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COGNITIVE VS. CONTEXTUAL CAUSATION: DIFFERENT WORLD VIEWS BUT PERHAPS NOT IRRECONCILABLE

JOHN P. FORSYTH, C. W. LEJUEZ, ROBERT P. HAWKINS and GEORG H. EIFERT
West Virginia University, Morgantown, U.S.A.

Summary — In this commentary, we address some of the divisive issues between cognitive theorists and behavior analysts concerning the aims and goals of science and differing views of causality. We suggest that evidence for the causal status of cognition has been inconclusive, largely due to the fact that most of this research can be framed in terms of environmental causes. We examine (1) what we can consider as causes of behavior and (2) how we can manipulate these causes in therapy. We conclude that a rapprochement between cognitivists and behavior analysts will require more careful description of the multiple causal pathways responsible for experimental and therapeutic effects. Copyright © 1996 Elsevier Science Ltd

The ongoing debate between cognitive and behavioral psychologists has been particularly divisive historically and in contemporary psychology. This debate continues at a fervent pace, as evidenced in the recent special issue (Reyna, 1995) devoted to this topic in this journal. Yet it appears that the two sides have found little common ground largely because of differing world views about the aims and goals of science—and as a result, the nature of causality—as well as different assumptions for evaluating scientific evidence (Dougher, 1995; Hayes & Wilson, 1995; Lee, 1995). Moreover, both sides often sound as though their conceptualization of science is *the* conceptualization of science rather than *a* conceptualization of science. Although both sides have provided a wealth of data substantiating their respective positions, we concur with the view of Hayes and Wilson (1995) that data have not and will not *alone* resolve the debate over whether cognition and/or other private events enter into the causal determination of behavior. Failing to appreciate differences between the operating assumptions used by cognitive psychologists and behavior analysts has, in our opinion, widened the gap between the two approaches. In this commentary, we will attempt to clarify these differing views and explore some potential avenues for rapprochement. Specifically, we will examine (1) what we can consider as causes of behavior and (2) how we can manipulate these causes in therapy.

Requests for reprints should be addressed to John P. Forsyth, Department of Psychology, West Virginia University, Morgantown, WV 26506-6040, U.S.A.

Differing Goals of Science

Dougher (1995) asserts that the incompatibility of the behavioral and cognitive positions is due to differing scientific goals. Both sides are interested in prediction, yet behavior analysts are equally (if not more) interested in the control or influence of behavior. Although this is not the only point of contention, many of the other differences between cognitive and behavioral psychologists concerning causes of behavior and the role of private events (thoughts, images, feelings) stem from this basic issue.

— why does he say this? Is the goal of CBT not to control maladaptive thoughts?

Cognitive psychologists attempt to enhance the prediction of behavior by using theoretical models that fill the temporal gap between past events, stimuli, and current responses. They attempt to bridge this gap by filling it with proximal causes occurring within the organism. As an example, cognitive psychologists frequently use cognitive concepts and constructs (e.g., schemata, nodes, networks) to make inferences and predictions about hypothesized private cognitive and emotional processes that seem to account for behavior over time and in different contexts. Because control is not a goal for the cognitivist, the major requirement is that the explanation corresponds with what is observed (Dougher, 1995); that, in turn, is used to make inferences about what is not observed in keeping with theoretical predictions. Consequently, in cognitive and cognitive–behavioral therapies a greater role is ascribed to private events (cognition), compared to the client's current environment and learning history. In this sense, the environment is a means to make inferences about private causes, but the environment itself is not causally interesting.

control in terms of direct manipulation, but not influence

Prediction as the sole criterion is problematic for behavior analysts, because prediction does not necessarily imply control or changeability of behavior. For example, we may be able to make accurate predictions that someone with high scores on the Beck Depression Inventory (BDI) will report feeling depressed. Knowing this, however, does not tell us how to influence the report of depression. To answer questions about influence and why the person reports feeling depressed, we will have to look elsewhere. This does not mean that behaviorists ignore covert behaviors such as thoughts and feelings. What it does mean for the behavior analyst is that the most important behaviors of persons with a diagnosis of depression are the overt ones such as getting up on time, going to work, eating a decent diet and at regular times, socializing with family and friends, engaging in recreation and so on. The crucial questions, and the ones that validation of the BDI must address, are how well reports of private behaviors (feelings, images, thoughts) predict such public behavior, and how they influence such behavior. Behavior analysts attempt to address both questions by seeking to identify directly observable and quantifiable independent variables that can be manipulated to influence and control these overt behaviors as well as the verbal reports of depression or the private affective responses ("feelings") associated with depressive behavior.

Causation

The very meaning of the term "cause" differs depending on the conceptual framework in which that term is used. Figure 1 depicts several of the possible avenues through which a behavior might be caused, that is, causal paths between currently observable environmental stimuli and currently observable behavior. Panel 1 depicts a chain in which the observable environment directly affects an observable behavior. This is the type of relation that behaviorists have studied most extensively. Two simple examples would be: Jerry said

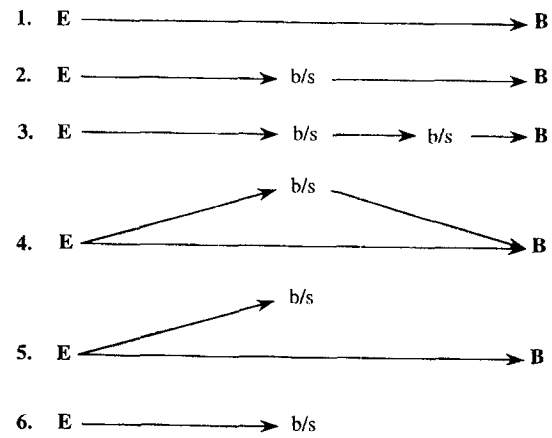

Figure 1. Five of many possible causal paths between currently observable environmental stimuli and currently observable behavior. *E* refers to observable environmental events and history of environment–behavior interactions (learning history), *B* refers to observable behavior, and *b/s* refers to currently unobservable responses and their stimulus properties.

something rude and Tom hit him; or Sandra saw her old boyfriend and it made her turn and look in a shop window. The consequences of those behaviors—not depicted, for simplicity—will determine whether they are likely to recur in the future when similar situations arise. In Panel 2, the observable environment causes a private behavior (*b/s*) that has stimulus properties and, in turn, affects observable behavior. Examples would be: Jerry said something rude to Tom, but Tom ignored it and went on his way until he thought about (private behavior with stimulus characteristics, in that Tom can "hear" himself thinking) how Jerry had made him look helpless; then he returned and hit Jerry; or Sandra saw her old boyfriend and thought "I really don't want to talk with him," which made her turn and look in a shop window. In Panel 3, the first *b/s* caused by the environment, in turn, causes a second *b/s*, which, in turn causes an observable behavior. An example would be: Sandra saw her old boyfriend and thought "I really don't want to talk with him," but that sounded cruel to her, so she thought "I'll just be friendly but say I'm late for an appointment," so she walked up to him and greeted him cheerfully.

Panel 4 shows a sequence in which the observable environment influences the overt behavior directly, but the *b/s* evoked by that same environment also contributes to causing the overt behavior. An example would be: Sandra saw her old boyfriend and was inclined to approach him and talk, but she hesitated a moment until she thought "I don't have to talk long, I can say I'm late for an appointment"; then she approached him. In Panel 5, the environment causes a private behavior but the observable behavior is quite different from the content and quality of the private behavior. As an example, Sandra saw her old boyfriend and thought "I really don't want to talk with him," but goes up to him and speaks to him anyway. Finally, Panel 6 shows a chain in which the observable environment has an effect on a private behavior, but no observable behavior is evidenced. An example would be: Jerry said something rude to Tom and now Tom is feeling angry, though no one can tell it and Tom is not doing anything about it.

We should point out that these paths do not exhaust the possibilities and that the chain of behavior–behavior relations is likely to vary from one occasion to the next. The mere fact that any of these are logical or rational possibilities does not mean, therefore, that they are real functional relations. That possibility must be investigated empirically, although this has been

(citation?)

tried without yielding conclusive results. We also want to point out that it is a serious oversimplification to assume that any particular observable behavior is always the result of the same or even a similar sequence. Even when the observable environment and the observable behavior are very similar on multiple occurrences, that does not mean that the whole causal chain is the same each time. A private behavior might not even be evoked on one particular occasion (as in Panel 1), occur and play a role on a third (Panels 2, 3, or 4), and occur but play no role on another (as in Panels 5 and 6).

overt behavior can have multiple causes

Finally, we should acknowledge that science needs to understand how the *b/s*—in terms of learning experiences—comes to be caused by the observable environment and how that private behavior comes to play any causal role (if at all). That is, how do the functional relations between *E* and *b/s* and between *b/s* and *B* get established, so that thinking, imaging, and feeling come to play any role in human behavior? Perhaps another way to look at it is to examine how the environmental context influences such behavior–behavior relations, which, by the way, is what contemporary behavior analysis is all about (Hayes & Wilson, 1995).

We see no reason that both cognitive–behavior therapists and behaviorists should *necessarily* reject any of these paths as unacceptable, either in theory or in clinical practice. Behavior analysts obviously emphasize the kinds of relations depicted in Panel 1, though not exclusively. Cognitive and cognitive–behavior therapists emphasize the paths depicted in Panels 2, 3, and 4, sometimes to the serious neglect of the observable environment's influence. There is a voluminous body of cognitive experimental and applied research purportedly suggesting that cognitions do indeed cause behavior. From an empirical standpoint, however, this question would only be answerable if we could actually verify the occurrence of a cognition and manipulate it apart from other potentially causal cognitions, physiological responses, or environmental causes. In other words, we would have to manipulate cognitions apart from other manipulations that could be construed as causes to demonstrate whether a "cognition" and not something else is causal. We should add that it is notoriously difficult to do this kind of research, in part, because all studies that purport to demonstrate the causal status of cognition or other private events involve environmental manipulations that could just as easily be viewed as causes. Moreover, if this was simply an empirical question, the data should speak for themselves and settle the debate. As Hayes and Wilson (1995) suggest, however, the debate goes beyond empirical research. The problem, as we see it, concerns what is the most parsimonious and useful way of deciding what is influencing what. Perhaps some discussion of the possible paths between the two "camps" would be fruitful, along with a debate about what sorts of research programs might help to clarify the nature and causes of the paths.

In any case, behavior analysts prefer to emphasize the reciprocal relation between environment and behavior. In terms of the goals and strategies, however, "only environmental causes can in principle lead directly to both prediction and influence over psychological phenomenon of interest. Behavioral (or cognitive, or emotional) causes cannot" (Hayes & Wilson, 1995, p. 242). This is because only environmental causes can be manipulated directly. This is precisely the reason that we question the causal status of self-efficacy (Bandura, 1995): we cannot manipulate self-efficacy directly. What we can do is manipulate the environment, which, in turn, produces changes in behavior as a function of what is done. For instance, Scott (1995), cites the work of Cervone as evidence for the direct manipulation of self-efficacy, which, in turn, supports the causal status of self-efficacy. What Scott does not acknowledge is that subjects were assigned to experimental conditions and self-efficacy was assessed as one of many possible dependent variables. He then concludes that the independent variables that produced changes in the dependent variable of self-efficacy lend support to the dependent

— Does this not mean that only overt beh. can be empirically validated as causal, but not that cognitions can not be causal. It is simply a non-scientific question (Popper)

variable as the cause of behavior. One could just as easily argue that it is the manipulation that caused changes in performance and not the dependent variable of self-efficacy. The same criticisms apply to other empirical work cited by Scott (1995) that shows how logically deduced dependent variables (e.g., memory structures, attentional and encoding processes) predicted from theoretical models "are causally operative in depression" (p. 122). The crucial questions remain: how can one dependent variable cause another, and what caused the first dependent variable?

In contrast to what many cognitive critics suggest, behavior analysts *are* interested in events occurring within the skin. Thinking and feeling are actions that all people do, and behavior analysts are obliged to explain the phenomena to which such terms refer (Zuriff, 1985). Behavior analysis seeks to understand how these actions come about as a function of the circumstances that give rise to them, as well as the conditions that either potentiate or depotentiate these actions. On the other hand, we do not feel obliged to explain and define the structural properties of cognition or emotion (or behavior). This is not a "betrayal of science," as Scott (1995) suggested. Rather, it results from differing goals of how best to advance the science and analytical strategies that are consistent with those goals.

In any case, contemporary behavior analysis has developed a consistent account of complex human behavior, such as thinking, feeling, problem solving. The field has also developed new behavioral psychotherapies that explicitly deal with such human phenomena without compromising the natural science paradigm or the basic principles of behavior in the process. The end result of this extension of the basic science to applied concerns is leading behavior analysis to an integrated and parsimonious psychology of cognition, but not to a cognitive psychology (Hayes & Hayes, 1992)!

Differing Emphasis in Therapy

The differing positions as to whether cognitive events can actually cause behavior, or whether we need a contextual manipulation to affect behavior change, also lead to differences as to what should be targeted in therapy. One of the primary goals of cognitive therapists is to target hypothesized dysfunctional cognitions or other entities (e.g., low self-efficacy) because they are presumed to underlie or causally influence the observable behaviors for which the client is receiving treatment. Clients often enter therapy with the same view about the causes of their behavior (e.g., "I can't fly in planes *because* I'm anxious, and I'm anxious *because* I worry too much," or "I can't work *because* I'm depressed and I'm depressed *because* I'm worthless"). Cognitive therapists will attempt to change or replace these dysfunctional processes with more adaptive ones. For instance, they will help the patient make a more accurate assessment of the probability of dying in a plane crash, or they might review the evidence for the idea that a person is worthless. The general strategy is to modify or control maladaptive thoughts and self-statements. The assumption is that if the therapist gets the patient to think or feel differently, they will act differently.

Behavior analysts adopt a different view of therapy that suggests different strategies and targets of change (cf. Forsyth & Eifert, 1996). Instead of helping clients in their struggle to eliminate distressing thoughts or feelings, behavior analytic treatments frequently focus on altering the struggle itself, often verbally, with the goal of getting clients to behave *despite* what they think or feel. Of course, there is a wealth of research showing effective behavior analytic treatment of problems experienced by children, institutionalized adults, and persons with

developmental disabilities (cf. Meyer & Evans, 1989), but those are not the populations usually addressed by cognitive–behavior therapists. It is therefore exciting to note that there are several newly established interventions for depression and anxiety that have been developed from a behavioral conceptual framework and that rely heavily on language-based procedures.

To illustrate how these approaches attempt to alter clinical problems in different ways, let us use the example of phobic or depressive avoidance. The labeling of bodily arousal as unpleasant is an example of verbal learning and subject to the same principles that describe how other behavior is controlled (Forsyth & Eifert, 1996). For instance, phobic clients will do everything they can to escape or avoid confrontation with, or even thinking about, the feared stimulus. In the process, they will also produce the very feelings that they want to avoid and may inadvertently establish functional relations between unpleasant bodily sensations and other stimuli. Although applied behavior analytic approaches have been somewhat reluctant to acknowledge that the stimulus properties of physiological responses can control other behavior, other behavioral accounts have accepted the notion that private responses can have stimulus properties and evoke behavior (e.g., Staats & Eifert, 1990). These principles have been applied in traditional language-based behavior therapies, such as semantic counterconditioning, and have led to the systematic use of emotionally relevant and behavior–directive self-statements (cf. Eifert, 1987; Hekmat, 1990; Staats, 1972). These interventions are aimed at changing the client's overt behavior indirectly by altering the affective (eliciting), reinforcing, and directive (S^D) functions of verbal events in the client's repertoire.

Such interventions have been successful for several problems of many clients (Eifert, 1990) by reducing or eliminating responses that entail unpleasant bodily sensations, just as cognitive techniques aim to do. However, these interventions may play into the very social–verbal system that the clinical behavior analytic approaches consider the source of the primary problem (cf. Hayes et al., 1994), which is that negative or unpleasant thoughts and feelings are the problem and must therefore be either eliminated, controlled, or reduced. Such treatments also maintain, either explicitly or implicitly, what we have been taught by our social–verbal community; that is, to live a happy and successful life one must experience good feelings and thoughts and unpleasant ones are the cause of human suffering. By explicitly targeting these "unhealthy" private events in therapy, many cognitive and behavior therapists also assume that the thoughts or feelings are the source of the problem; otherwise, it would not make sense to target them for change. The adoption of this general strategy and goal by cognitive therapists could account for some treatment failures with cognitive therapies and traditional semantic behavior therapies. Behavior analytic psychotherapies may offer an intriguing alternative to these approaches.

With new behavior analytic acceptance-based therapies, the emphasis is reversed (e.g., Hayes et al., 1994; Kohlenberg & Tsai, 1991; Koerner, Jacobson, & Christensen, 1994; Linehan, 1994; Marlatt, 1994). Instead of eliminating distressing thoughts or feelings, the focus is on altering the client's struggle for control, often verbally, with the goal of getting clients to behave effectively and in an adaptive way *despite* the thinking and feeling behaviors they are also emitting. This is accomplished, in large part, by undermining, weakening, and altering the functions of verbal relations. Paradoxical techniques seem to be particularly useful for this purpose, but other techniques are also applied. In other words, these new behavior analytic therapies undermine a client's verbal–emotional repertoire of reason-giving and control over emotional events by establishing a new social–verbal context in therapy that does not fit with the client's existing verbal–emotional repertoire. Therapists who carefully use reframing or paradoxical verbal interventions may rapidly and simultaneously alter the affective, reinforcing, and directive functions of both verbal and other stimuli in the client's natural

environment. Paradoxical techniques place both the "symptoms" and explanations in a different context, one in which they lose their original function and meaning.

We need to explore systematically the possibility of combining traditional language-based behavioral and cognitive interventions with paradoxical acceptance-based interventions. For instance, Alessi (1992) suggests that reframing and paradoxical directives might be due to verbal analog conditioning based on semantic conditioning principles. Will semantic counterconditioning facilitate acceptance? Will using acceptance at the beginning of therapy make subsequent applications of other semantic verbal interventions more successful? More appropriate interventions may be planned by selecting key stimulus events from problematic life circumstances outside therapy and changing their stimulus functions by inserting them strategically within the therapist–client verbal interaction in therapy. This would represent an exciting merger of traditional language-based therapeutic techniques with acceptance-based behavior analytic treatments.

Conclusion

In this brief commentary, we have attempted to clarify how cognitive and behavior analytic approaches answer the question of what causes behavior. Although these orientations provide different answers, with empirical support existing for both, empirical data alone cannot resolve the differences. We propose that it might be more parsimonious, and of greater utility, to ask instead what variables we can manipulate and influence directly and how we can best do that. We suggest a focus on environmental stimuli because the environment is clearly a source of independent variables and can be influenced directly. One of the major implications of this view for therapy is that instead of helping clients in their struggle to eliminate distressing thoughts or feelings, we can focus on altering the struggle itself, often verbally, with the goal of getting clients to behave *despite* what they think or feel. This is accomplished, in large part, by undermining, weakening, and altering the functions of the relations between words, covert behavior, and overt behavior. Another implication is that many clinical problems (at least with highly verbal persons) are largely the result of ineffective verbal behavior that gets in the way of effective action. The question now is, what is the best and most useful way to solve this problem?

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