on the same playing field. Verbal stimuli are functionally defined: A verbal stimulus is a stimulus that has its functions in part because it participates in relational frames. The behavior of the listener is verbal if it is in response in part to stimulus functions that are derived through the transformation of stimulus functions rather than directly trained. For example, suppose we teach a rat to press a lever upon seeing the words "red light" by reinforcing lever presses with food. "Red light" is an S^D, and the lever press is a discriminated operant. By contrast, imagine that a person presses a lever upon seeing "red light," but that the history was the following: training lever pressing in the presence of a red light and then relating (in a frame of coordination) "red light" to "luz roja" and "luz roja" to actual red lights (see S. Hayes et al., 1987; Kohlenberg, S. Hayes, & L.

Hayes, 1991; Wulfert & S. Hayes, 1988 for examples of empirical demonstrations of this kind). While watching the two lever presses, we might see little difference in their formal properties, but "meanings are to be found among the independent variables in a functional account, rather than as properties of the dependent variable" (Skinner, 1957, p. 14). In our approach, the behavior of the rat is not verbal because it is directly trained; the behavior of the person is verbal because it involves relational frames.

Functional Categories of Rule Following

In our approach, rules are simply verbal antecedents (i.e., antecedents that have their functions because they participate in relational frames). It is one thing to explain why a rule is understood; it is another to explain why it is followed. We have distinguished three kinds of contingencies that produce rule following (S. Hayes, Zettle, & Rosenfarb, 1989).

Pliance. Pliance is behavior due to a history of socially mediated consequences for a formal correspondence between antecedent verbal stimuli and relevant behavior. Suppose a parent says "Eat a good breakfast and you will have more energy during the day." If the child now eats because of a history of socially mediated consequences for rule following per se (e.g., the parents will punish poor eating), the behavior is pliance.

Tracking. Tracking, by contrast, is rule following due to a history of a formal correspondence between antecedent verbal stimuli and the contingencies contacted by the form, frequency, or situational sensitivity of the relevant behavior. To continue the same example, if the child now eats to have more energy, the behavior is tracking. Both the tracks and the plys describe contingencies. In the case of pliance, the contingencies are contacted because the correspondence between the rule and behavior alters the behavior of the verbal community; in the case of tracking, they are contacted because of the form, frequency, or situational sensitivity of the relevant behavior. For example, if the rule is correct and the child randomly ate a good breakfast and had more energy, the behavior might have been maintained. In that sense, plys change contingencies, whereas tracks simply point to them.

Augmenting. Augmenting is behavior due to antecedent verbal stimuli that alter the degree to which events function as consequences. Motivative augmenting is behavior due to antecedent verbal stimuli that temporarily alter the degree to which previously established consequences function as reinforcers or punishers, whereas formative augmenting is behavior due to antecedent verbal stimuli that establish given consequences as reinforcers or punishers.

A simple example of a motivative augmental is "Wouldn't an ice-cold Pepsi® go good right now?" If this statement produces Pepsi® buying, it is probably through its function as a verbal establishing stimulus. The probability of actually getting a Pepsi® is not changed by the statement. The motivational effect may work similarly to reinforcer sampling—the words "ice cold" and "Pepsi" come to have sensory functions via a transformation of stimulus functions (see S. Hayes & L. Hayes, 1989, for discussion of this hypothesized process).

An example of a formative augmental might be "these slips are worth chances on money prizes." If the slips now function for the first time as a reinforcer, the statement is a formative augmental. Even before the value of the slips is ever actually contacted, tracks and plys that include "slips" can function much as they do with established reinforcers. Given the earlier formative augmental, "push the buttons to earn slips" is the functional equivalent of "push the buttons to earn money," and money is an existing reinforcer. Thus, formative augmentals can contribute to behavioral regulation even if the "new consequences" are never actually contacted.

Our own laboratory has produced preliminary evidence to support our concept of motivative augmentals (S. Hayes & Ju, 1993), and formative augmentals have been demonstrated repeatedly (S. Hayes

et al., 1987, 1991). Several studies carried out both within the behavior-analytic community and outside it provide evidence for the pliance/tracking distinction (see S. Hayes et al., 1989, for a review).

Verbal Events as Psychologically Distinct Events

According to relational frame theory, verbal regulation is based upon operant principles, but the resulting transformation of stimulus functions instantiates a new behavioral principle because unlearned functions are now based on a specific learned process (S. Hayes & L. Hayes, 1992). For example, although discriminative control as a process need not be learned, the transformation of discriminative functions through equivalence classes is dependent upon relating as a learned process. The resultant stimulus function is not discriminative in the normal sense, but is only discriminative-like.

In our approach, the word *verbal* is thus a technical term. For example, verbal discriminative stimuli, verbal reinforcers, or verbal conditioned stimuli are stimuli that have these behavioral functions as a result of an arbitrarily applicable relational response. This nomenclature is suggested because it seems to be consistent with the basic principles used in behavior analysis. Behavior-analytic principles describe not only the sort of behavior we should see with respect to some stimuli but also the history (if any) that established that functional relationship. So it is with our suggested vocabulary.

We will approach the applied implications of a contemporary behavior-analytic view of verbal relations in three ways. First, we will examine the general differences between verbal regulation and direct contingency control. Second, we will apply these to two applied issues drawn from methodological and process domains: generalization across situations and functional analysis. Finally, we will examine three specific content issues of general clinical relevance that seem to be central to many forms of adult psychopathology and its treatment: purpose, self-knowledge, and emotion. In each of these areas, we will outline why our analysis of verbal events changes how verbal events are viewed behaviorally.

APPLIED IMPLICATIONS: GENERAL PRINCIPLES

There are several general implications of a relational view of verbal behavior in the analysis of behavior (see S. Hayes & L. Hayes, 1989, for a review), but we will focus on a few of particular applied importance.

Indirectness

Our analysis of verbal events suggests that verbal regulation can be orders of magnitude more indirect than direct operant and classical conditioning. The problems of adult outpatients, we argue, are difficult to understand and treat in part because they are often based on verbal regulatory processes; thus, the historical factors involved in adult psychopathology are often only very indirectly related to the problem behaviors observed.

By indirectness, we mean the degree to which behavioral interactions can be regulated by historical features that are remote in terms of formal similarity, contiguity, or contingency. The contextual cues that control relational responding can be extremely subtle, idiosyncratic, or metaphorical. They need not be tied to the formal properties of the related events, or such properties may themselves become contextual cues that control relational responses.

Consider our earlier example of a person trained to press a bar in the presence of a red light, and later responding similarly to "red light." The term *red light* could be related to many other events verbally, from prostitution to Big Red's son. It is conceivable that responses established by the experimental history may appear in some way as one, say, drives past an adult bookstore, simply because the stimuli involved participate in a particular verbal network (e.g., red light, prostitution, adult bookstore). This kind

of indirectness makes the analysis of verbally regulated applied problems difficult.

Arbitrariness

Because verbal relations are arbitrarily applicable, extremely idiosyncratic variables may be involved in given instances of verbal regulation. Whether "red" in a given moment for a given person has to do with a color, person, political persuasion, or any of a myriad other possibilities is entirely a matter of the details of the person's specific verbal history. This is also true in direct contingency control, but to a much lesser extent. Nonverbal events tend to have behavioral functions that are coordinated with their formal properties. For example, whatever behavioral functions are assigned to it by the (verbal) experimenter, a keylight also illuminates an operant chamber.

Arbitrariness suggests that the analysis of adult clinical problems must be individually based. The patterns seen in one instance of psychopathology may differ greatly from those seen in another for entirely idiosyncratic reasons.

Specificity

The sets of verbal relations that are together involved in a verbal formula (e.g., a sentence, paragraph, or chapter) can enormously narrow or expand the range of possible behaviors that might be reinforced in a given situation or the range of stimulus events that might be relevant to the contingencies involved. Imagine a rule that specifies that in a complex stimulus circumstance, a complex response topography will lead, after a specified delay, to a particular kind of consequence delivered under specific circumstances. An example we have used before is, "In 2 weeks I will leave for a month-long vacation. If you will mow my lawn about 2 weeks after I leave, I will send you a check for $25 the next pay period after I return." The performances involved are extremely precise: The stimulus situation is complex and specific, the response involved is complex, and the consequences may have behavioral regulatory capabilities; that is, after the $25 check appears in the mail, the listener will be more likely to do other favors for the vacationer for pay in the future. Only the most extensive and extraordinary history could give rise to similar effects via nonverbal processes, and even then they may not overcome the barriers of temporal delay.

Specificity suggests that the precise verbal formulations involved in adult clinical problems can have major impacts on clinical outcomes. One of us (S.C.H.) once had an obsessive-compulsive client who avoided a carpeted area in her bedroom for several years because (a) a mild insecticide had been used on a tree in the front yard; (b) she saw a bug in her garage and thought it might have been on the tree; (c) paint cans were stored in that corner of the garage; (d) when workmen painted her bedroom, they set the paint cans in a cardboard box on the carpet; and (e) she concluded that the carpet was contaminated with insecticide. It would not be possible to explain the avoidance of the carpeted area without knowledge of the specific verbal formulation that established its aversive properties.

APPLIED IMPLICATIONS: EXAMPLES FROM PROCESS AND METHODOLOGICAL DOMAINS

These general differences (indirectness, arbitrariness, and specificity) fundamentally affect how we go about analyzing adult clinical problems. We will initially consider two areas drawn from process and methodological domains: generalization across situations and functional analysis.

Generalization Across Situations

The applied worker is interested in generalization across situations for two reasons: to program it in intervention programs, and to use it to understand how historical facts have led to the target behavior and its situational sensitivity. The primary principle used in such analyses is usually stimulus generalization: the tendency for stimuli that share formal properties with stimuli that have directly

established response functions to share those response functions. Stimulus generalization is a behavioral principle that can explain the phenomenon of generalization across situations, but it is not synonymous with that phenomenon. The behavioral principle is applicable only if the formal properties involved can be specified (e.g., wavelengths of light, frequency of sound).

Verbal regulatory processes provide another source of generalization across situations. Stimuli that are verbally related to stimuli that have existing response functions share those response functions, transformed in terms of the underlying relation. For example, suppose an agoraphobic has had a panic attack while in a traffic jam on a bridge. Escape appeared to be difficult or impossible. Such a traumatic episode may lead the person to feel panicky not only on bridges but also in a marital relationship or on the phone—other places in which escape appears to be difficult or impossible. Conversely, the person may feel more relaxed if he or she carries tranquilizers (even if they are never used) or stays close to an exit because "I can get out."

In other words, the original aversive event may spread through situations on the basis not just of formal similarity but also of verbal relations. A bridge, phone, or relationship share no physical properties that would explain the generalization across situations via stimulus generalization. "Difficulty escaping" is not such a dimension in this example because the "difficulty" involved in a divorce proceeding is only verbally (not physically) similar to the "difficulty" involved in leaving a car and running along a bridge sidewalk. Similarly, the ability to "get out" via drugs or running is similar only metaphorically. Note also that the acquisition of "safe zones" is an example of a transformation (not merely a transfer) of stimulus functions because "I can get out" is opposite to "escape is difficult or impossible."

To understand generalization across situations in the clinical situation, we need to deal with the verbal relations that are brought to bear by the client on the historical facts. Conversely, to program generalization we need to increase the relevance of other selected facts. For example, a clinician may point out how a difficult relationship in the client's life resembles the therapy situation, and that progress made in the therapy room is relevant to that relationship. Behavior analysts have done little explicit work of this kind, but the need for such work is clear.

Functional Analysis

Functional analysis has had a wide variety of meanings within behavior analysis and therapy (Haynes & O'Brien, 1990), but classical functional analysis always involves (among several other steps) the organization of assessment information into a preliminary analysis of the client's difficulties in terms of behavioral principles so as to identify important causal relationships that might be changed (S. Hayes & Follette, 1992). Because principles of direct contingency control dominate, it is common to note carefully the antecedent and consequent conditions that bear on a target behavior. The present analysis suggests the additional need to examine the verbal categories and functions that are relevant to the situation, the contextual factors controlling these, and the contingencies that support rule generation and following.

Many schools of psychology have struggled with these topics (e.g., cognitive therapists' efforts to measure the client's self-verbalization), and the task is not easy. There is an inherent tendency toward structuralistic analysis when the literal content of verbal events becomes primary. The behavior analyst, however, is not interested in a static structure. Verbal relations are contextually sensitive and functionally defined. It seems unlikely that behavior analysts who are interested in verbal functions will simply add self-report questionnaires about self-verbalizations to classic functional analyses. A wide variety of more behaviorally sensible alternatives have been proposed for the ongoing assessment of verbal processes, including the "silent dog" method

of verbal assessment through talking aloud (S. Hayes, 1986).

APPLIED IMPLICATIONS: EXAMPLES FROM CONTENT DOMAINS

In this section, we will examine three content issues that bear on applied work with adults. In each area, we will examine the implications of verbal behavior as we have defined it.

Purposes, Values, and Goals

The issue of goals and values permeates adult outpatient psychotherapy. Clients often are struggling with emptiness, meaninglessness, or a lack of purpose; they may be afraid of death and what it implies for the impermanence and long-term uselessness of human existence; they may be looking for a higher value than hedonism or may simply want to get through each day; they may be weighing suicide as a reasonable alternative to hopelessness.

Even if a clinical target is more specific, work on that problem occurs within a context of the client's and therapist's purposes, values, and goals. For example, specific deficits in social skills may be worked on because the client wants to have more successful interpersonal relations, to have children and leave something behind, to do a better job of improving the world by contributions made at work, and so on. These general values and goals make more coherent the specific changes that clients and therapists work toward. Values provide the verbal context in which events function as reinforcers and punishers.

Global, "existential" problems are often not discussed by behavior therapists, who usually want to reduce such issues to clinical syndromes and techniques to cure them, or by applied behavior analysts, who immediately begin to look for specific target behaviors. Clinical radical behaviorists initially take these issues on their own terms—as issues of purpose and meaning—and attempt to apply a contemporary set of behavioral principles to their understanding. The process of verbal regulation described earlier changes how these issues are approached. Traditional behavioral interpretations often must be set aside, in whole or in part, when the verbal component of such issues is appreciated.

Verbal and nonverbal purpose. Skinner, refuting charges that behaviorism cannot deal with concepts such as purpose or intentionality, suggested that "operant behavior is the very field of purpose and intention" (1974, p. 55). What Skinner meant by "purpose" in this statement was not verbal purpose (in the sense of "verbal" used here), but reinforcement.

A comparison with a nonverbal organism may be helpful. A nonverbal organism is able to respond effectively to what it has experienced directly and to generalizations based on the form of these experienced events. First a tone was sounded, then a lever was pressed, then food was eaten. Later, a tone was sounded, then a lever was pressed, then food was eaten. A rat exposed to this set of events has experienced an orderly process of change from one act to another. The "hear tone/press lever/eat food" relation is a temporal relation that has been directly experienced by the rat. As this history accrues, the formal similarities organize these events into a process of change among classes of events. When the rat now hears the tone, it is a tone that reliably predicts that a lever press will be followed by food being eaten.

One can say that the rat presses a lever "in order to get" a food pellet, as if the reinforcer to be delivered sometime in the future is the purpose, but this is not meant literally. It would be contrary to a naturalistic psychological account to suggest that the stimulus event that controls the lever press is literally in the future. For a nonverbal organism, the future we are speaking of is the past as the future in the present (S. Hayes, 1992). That is, the animal is responding to present events that have in the past preceded change to other events. It is not the literal future to which the organism responds, it is the past as the future in the present. This is

the sense in which reinforcement provides a kind of "purpose."

Purpose is not the same in the context of arbitrarily applicable relational responding. Temporal relations are part of a class of relations, such as cause and effect, if. . . then, or before. . . after. These relations satisfy the criteria for arbitrarily applicable relational responding. If we are told that "right after A comes B," we derive that "right before B comes A." Similarly, if we are taught directly that "right after A comes B" and "right after B comes C," we can derive that "shortly after A comes C" or that "shortly before C comes A." If B has functions (e.g., if B is an intense shock), other stimuli may have functions based on their derived relations with B. For example, A may now elicit great arousal, whereas C may lead to calm.

Given the ability to frame events relationally, one would be capable of responding to if. . . then relations that have never been experienced directly. The verbal relation of time is thus arbitrarily applicable: It is brought to bear by contextual cues, not simply by the form of the related events. For example, a person can be told "after life comes heaven," or "after smoking comes cancer," or "after investing comes wealth." These change relations need not be directly experienced for the human to respond with regard to such relations. The relatedness of life and heaven, for example, is constructed; it is an instantiation of a particular relational frame involving a temporal sequence. For verbal organisms, purpose involves the past as the constructed future in the present, where by "construction" we mean the verbal activity of relating—a historically and contextually situated act. The "future" that verbal organisms "work towards" may thus encompass events with which the individual has no direct history at all, but has only a verbal history. We will consider a few examples.

Meaninglessness. When a person comes into therapy in an existential crisis, he or she will often say things like

> Life is meaningless because everything that we accomplish in life will be washed away. I will die, you will die, the sun will die, the stars will all die, and the universe will collapse into an infinitely dense bit of matter the size of a pea. It is all a waste. What does it all mean? Why should I do anything?

This individual has constructed a temporal relation in which death and destruction are the ultimate outcome of everything. Indeed, the facts are hard to argue with in a literal sense, because we all participate in the same verbal system that has ensnared the client. Most of us would agree that physical systems do indeed decline with time, and that the universe itself will either implode or expand infinitely and die out.

The psychological process leading to the client's angst seems straightforward from a verbal point of view. Consider the issue of personal death. We are told even as young children that we will die. We are taught what "death" means, and the verbal concept of "death" acquires many functions over time (e.g., when mother cries about grandfather's death, it may frighten the child, such that "death" has fear-generating functions). We are also taught to describe ourselves verbally, and early in language training we learn to speak of ourselves as a verbal object. To construct the core of the client's argument, we need only add to these processes ("death" and "I" as equivalence classes) a proper application of a before . . . after relation ("After some time, I will die") such that the ultimate consequence of current activity is death and destruction.

For some people, this construction of destruction as an ultimate consequence can be almost incapacitating. Why? Surely death itself cannot be a direct, functional consequence. It is not possible to experience death directly and then behave, so death per se cannot be a normal reinforcer or punisher. It might be argued that we contact death in others and that these experiences generalize to ourselves in a normal manner, but (a) it is not clear what formal properties are shared by death and life such that we can generalize from the experience of someone else's death to our own via stimulus generalization, and (b) many people struggle with

existential dilemmas without first directly experiencing the death of a loved one or anyone else.

Our hypothetical client is not dealing with actual death, but death verbally constructed. "Death" enters into formative and then motivative augmentals, such that it becomes a verbal consequence of importance that in turn alters the effectiveness of other consequences. The impact of such rules depends upon the degree to which they conflict with other functional rules. If for example, a person has constructed meaningful existence around the possibility of making permanent contributions to the progress of the world, then the construction of ultimate death and destruction can disrupt ongoing behavior guided by these "permanent contribution" rules. The same process that allows us to know about "permanent contributions" also leads us to learn that the universe will ultimately decay. This is the core of the "human dilemma"—the capacity for verbal meaning and meaninglessness are always two sides of the same coin.

Suicide. Once personal death is a verbal consequence of importance, rules can be followed that give rise to actual death. It is interesting that there are no unequivocal examples of suicide in nonverbal organisms, whereas approximately 12.6 per 100,000 persons in the United States commit suicide every year (Shneidman, 1985). Recently, a 6-year-old child with a terminally ill mother jumped in front of a train "to be with the Angels and Mommy." Even a 6-year-old could construct a future in which personal death could lead to verbally desirable consequences.

To account for such behavior, we require only that an if . . . then verbal relation is applied to verbal consequences with desirable functions. "Death" can be in an if . . . then verbal relation with "peace," "relief from pain," or "be with Mommy." These verbal events in turn have acquired their positive functions more directly. "Pain" and "relief from pain" may acquire functions both directly and through the transformation of stimulus functions tied to direct events. Once such verbal events have functions, these functions are available to other verbal events that are related to them. In this manner, "death" can acquire positive or negative functions.

When rules are constructed that are linked to purely verbal consequences, they can function as a track, just like tracks that are based on actually contacted events. "If I jump in front of this train I will die and be with Mommy in heaven" is the same kind of rule as "if I put a quarter in the machine I will get a Pepsi." The fact that the verbal consequence has not been contacted is not important. Its functions are as part of a verbal antecedent.

Suicide as a purposeful act, by this analysis, is always an instance of rule-governed behavior (S. Hayes, 1992), because personal death can only be a verbal purpose (never a nonverbal reinforcer or punisher). Such purely verbal purposes are effective through their inclusion in rules.

The successful creation of meaning. The other side of suicide and meaninglessness is the acquisition of meaning. Psychotherapy methods designed to help people find meaning are dominated by the work of the existentialists, humanists, Gestalt therapists, and others. These approaches are not behavioral, but the present analysis provides a behavioral way to understand their basic goals. Behavioral approaches to help people find meaning could certainly be generated. Our own therapeutic work—acceptance and commitment therapy—is centrally involved with the construction of meaning and purpose (S. Hayes, 1987). How can this be done successfully?

The barrier to the successful creation of meaning in life is this: Verbal relations permit the construction of purposes, values, or goals that have temporal extension and thus give guidance and direction—meaning—to life. But these same verbal abilities confront the human unavoidably with ultimate death and destruction. This conundrum cannot be solved entirely within the realm of verbal

events. It does, however, seem solvable if we allow nonverbal activities to mix with verbal activities in strategic ways. Let us begin by distinguishing a choice and a decision. We will define choice as the verbally undefended selection among alternatives. A pigeon faces two keys and pecks one. A choice has been made. The pigeon presents no verbal defense of this action and indeed does not know how to do so. We will define a decision as the verbally defended selection among alternatives. It is a selection linked to a verbal analysis of its essential correctness: "I did this because . . . ."

Verbal abilities do not eliminate nonverbal behavior. People learn to make decisions, but they do not lose the ability to make choices. The healthy selection of ultimate purposes can be done only as a choice. If done as a decision, the logical network leads inexorably back to the reality of death and the collapse of the universe. If I decide to work toward being a loving person and justify this goal because it will help others, I have to explain why helping others is important, given that all of these people will die soon enough anyway and that the world itself will die in the long term. Whatever verbal justification I give can in turn be challenged in the same way.

Conversely, if I choose to work toward being a loving person and refuse to justify that choice verbally, I can have my cake and eat it—I can have the great advantages of verbal purpose (providing a direction and meaning) without its logical downside. This state of affairs suggests a therapeutic method: I can help people learn to choose values and goals, rather than to decide about them. That is exactly what the existential and humanistic therapies try to do, but the effort is tightly wrapped in mentalistic language. Perhaps behaviorists could do even better if they were clear about the behavioral processes involved.

The Effects of Self-Knowledge

Most nonbehavioral schools of psychotherapy emphasize the importance of self-knowledge. For example, humanists work to help clients "know their feelings," and psychodynamic therapists work to help clients "achieve insight." Weak or inadequate self-knowledge is considered by many therapeutic schools to be associated with psychopathology of various kinds.

Insight-oriented therapy was rejected soundly by the early mechanistic wing of behavior therapy (e.g., Wolpe & Rachman, 1960). Leading radical behaviorists of the day (e.g., Skinner, Ferster) never embraced this rejection with vigor, because a behavior-analytic view also emphasized the importance of self-knowledge. Indeed, Skinner appealed to self-knowledge to explain some of the complexities of human behavior:

> Self-knowledge is of social origin. It is only when a person's private world becomes important to others that it is made important to him. It then enters into the control of the behavior called knowing. . . . Self-knowledge has a special value to the individual himself. A person who has been "made aware of himself" is in a better position to predict and control his own behavior. (Skinner, 1974, p. 31)

At issue is the last phrase. Why would self-knowledge put an individual in a better position to predict and control his or her own behavior?

Imagine that we train a pigeon to peck a key for food, and allow it to choose between a key that provides a small amount of grain with only a short delay and another key that provides a large amount of grain with a long delay. Given a bit of history in this situation, the pigeon will peck almost exclusively on the key that provides the small amount of grain with a short delay (Rachlin & Green, 1972). Imagine that we establish conditions in which the pigeon is then trained to self-report whether it chose the short-delay/small-reinforcer condition or the long-delay/large-reinforcer condition. Although this state of affairs meets the requirements of the traditional behavior-analytic approach to self-knowledge (responding to one's own responding), the question is: Why should we expect the pigeon's "self-knowledge" to have any effects on subsequent trials in which such a choice is presented?

We will try to answer this question in

a moment, but consider now the case of a male client, who is the noncustodial parent of a 5-year-old girl and suffers from recurring bouts of depression. Over the course of therapy, his depression lifts, and then it returns. During one bout, the therapist says, "You know the last time you were this depressed, you hadn't visited your daughter in a month." Upon hearing this, the client begins to talk about what it is like to think about his daughter. He talks about how he feels sad, and then begins to think about the divorce, about not being able to go home and play with his daughter after work. The more he thinks, the sadder he gets. The client reports that he has learned to bury himself in work, and to try not to think of her. The client has an insight: He has verbally formulated a relationship. In the service of not feeling sad, he not only stops thinking about his daughter, he stops calling, he stops looking at pictures, he doesn't watch TV programs with little kids in them. Inevitably, something reminds him. And when that happens, he is not only sad about not seeing her, he is also sad that he has gone so long without seeing her or thinking about her. In this example, the client has come to describe a set of contingent relations that are similar in some ways to the pigeon example. The short-delay/small-reinforcer schedule is the momentary relief from sadness afforded by distracting himself with work. The long-delay/large-reinforcer schedule is a rich relationship with his daughter afforded by his willingness to feel sad and remain attending. The question is, can these self-reports come to control the client's behavior in ways that foster increased contact with his daughter? Put another way, can such an insight be effective in changing behavior?

The important issues are the stimulus functions that are now present in the original conditions: the pigeon facing the two keys, or the man facing the phone when he is supposed to call his daughter. When the man became aware of the contingencies controlling his depression, he was not simply behaving with regard to his behavior, but was also behaving verbally with regard to his behavior. As we use the term *verbal,* the implication is that the stimulus functions of the referred-to situation were already present in the verbal insight. Verbal relations are mutual, and the functions of each related event are to some degree available with regard to the other.

The man says to his therapist, "In the service of not feeling sad, I stop thinking about my daughter. I don't call her. I don't talk to her. If I keep doing what I've been doing, it will cost me my relationship with her. No wonder I'm depressed." The man has derived a track—a description of the contingencies. These statements bring his daughter and his calling her psychologically present via a transformation of stimulus functions through verbal relations. The costs of avoidance now adhere in the phone calls via the if . . . then relation that has been formulated. If the insight changes the functions of the overt verbal events (for example, "not calling" is now linked causally to "selfish avoidance that is costing him his daughter"), it also changes the functions of the related events. If the man now faces the actual phone when he is supposed to call his daughter, the function of the phone itself is no longer the same, because it was psychologically present in the original rule. This is why tracking works in the first place: Rules change the functions of events in the world because these events participate verbally in the rule.

The situation for the pigeon is somewhat different. When the pigeon learned to respond to responding, the function of the original response was purely discriminative for the second. The second did not thereby gain the function of the first. Looking at the event as operant behavior, we have a chain, and chains cannot simply be reversed. If the bird learns "do A, then do B" it does not mean that the bird will "do B, then do A." Thus, when the bird faces the original choice situation, there is nothing in normal operant conditioning that would predict that the functions of this situation had changed. Classical conditioning, too, provides little basis for the functional difference produced by self-knowledge. When one in-

teraction contingently follows another (e.g., hearing a tone followed by tasting food powder), the first acquires the functions of the second in a robust manner, but backward conditioning is either nonexistent or transient and weak. Thus, reporting what was done does not significantly alter the functions of what was done via either operant or classical conditioning.

Skinner's view of the impact of self-knowledge is correct, but only if verbal control processes are present. We are led ultimately to the view that verbal insight can indeed produce behavior change, a point that is increasingly confirmed by evidence from therapy outcome studies (e.g., Snyder, Wills, & Grady-Fletcher, 1991).

Resistance to insight. Unfortunately, the same analysis suggests that self-knowledge is inherently difficult and will often be actively resisted. Consider an example. Most clinicians agree that successful treatment of many clinical populations, such as those with posttraumatic stress disorder or adult incest survivors, involves, in part, the client reporting his or her history of traumatic events. When clients are able to report and fully reexperience the original events, many experience relief from the suffering these events caused. Yet persons who have experienced extremely aversive events usually find that reporting those events is itself extremely aversive. It is common for trauma survivors to have difficulty remembering many critical details of the trauma, even though they are hounded by memories.

Consider the case of a nonverbal organism, such as a rat. Suppose we arrange a self-report contingency in which the rat receives food for pressing the left lever if it has recently been shocked and the right lever if it has not. There is little in a classical or operant conditioning account of self-knowledge that would lead us to suspect that a report that followed an aversive event would itself become aversive, and no researchers have reported such difficulties with nonverbal organisms.

However, for verbal organisms such as humans, verbal events are mutually entailed. For example, names of events participate in an equivalence relation with the events named; that is, words have some of the stimulus functions of the events to which they are related. The stimulus function of words explains why poetry and fiction are valued, but it is also why a description of a childhood incest experience can be intensively aversive. To describe an event is to contact the stimulus functions of the referent.

Self-knowledge presents a two-edged sword, clinically speaking. On the one hand, incest survivors usually avoid events related even tangentially to the original abuse, including detailed knowledge of it, because self-knowledge means that the stimulus functions of these traumatic events are present. Conversely, getting an abuse survivor to reexperience the original trauma verbally can help extinguish the conditioned reactions to it, and for exactly the same reason: The stimulus functions that need to be extinguished are thereby present. Self-knowledge is thus often both avoided and healing. Both effects are based on the same process: the transformation of stimulus functions such that the functions of events adhere in the verbal knowledge of them.

Emotion and Cultural Support for Emotional Avoidance

This process of avoidance of describing events can create significant difficulties for verbal organisms. We believe that a good deal of what we call psychopathology centers around humans' unwillingness to experience certain negatively evaluated thoughts, emotions, memories, physical states, and other private events (see S. Hayes, 1987).

Consider the example of agoraphobia, which has been characterized as "fear of fear" (Chambless, Caputo, Bright, & Gallagher, 1984; Craske, Sanderson, & Barlow, 1987). "Fear" in a verbal organism is often a complex, verbally involved event. A heart pounding may be related to horrific constructions of losing control, insanity, humiliation, and so on. The panic that is felt as a result would almost

make sense if such horrific consequences were about to occur, but in fact all that happens is that sensations of a beating heart lead to a sequence of verbal relations. The emotion itself becomes largely a verbal event; it is not simply a felt bodily state or a predisposition to respond, but is a loose collection of verbally related events. An "emotion" like anxiety or depression has no simple referent.

We argue that private events are to a degree verbally constructed and not simply discovered or discriminated, precisely because "self-knowledge is of social origin" (Skinner, 1974, p. 31). A "fast, irregular heart beat" is not just a felt beating heart; instead it is described in the context of socially acquired verbal formulations about what is fast or irregular and what it means to have either (e.g., "I have heart disease" and "I am going to die soon"). In this way, emotions are built up and related to other events such that they in turn acquire motivational and discriminative functions for escape and avoidance.

Again we see the paradox. The same process that permits self-knowledge fosters self-deception and self-avoidance. Clients distort important aspects of their lives in order to accommodate an agenda of controlling the occurrence, or intensity, or situational sensitivity of private events. Nonverbal organisms avoid aversive stimuli and situations that predict the occurrence of these aversive stimuli; verbal organisms learn to avoid their reactions to aversive stimuli. In so doing, they miss the benefits of self-knowledge, because rules that are based on distortions are unlikely to bring one into contact with the actual contingencies. It is clear to anyone acculturated within western society that "confusion is bad," "anger is bad," "grief is bad," and "fear is bad." But avoiding one's own confusion, anger, grief, and fear reduces or distorts knowledge about one's own history and the contingencies that surround one's behavior.

The psychotherapy establishment seems to give the "scientific" stamp of approval to this view that emotions and thoughts themselves are to be avoided. The DSM III—R (American Psychiatric Association, 1987) represents an institutionalized set of equivalence classes, such that certain human responses to painful circumstances are labeled as diseased, biologically broken, disordered, or pathological; often these categories focus on the presence of certain private events as the core of the problem (e.g., "anxiety disorders"). Most of our measures of "psychopathology" (e.g., Beck Depression Inventory—Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; State-Trait Anxiety Inventory—Spielberger, Gorsuch, & Lushene, 1970) suggest that to be psychologically healthy is to be free of these allegedly disordered emotional and cognitive responses. The extreme form of this orientation is to regard a coma victim as the ideal of psychological health. In other words, the same acculturation that establishes the avoidance of self-knowledge of human emotions leads also to the institutionalization of this avoidance in our perspectives on psychopathology and health. Many variants of cognitive and behavioral therapies seek to alter a variety of private events by moderating their frequency, intensity, or situational sensitivity, as if these private events themselves are destructive (S. Hayes, 1987; S. Hayes & L. Hayes, 1992; Zettle & S. Hayes, 1982).

If it were the case that certain emotional states (such as grief, anger, and confusion) were to be avoided for the same sort of reasons that electric shocks, flames, and sharp blows to the head are to be avoided (i.e., potential debilitation), changing their frequency and intensity would be a quite sensible goal. However, if it is the case that these states are not really debilitating in the same sense that shock, fire, and blows are, we might opt for different therapeutic ends; namely, to alter not their frequency or intensity but instead their psychological function.

To do so requires undermining the role of verbal relations rather than altering their form. The agoraphobic terrified over the imminent loss of control is usually already struggling to reduce the concern or its emotional effects. An alternative is

to weaken the verbal relations that are producing the stimulus functions in the first place. This weakening cannot be done logically, because logic can only increase the relevance of verbal relations. It must be done in ways that are experiential, paradoxical, and confusing. Thus, a contemporary view of verbal relations seems to support some of the most superficially "nonbehavioral" approaches, such as those of the experiential psychotherapies. This is the topic we will consider in the second article in this series.

CONCLUSION

Verbal behavior is at the core of human psychology, both applied and basic. Behavior analysis has been largely ignored by those interested in meaning, purpose, emotion, or self-knowledge. In fact, however, the growing body of literature on derived stimulus relations provides the grounds for an entirely different approach. It has the odd effect of throwing the behavior analysts in with overtly nonbehavioral approaches. Often, "behavior therapy" looks less behaviorally sensible than, say, Gestalt therapy, when the role of verbal relations is appreciated. The direction in which contemporary behavioral analyses of verbal relations will take the field is not clear at present. What is clear is that these analyses will raise new and interesting issues and forge new and unexpected alliances. For these reasons alone, reworking the behavior-analytic approach to verbal relations holds promise of a fundamental clinical advance.

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