

Instinctual Drift

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Instinctual Drift

Primary Disciplinary Field(s): Behavioral Psychology, Ethology, Animal Learning

1. Core Definition

Instinctual drift describes a phenomenon in animal learning where, despite extensive training using operant conditioning principles, an animal's learned behaviors are gradually replaced by innate, species-specific behaviors. This reversion occurs even when the instinctual behaviors interfere with the reinforced task, leading the animal to forgo rewards or persist despite potential punishment. The essence of instinctual drift lies in the powerful influence of an organism's biological predispositions, which can ultimately override artificial conditioning. It highlights the inherent limits of learning and the persistent pull of an animal's natural behavioral repertoire, suggesting that not all behaviors are equally modifiable or trainable through environmental reinforcement alone.

This concept challenges the earlier radical behaviorist view that animals are a "blank slate" and can be conditioned to perform virtually any behavior if the contingencies of reinforcement are appropriately managed. Instead, instinctual drift demonstrates that an animal's genetic endowment and evolutionary history play a crucial role in shaping its capacity for learning and performance. When an animal encounters a situation that triggers its innate behavioral patterns, these deeply ingrained responses can emerge, sometimes subtly at first, but often becoming dominant over time, disrupting previously established learned behaviors.

The phenomenon illustrates a fundamental interaction between an organism's biological makeup and its learned experiences, where the former can impose significant constraints on the latter. It is a powerful reminder that learning does not occur in a vacuum but is always situated within the context of an animal's biological preparedness and its natural propensities. Understanding instinctual drift is therefore critical for anyone involved in animal training, behavior modification, or the study of comparative psychology, as it underscores the importance of considering species-specific behaviors when designing learning protocols.

2. Etymology and Historical Development

The concept of **instinctual drift** was formally introduced by Keller and Marian Breland, a husband-and-wife team of animal trainers and applied psychologists, in their seminal 1961 article, "The Misbehavior of Organisms." Both were former students of B.F. Skinner at the University of Minnesota, deeply versed in the principles of operant conditioning. After leaving academia, they established "Animal Behavior Enterprises," a company dedicated to training animals for various purposes, including advertising, entertainment, and commercial applications. Their extensive practical experience with a wide array of species provided them with unique insights into the

complexities of animal learning that extended beyond laboratory settings.

Through years of training animals such as raccoons, pigs, chickens, and porpoises, the Brelands observed consistent patterns where animals, despite being successfully conditioned to perform specific tasks for reinforcement, would eventually revert to behaviors more typical of their species. These "misbehaviors" or "drifts" were often irrational in the context of the learned task, as they prevented the animals from obtaining the promised rewards. For instance, raccoons trained to deposit coins into a bank would begin to "wash" the coins, rubbing them together as they would food, rather than dropping them. Pigs trained to carry wooden dollars would start rooting them in the ground. These observations directly challenged the prevailing behaviorist dogma of the time, particularly Skinner's view that environmental reinforcement could shape almost any behavior, largely disregarding innate biological factors.

The Brelands' work highlighted the limitations of a purely environmentalist perspective on behavior and brought biological constraints back into the forefront of learning theory. Their article, with its provocative title referencing Skinner's "The Behavior of Organisms," served as a significant critique and refinement of behaviorism, paving the way for a more integrated understanding of learning that acknowledged the interplay between an animal's genetic predispositions and its learning experiences. Their findings were instrumental in fostering the development of fields like ethology and comparative psychology, which actively explore the biological and evolutionary underpinnings of behavior.

3. Key Characteristics and Manifestations

The phenomenon of **instinctual drift** is characterized by several distinct features that differentiate it from simple learned behavior or extinction. Fundamentally, it involves the gradual displacement of a previously learned, reinforced behavior by an innate, species-specific behavior. This shift is not merely a failure to learn or a forgetting of the task; rather, it is an active reversion to natural patterns that are deeply wired into the animal's biological makeup. The learned behavior, even if initially successful and consistently reinforced, becomes progressively weaker or is outright suppressed by the emergence of the instinctual response.

A critical characteristic is that the drifting behavior often interferes directly with the task that is supposed to be performed, preventing the animal from achieving the desired outcome or obtaining reinforcement. For example, a dog that has been taught to sit quietly when a guest enters, through consistent reward and punishment, might under stress revert to its instinctual tendency to bark aggressively at visitors, perceiving them as intruders. This instinctual barking behavior, despite leading to negative consequences (e.g., owner's disapproval, lack of reward), can override the learned quietness. This demonstrates that the natural behavior, once triggered, can become so compelling that it overrides the contingencies of operant conditioning, highlighting the power of

biological predispositions over learned environmental associations.

Furthermore, these instinctual behaviors typically manifest in ways that are ecologically relevant to the species, even if they appear maladaptive in the context of the human-imposed task. The Brelands' classic examples vividly illustrate this: raccoons, naturally predisposed to "wash" their food in water, would begin to rub coins together instead of dropping them into a bank, treating the coins like edible items. Similarly, pigs, which naturally root for food in the soil, would start pushing and digging at wooden tokens rather than carrying them to a designated spot. These behaviors are not arbitrary; they are specific expressions of the animal's innate foraging, grooming, or defensive patterns, which surface even when they prevent the animal from receiving artificial rewards, thus underscoring the enduring influence of evolutionary heritage on an animal's behavioral repertoire.

4. Significance and Impact

The concept of **instinctual drift** carries profound significance for the fields of behaviorism, animal learning, and comparative psychology, challenging foundational assumptions and fostering a more nuanced understanding of animal behavior. Its primary impact was to demonstrate unequivocally that there are biological limits to learning and that an organism's evolutionary history and genetic predispositions cannot be entirely overridden by environmental conditioning. This insight served as a crucial corrective to the radical behaviorist perspective, which largely dismissed internal states and biological factors in favor of focusing solely on observable behaviors and external stimuli. Instinctual drift firmly established that the "blank slate" view of organisms was incomplete, asserting that "nature" plays an undeniable role alongside "nurture" in shaping behavior.

The recognition of instinctual drift significantly influenced practical applications in animal training and behavior modification. Trainers and animal handlers began to understand that forcing animals into behaviors that strongly conflict with their natural tendencies can be counterproductive and lead to frustration for both the animal and the trainer. Instead, the concept encouraged approaches that work with an animal's natural inclinations, or at least acknowledge them, rather than attempting to suppress them entirely. This shift promoted more humane and effective training methods, recognizing that some behaviors are simply more "prewired" and thus harder to modify than others. For example, training a bird to fly is much easier than teaching a fish to fly, due to their inherent biological capacities and predispositions.

Furthermore, instinctual drift played a pivotal role in bridging the gap between behavioral psychology and ethology, the scientific study of animal behavior in natural conditions. By highlighting the importance of species-specific behaviors, it encouraged a more interdisciplinary approach to understanding animal psychology, integrating insights from evolutionary biology, genetics, and ecology. It underscored the importance of studying an animal's complete behavioral repertoire, both learned and innate, in its ecological context to gain a holistic understanding of its

adaptive responses. This interdisciplinary perspective continues to inform research in fields ranging from conservation biology to human psychology, demonstrating how deep-seated biological mechanisms can influence complex behaviors across species.

5. Debates and Criticisms

Upon its introduction by Keller and Marian Breland, the concept of **instinctual drift** was initially met with considerable debate and resistance, particularly from staunch behaviorists who had invested heavily in the idea that learning was primarily a product of environmental contingencies, with biological factors playing a minimal, if any, role. Critics, adhering to the tenets of radical behaviorism, often sought to explain away instances of drift as failures in experimental control, insufficient reinforcement schedules, or improper stimulus generalization, rather than acknowledging an inherent biological constraint. This resistance stemmed from the paradigm's emphasis on universal laws of learning, which instinctual drift appeared to contradict by highlighting species-specific limitations.

However, over time, the empirical evidence accumulated by the Brelands and subsequent researchers proved compelling. The consistent observation of animals reverting to innate behaviors despite meticulous operant conditioning protocols demonstrated that biological predispositions were not merely an inconvenience but a fundamental aspect of an animal's learning capacity. The "criticism" evolved from outright rejection to a more nuanced integration into learning theory. Modern perspectives generally do not debate the existence of instinctual drift but rather discuss its implications and mechanisms. The focus shifted to understanding *how* biological factors interact with learning processes, rather than denying their existence.

Contemporary discussions around instinctual drift often revolve around the precise neurobiological and genetic mechanisms underlying these predispositions, and the extent to which they can be mitigated or redirected through advanced training techniques. There is less "criticism" of the concept itself and more an exploration of its nuances, such as how different species exhibit varying degrees of susceptibility to drift depending on the behavioral task, or how evolutionary pressures have shaped specific learning biases. Thus, what began as a challenge to established dogma has now become an accepted, integral component of a more comprehensive and biologically informed understanding of animal learning and behavior.

Further Reading

[Instinctual drift on Wikipedia](#)

[Behavioral psychology on Wikipedia](#)

[Ethology on Wikipedia](#)

[Animal cognition on Wikipedia](#)

[Keller Breland on Wikipedia](#)

[Behaviorism on Wikipedia](#)

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