The poisoned cue

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Positive and negative discriminative stimuli, or why clicking and correction don't mix

Behavior analysts refer to a learned stimulus that triggers an operant behavior as a 'discriminative stimulus.' The behaviorists do not, as far as I know, differentiate between a discriminative stimulus that was trained through positive reinforcement and one that was trained through negative reinforcement.

In practice, however, there is a distinct difference. In clicker training (operant conditioning with a marker signal) the behavior is developed first, and operant freely offers in expectation of positive reinforcement. The discriminative stimulus is then paired with that operant in order to function as an indicator of a reinforcement opportunity. Each discriminative stimulus signals the opportunity to earn reinforcement for one particular behavior or suite of behaviors.

This positively trained discriminative stimulus always 'opens the door' to positive reinforcement. If the behavior does not occur, the only result is that no reinforcement occurs. When the behavior occurs, reinforcement is guaranteed. (We clicker trainers sometimes call

this kind of signal a cue, to differentiate it from the traditional term, a command.)

As soon as the animal understands what a given cue means, the cue, or positive discriminative stimulus, becomes in itself a conditioned positive reinforcer, like the click.

Thus a cue can be used as a reinforcer for behavior that occurs as the cue is being given.

One may for example use the well-established positive cue for one behavior to shape another behavior, or to reinforce previous behavior in a chain. The cue can be used also as marker signal, just as if it were a click, to pinpoint especially good aspects of another behavior. It seems likely, too, that the desirable emotional response that we know to be associated with the click also accompanies the presentation of these positively conditioned stimuli.

Behavior that has been trained by correction may also have associated discriminative stimuli, which indicate when the specific behavior is to occur. However, these discriminators, or commands, may or may not lead to positive reinforcement. If the animal fails to perform the behavior, or performs it incorrectly, the stimulus may lead to punishment (usually called 'correction'. The negative discriminative stimulus, usually called a command, is now a conditioned negative reinforcer, signaling the opportunity for avoiding punishment.)
Even if the behavior was trained entirely with positive reinforcement, if one now clicks for correct behavior following a discriminator (a cue, command, or signal) but also gives aversive correction (leash pop, verbal reprimand, etc.) for incorrect behavior following that same stimulus, the stimulus immediately loses its value as a positive reinforcer. It is, at best, ambiguous in terms of reinforcement. It is not a click. It no longer automatically triggers the positive emotions associated with conditioned positive reinforcers. It can no longer be predictably used inside a chain to reinforce previous behavior.

Even if primary reinforcers, such as approval, toys, and treats are supplied in abundance during or after training or performance, the discriminative stimuli themselves - the commands - are now threats as well as promises. Behavior tends to break down, interestingly, both preceding and following these ambivalent stimuli: preceding, because the preceding behavior may begin to extinguish due to lack of a positive conditioned reinforcer consisting of the now-aversive stimulus, and following, because the behavior that might be punished tends to be avoided. The shift becomes visible in the learner's attitude, which switches from attentive eagerness to reluctance, often with visible manifestations of stress. Even though successful response to a given discriminative stimulus is still followed by reward, if failure is now followed by punishment, you have made that discriminative stimulus ambiguous in terms of predictable outcome. It is no longer 'safe.'

You have poisoned your cue.

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