

Conditioning The Behavior of the Listener

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Introduction

1. Describe Skinner's legacy with regard to how behavior analysts have viewed the effects of verbal stimuli on behavior in general, and "rules" in particular.
2. Outline a descriptive framework for basic conditioning processes as function-altering operations (FAOs).
3. Describe how verbal stimuli and other events can be function altering and, thus, analogous to basic conditioning processes.
4. Describe how verbal stimuli condition the behavior of the listener.
5. Describe implications for our conception of rule-governed behavior.

Skinner's legacy: The history of rule-governed behavior in behavior analysis

Vaughan, M. (1989). Rule-governed behavior in behavior analysis: A theoretical and experimental history. In S. C. Hayes (Ed.), *Rule-Governed Behavior: Cognition, Contingencies, and Instructional Control*. Plenum, New York.



Schlinger, H. D. (2008). Conditioning the behavior of the listener. *International Journal of Psychology and Psychological Therapy*, 8, 309-322.

Skinner's foray into the discussion of rules and rule-governed behavior.

In *A Matter of Consequences* (1983), Skinner wrote:

A different issue was taking the center of the cognitive stage, and I heard a good deal about it from our graduate students. Behavior was not always shaped and maintained by contingencies of reinforcement; it could be rule governed. Cognitive psychologists were arguing that even the behavior of the rat in the box was rule governed: The rat pressed a lever, received food, and was then more likely to press again when hungry, not because it had been conditioned, but because "it had learned (and now knew) that pressing the lever produces food." The phrase "pressing the lever produces food" was a description of the contingencies in the apparatus; somehow or other it was said to move into the head of the rat in the form of knowledge (p. 283).

Skinner, B. F. (1966). An operant analysis of problem-solving. In B. Kleinmuntz (Ed.) *Problem Solving: Research, Method, and Theory*. Wiley: New York.

How does a rule govern behavior?

As a discriminative stimulus, a rule is effective as part of a set of contingencies of reinforcement. A complete specification must include the reinforcement which has shaped the topography of a response and brought it under the control of the stimulus.

A contingency-specifying *discriminative* stimulus

e.g. "if you clean your room when I ask you to, you can go outside and play"

Skinner's Legacy: Other Views of Rules as S^Ds

Contingency-shaped behavior is behavior directly controlled by the relations between responses and their consequences. But behavior may also come under the control of antecedent stimuli, stimuli in the presence of which responses produce their consequences. We find important examples of such stimuli in human verbal communities, which arrange contingencies that bring behavior under the control of antecedent verbal stimuli called commands, instructions, or rules. (Catania, Shimoff, Matthews, 1989, p 119)



Skinner's Legacy: Other Views of Rules as S^Ds

In rule-governed behavior, previously established elementary discriminations are combined in complex instructions and thus result in complex behavior. Discriminative combining and recombining of responses produce behavior with characteristics differing from those of behavior that is established through the effects of its direct consequences. For example, responding in instructed discrimination may be occasioned by discriminative stimuli that are temporally and situationally removed from the circumstances under which the discrimination is instructed. (Cerutti, 1989, p 259)



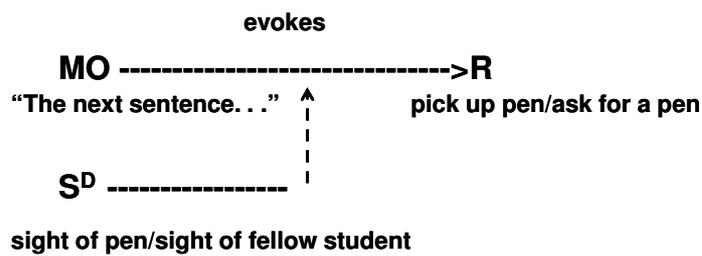
Skinner's Legacy: Other Views of Rules as MOs

I am suggesting that rules control behavior, often not because they function as cues associated with the outcome specified in the rule, as might at first glance appear to be the case. Instead, rules probably control behavior because they function as motivating operations increasing the effectiveness of behavioral consequences immediately contingent on compliance and noncompliance with those rules. (Malott, 1989, p. 302)



Statement by professor -----> doesn't evoke picking up or asking for a pen

“The next sentence is worth ten points on the test” (MO)



Other Views of Rules . . . As Relational Frames

In a simple case, understanding a rule is identical to understanding any verbal event . . . A person is told “when the bell rings, get the cake from the oven.” . . . Let us assume that the word classes *bell*, *cake*, *get*, *go*, *to* and *oven*, each participate in the equivalence classes with the event classes of sounds of bells, actual cakes, actual ovens, and the actual acts of going to things and getting things. The sentence specifies a conditional relation between these verbal classes (*When bell then go to the oven and get cake*). The words such as *when* and *then* themselves bring additional arbitrary relations to bear on the bell, cake, getting, and oven. . . Based on the combinatorial entailment and transfer of functions through relational classes, the temporal relation between the bell and the function of going to the oven specified in the rule transfer to the actual bell and actual oven. (Hayes & Hayes, 1989, p. 179)



Skinner's Legacy

Verbal Behavior (1957)

Chapter 14, "Composition and It's Effects"

Conditioning The Behavior of The Listener

In the behavior of the listener (or reader), as we have so far examined it, verbal stimuli evoke responses appropriate to some of the variables which have affected the speaker. These may be conditioned reflexes of the Pavlovian variety or discriminated operants. The listener reacts to the verbal stimulus with conditioned reflexes, usually of an emotional sort, or by taking action appropriate to a given state of affairs. The autoclitic of assertion makes such action more probable.

Relational autoclitics, especially when combined with assertion to compose predication, have a different and highly important effect. Since it does not involve any immediate activity on the part of the listener (although responses of the other sorts already noted may take place concurrently), we detect the change only in his future behavior. (p. 357)

The change which is thus brought about in the behavior of the listener is appropriately called "instruction." This is one sense in which the term is used in educational institutions. The student comes to emit certain kinds of responses, both verbal and nonverbal, because of verbal stimuli occurring under specific circumstances. (p. 362)



Verbal Behavior

Chapter 14, "Composition and It's Effects"

Conditioning The Behavior of The Listener

Respondent Conditioning

The Conditioning of Discriminative Stimuli



Respondent Conditioning



Respondent conditioning-like effects can be produced by *pairing* the word *shock*, which has already been established as a CS through direct pairing with actual shock, with another verbal stimulus.

“When I say ‘three,’ you will receive a shock,” changes the future behavior of the listener with respect to the stimulus “one, two three” (1957, p. 357).

The Conditioning of Discriminative Stimuli

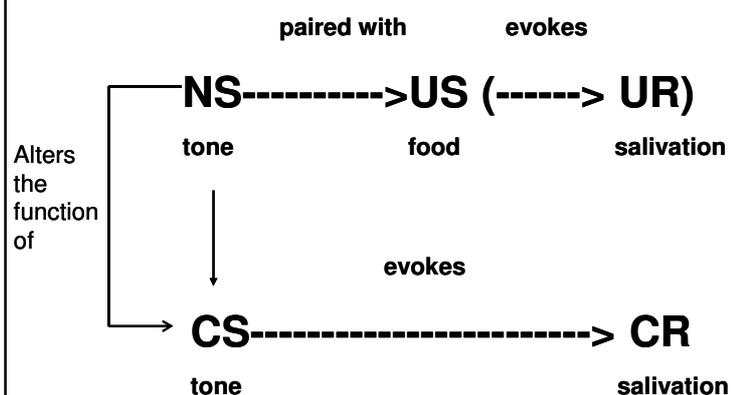


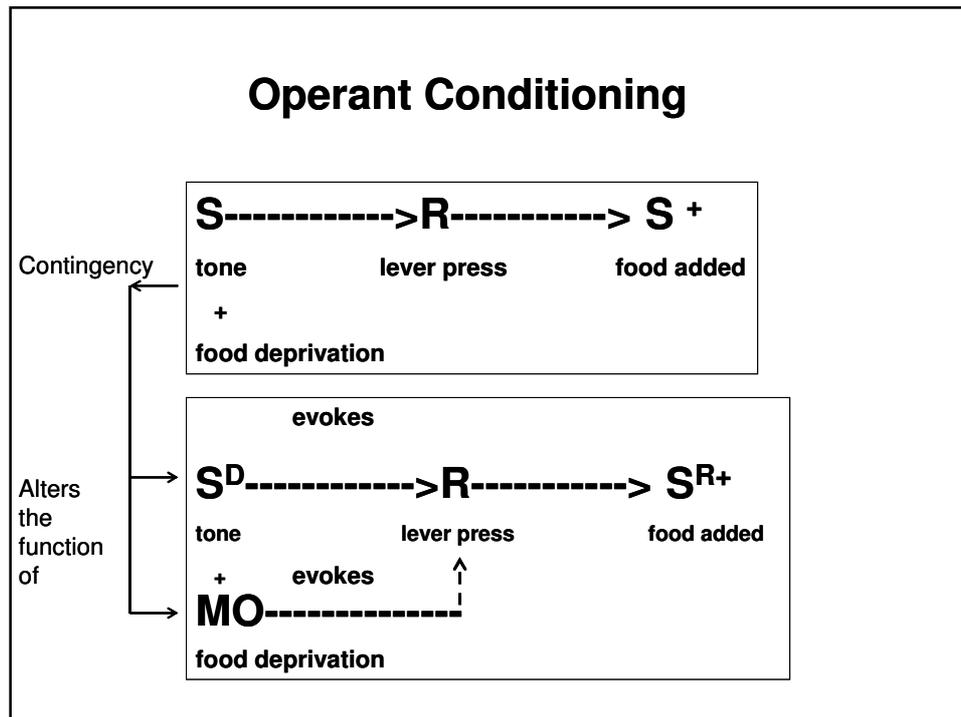
The verbal stimulus “When I say ‘three,’ go!” may have no immediate effect classifiable as a response, but it changes the subsequent behavior of the listener with respect to the stimulus “Three.” We are . . . concerned . . . with the operant behavior of “going” evoked by the discriminative stimulus “three” (1957, pp. 357-358).

Function-Altering Operations

- Introduced the concept of verbal stimuli as function-altering operations (FAOs) (Schlinger & Blakely, 1987).
 - How this came about 
- Extended the concept to nonverbal events (Blakely & Schlinger, 1987; Schlinger & Blakely, 1994).
 - Pavlovian Conditioning, Operant Conditioning, Observational learning, Imprinting
- FAOs alter the function of antecedent events (CSs in respondent conditioning and MOs and S^Ds in operant conditioning).

Pavlovian Conditioning





Implications for Definition of Reinforcement

The net result of reinforcement is not simply to strengthen behavior but to strengthen it in a given state of deprivation.* Reinforcement thus brings behavior under the *control* of an appropriate deprivation. After we have conditioned a pigeon to stretch its neck by reinforcing with food, the variable which *controls* neck-stretching is food deprivation. The response of stretching the neck has merely joined that group of responses which vary with this operation. We can describe the effect of reinforcement in no simpler way. (Skinner, 1953, p. 149)



* And in the presence of a given stimulus.

Function-Altering Verbal Stimuli

“CSSs”

Schlinger, H.D., & Blakely, E. (1987). Function-altering effects of contingency-specifying stimuli. *The Behavior Analyst*, 10, 41-45.

Schlinger, H. D. (1993). Separating discriminative and function-altering effects of verbal stimuli. *The Behavior Analyst*, 16, 9-23.

“Rules”

Blakely, E., & Schlinger, H.D. (1987). Rules: Function-altering contingency specifying stimuli. *The Behavior Analyst*, 10, 183-187.

Verbal (analog) FAOs

Alessi, G. (1992). Models of proximate and ultimate causation in psychology. *American Psychologist*, 47, 1359-1370.

Analog Respondent Conditioning

“(One, two) three” -----> does not elicit HR, GSR, etc.

“When I say ‘three,’ you will feel a shock!” (FAO)

Alters the momentary function of



evokes/elicits

CSA -----> CR

(“one, two,) three”

HR increase, GSR, etc.

Analog Operant Conditioning

“(One, two) three” -----> doesn't evoke going

“When I say ‘three,’ go!” (FAO)

Alters the
momentary
function of



S^{DA} -----> **R**
 (“one, two,) three” going

evokes

Bell rings -----> doesn't evoke taking cake from oven

“When the bell rings, take the cake from the oven.” (FAO)

Alters the
momentary
function of



S^{DA} -----> **R**
 bell rings take cake from oven

evokes

“almost any salient verbalization” can bring about conditioning in a listener’s behavior.



If I announce "The boy's bicycle" my listeners are likely to be able to report, some half-hour later, that I brought up the boy's bicycle. In this case, their behavior has been conditioned with respect to my behavior as a stimulus, as it might have been conditioned by witnessing any salient event: a frog on the porch, a salt-shaker in the shape of a nutcracker, a jogger with a ponytail.

However their behavior has not been modified with respect to the boy's bicycle. But if I announce "The boy's bicycle is blocking the driveway," they can report what I said, as they would with respect to any other event, but they will also behave in a new way with respect to the boy's bicycle. (Palmer, 2007, p. 168)

Durability of Verbal Conditioning

Compare the examples of introducing oneself to reminding oneself to bring a book to work.

- Frames such as “My name is ____” and “This is a ____” condition relatively durable relations.
- Frames such as “When I say ‘three’ go” condition momentary relationships, usually under conditional contextual control.
- Skinner (1957) refers to autoclitic frames of the form “When ____ do ____” as conditional mands. According to Skinner, these are mands comparable to “Do or say ____,” except that the listener’s response isn’t evoked until the condition in the *When* clause is satisfied” (p. 361).
- In other words, the autoclitic frame brings the manded response under the control of some future MO or S^D.

Relational Frames

- “The vending machine is broken,” alters (decreases) the function of the sight of the vending machine in evoking behaviors such as approaching and inserting money.
- The variable term in this autoclitic frame (“vending machine”) is already effective for the listener in a variety of verbal contexts through a history of multiple exemplar training.
- The listener presumably has a long history with similar frames (e.g., “the ____ is broken”).
- Such frames “have certain prosodic, temporal, and semantic properties but are otherwise free to vary from one example to the next, according to the context” (Palmer, 1998, p. 10).
- Once a listener has learned to respond effectively to “the radio is broken,” and “the lamp is broken,” etc., by direct contact with the contingencies, and has a history with vending machines, a novel construction (“the vending machine is broken”) will be effective in altering the momentary function of seeing the vending machine.

Something less than full-fledged relational autoclitic behavior is involved when partially conditioned autoclitic "frames" combine with responses appropriate to a specific situation. Having responded to many pairs of objects with behavior such as *the hat and the shoe* and *the gun and the hat*, the speaker may make the response *the boy and the bicycle* on a novel occasion. If he has acquired a series of responses such as *the boy's gun*, *the boy's shoe*, and *the boy's hat*, we may suppose that the partial frame *the boy's _____* is available for recombination with other responses. The first time the boy acquires a bicycle, the speaker can compose a new unit *the boy's bicycle*. This is not simply the emission of two responses separately acquired The relational aspects of the situation strengthen a frame, and specific features of the situation strengthen the responses fitted into it. (1957, p. 336, emphasis added)

Literal or Analogue Conditioning

There . . . appear to be two processes for creating CSs within the respondent paradigm, and for creating conditioned reinforcing and discriminative stimuli within the operant paradigm. Stimulus functions can be altered either (a) by direct-acting contingencies (based on basic principles derived from laboratory research on respondent and operant conditioning) or (b) by the indirect-acting analog verbal transformation processes, once language has been acquired. (Alessi, 1992, p. 1368)

Analogue Conditioning

Analog conditioning is used to describe function-altering effects of verbal stimuli that are produced without direct conditioning.

For example, “When you hear a bell you will feel a shock.”

According to Alessi (1992), because a novel stimulus “can acquire functional transformations of behavioral properties of unconditioned stimuli without direct pairing” (p. 1367), including second-order conditioning, and thus, function like a CS, we might want to call the stimulus an analog CS and describe the process by which it acquired its evocative properties as verbal analog conditioning.

Literal Conditioning

- Literal (or direct) conditioning occurs when a consequence follows a response given a relevant MO and S^D.
- Thus, we need to look at what the listener does at the time that a verbal function-altering stimulus is stated.
- How does “almost any salient verbalization,” or witnessing any salient or novel event, condition verbal relations?
- Consider what happens when we hear “The boy’s bicycle” or “My name is Hank.”

Literal Conditioning

- The frame evokes an echoic response in which the stimulus is converted into a response (Palmer, 2007), as well as intraverbal and imaginal responses.
- Mediated or automatic reinforcement?
- We have a long history of automatic reinforcement for echoing.
 - As babbling infants
 - Many parents ask their children such questions as “What did I say?” and then reinforce answering correctly (either echoically or intraverbally)
 - Automatic reinforcement for effective behavior.

Implications for Rule-Governed Behavior

- “Rules” are what we call them (see Skinner, 1945)
- Argument for “rules” as function-altering (verbal) stimuli and not S^Ds or MOs.
 - e.g., “Please stand up.” vs. “That kind of mushroom is poisonous.” (Skinner, 1957, p. 362)
- Verbal FAOs may not differ from nonverbal FAOs.
- Because behavior analysts do not agree on how the terms “rules” and “rule-governed behavior” are used, let’s abandon the terms altogether and focus instead on the behavioral functions of the (verbal) events in question.

Tusen takk!

