Transcending Pathology: Toward a Parsimonious View of Behavior

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Modern animal behavior professionals typically view behavioral problems as deviations from normal, healthy functioning. Much of the current training for dog behavior professionals (seminars, courses, etc.) focuses first on convincing the student of an explanatory etiology for the behavior, and then moves on to the incidental goal of supplanting the behavior with treatments that assume the behavior is innate. The result is a community of dog trainers that exalts complexity while devaluing simplicity. Certain segments of the scientific community have fueled this movement toward increasingly intricate explanations through their failure to heed the principle of parsimony, which is to select the simplest explanation that will fit with the facts.

The simple fact with respect to behavior is that it is always a product of its environment. The stimulus conditions that are the most common tools in the dog trainer's tool kit are consequences, which consist of any events that occur after the performance of a behavior commences. Consequent stimulus events that are associated with an increased rate of performance are known as reinforcement. They operate in conjunction with antecedent conditions to support and maintain behavior. Antecedent stimulus conditions bear equal weight with reinforcers as controlling variables. Antecedent stimuli include the surroundings, the presence of other organisms (ranging from owners to strange dogs to squirrels in the backyard), the temperature, time of day, state of hunger, and anything else that can be detected by the sense organs. Such contingencies determine whether behavior occurs or does not occur.

Physiological events, including illness, injury, extreme temperature sensations, fatigue and many others, are antecedent stimulus conditions. They are often considered motivating operations, meaning that they make certain outcomes for behavior more or less reinforcing. Even when disease or physiological differences are present, the *behavior* that occurs under these physiological conditions does not qualify as pathology. For example, if you come down with influenza, you may stop eating, but the anorexia is not pathological. The reduced food intake results from food being less reinforcing, or even punishing, when the flu is present. Thus anorexia in the influenza patient is not pathological, although the flu itself is. In the same sense, an individual dog may perform more aggressive behaviors when his serotonin levels are low. This does not mean that low serotonin levels caused his increased aggression. It means that the consequences of aggression are more valuable to him while his serotonin levels are low. Behavior remains under the control of antecedent and consequent environmental conditions. No matter what else is going on, manipulation of stimulus conditions can change behavior.

Behavioral problems are often attributed to physiological or psychological conditions that are either present or absent in an organism. Whether a set of conditions is considered normal or pathological often depends on a comparison with other organisms of the same species, age group and culture. Sometimes this view posits that if organism A differs from organisms B through Z, and if the difference poses any sort of challenge for the majority of organisms B–Z, organism A is given the diagnosis of a pathology. Similarly, if A starts out like B–Z but undergoes a change that results in him becoming different from the others, he is assumed to have become pathologically affected. In the

developmental and medical models, these differences are often described as if something is wrong with organism A. When A's differences do not cause any problems for B–Z or when A's daily functioning continues without limitation, he is simply described as different. "Difference" is an appropriately parsimonious description even when B–Z consider his difference a problem or when some limitation for A occurs. The goal should be to determine what constitutes effective, beneficial functioning for A, not to segregate his functioning from that of B–Z with diagnoses or judgments.

When the difference A exhibits is behavioral, A has simply been exposed to an environmental condition to which B–Z have not. The dog who spins all day in a kennel is not defective, he is simply responding to the influences of his environment. The key is to adjust environmental conditions in order to change repertoires to make them more conducive to healthful living and social success, not to diagnose behavior as pathology.

There is no doubt that a learner's biological condition can affect the occurrence, frequency and quality of her performances, but that does not make it causal. For example, such physiological conditions as developmental delays, brain injury and hormonal imbalances do not cause aggressive behavior constellations in dogs, although aggression may be performed by dogs with these conditions. If the environment does not support aggression, individuals with these conditions will not perform aggressive responses. Conversely, if the developmentally delayed, brain-injured, or hormonally imbalanced learner is already performing or begins to perform aggressive responses, changes in the environmental contingencies can be arranged to reduce or eliminate these responses, despite the coexisting conditions. Likewise, aggressive repertoires *may* occur more frequently when an individual has undergone physiological changes, but this does not mean that the change *caused* the aggression. It means that the conditions have changed and have become more supportive of aggressive behaviors for that individual. A supportive environment must exist if the aggression or any behavioral repertoire is to occur.

Medical interventions, by their nature, address problems pathologically. Pathological views focus on the conditions and processes of disease, and start with the assumption that the organism is, for some reason, malfunctioning. In a pathological discussion of behavior, it is assumed that problem behavior is a symptom of a psychological, genetic or physiological fault in the performer. Medical interventions such as anti-anxiety medications may alter the frequencies and magnitudes of certain behaviors, but this outcome does not prove that the problem behavior is a pathology or even that medication is the best treatment. There is a tendency to assume that, because a change in behavior sometimes occurs when medication is administered, this change constitutes a valid diagnosis of a biological pathology. In discussing the effects of medications on human children with attention deficit hyperactivity disorder (ADHD), behavior analyst Dick Malott writes that, if a change in a normal pigeon's pattern of pecking a button occurred concurrently with the administration of a drug, we would not assume the etiology was biological. In other words, if the pigeon's behavior got worse when a drug was administered, no one would jump to the conclusion that the change was a result of a biological problem in the bird. We should not assume the converse, either. Malott writes, "… we should be reluctant to jump from the effects of drugs on … repertoires to the importance of biological determinism in the acquisition of … repertoires and values" (http://dickmalott.com/autism/autismgene_part2/).

In that vein, the fact that the administration of Prozac® sometimes is correlated with a change in a dog's repertoires should not convince us that the behavior problem was biological, even if the changes were reported by the dog's owner as desirable.[1] What we might, instead, say is that for some dogs fluoxetine produces a change in stimulus conditions so that different repertoires are supported.[2,3]

Problem behavior does not constitute pathology. To assume that behavior is the result of a disease process or disorder takes us a step away from the parsimonious observation of behavior in its environment. Although changes in a dog's behavior warrant veterinary examination, there should be no preference for medical pathology-based treatments over behavioral treatments when the behavior is the only identifiable factor. If all you see is behavior, treat behavior. Collaboration between qualified behavior specialists and veterinarians would potentially provide the dog owner with the best possible outcome. Even in cases where there is a veterinary correlate for problem behavior, an early referral to a behavior specialist is recommended. No matter how a behavior gets started, it always occurs in a stimulus environment and may persist beyond the life span of any related medical condition.

Veterinary examination can rule out physical conditions, or indicate appropriate treatment. Too often, prescriptions are written in the absence of physiological correlates for problem behaviors. This practice should be questioned. No veterinarian should resist referring clients to qualified trainers or behaviorists when a physical exam has revealed no veterinary stimulus conditions for a behavior.[4] No behaviorist or trainer should give up and decide that, because a behavior has proven challenging, there is pathology present.

Behavior is never pathological. Behavior is always an interaction between an organism and its environment, whatever that environment may be. This parsimonious view will lead to the development of more effective treatments that are accessible to nonveterinary behavior professionals, and will enhance the work of veterinarians as well. Just because we have an arsenal of veterinary treatments does not mean that they are *always* the best way to go.

Behavior is always sensible in context, even when it consists of topographies others in the performer's community find untenable. The job of the canine behavior change professional is not to complicate matters by attempting to gain support for a diagnosis of biological pathology. It is to evaluate the environment in order to identify stimulus conditions that may, when manipulated, support more desirable behaviors, and to implement relevant procedures.

Endnotes:

1 We should also remember that owner reports are notoriously unreliable, and that extensive research has been done demonstrating the problems with such reports. I refer the reader specifically to the broad body of work by Elizabeth Loftus, PhD.

2 In human patients, verbal reports of the effects of serotonin reuptake inhibitors are used to determine the appropriateness of the drug. The effects vary dramatically from drug to drug and person to person. Such personal interviews cannot be part of a dog's treatment, and this limitation should be part of the decision-making process when deciding whether to administer antidepressant and anti-anxiety medications to nonhumans.

3 It is essential to weigh the side effects, long-term effects, risks of withdrawal, various costs of administration and other factors when making the decision to administer medication, however.

4 This calls for higher professional training standards for canine behavior professionals.