

TERMINAL BEHAVIOR

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1. Core Definitions in Behavioral Science

The concept of **Terminal Behavior** holds significance in behavioral science, primarily operating within two distinct, yet interconnected, contexts derived from the study of operant conditioning. In the first context, particularly when observing free-operant conditioning under time-based reinforcement schedules, terminal behavior refers to the specific actions or responses that become highly predominant within the short interval immediately preceding the delivery of a reinforcer. This meaning highlights the temporal conditioning of behavior, demonstrating how the anticipated availability of reward controls the subject's activity patterns, resulting in a predictable surge of the target response just before reinforcement is scheduled to occur. This form of terminal behavior is often contrasted with "interim behavior," which occurs mid-interval, and provides critical insights into the microstructure of responding under intermittent reinforcement.

The second, and perhaps more widely applied, definition of **Terminal Behavior** relates directly to the field of behavior modification and Applied Behavior Analysis (ABA). In this context, the terminal behavior represents the ultimate, desired reaction or action that an individual is expected to demonstrate upon the successful completion of a training or intervention program. Crucially, this reaction either lies entirely outside the individual's current behavioral repertoire or is currently performed at an unacceptable rate, magnitude, intensity, or duration. Establishing a clear, measurable terminal behavior is the foundational step in designing effective instructional or therapeutic interventions, providing the objective benchmark against which all progress, especially through techniques like shaping, is measured. Therefore, the term encapsulates both an empirical finding about temporal control in laboratory settings and a practical goal-setting measure in clinical and educational applications.

2. Terminal Behavior in Operant Conditioning Schedules

In basic research settings exploring the mechanisms of operant conditioning, the study of terminal behavior is inextricably linked to the analysis of interval-based reinforcement schedules, such as Fixed-Interval (FI) and Variable-Interval (VI) schedules. When an organism, such as a pigeon or a rat, is placed on an FI schedule, the first response after a specified period of time has elapsed yields a reinforcer. The organism learns that responses immediately following reinforcement delivery are futile, as the reward is not yet available. Consequently, the rate of responding tends to be very low immediately post-reinforcement. As the end of the interval approaches, the organism begins to respond more frequently and intensely. This high rate of responding leading directly up to

the moment of reinforcement constitutes the **terminal behavior**.

This phenomenon demonstrates the powerful influence of time and anticipation on behavioral output. The behavior is effectively "terminated" by the delivery of the reward, after which the pattern restarts. Research into these scheduling effects, pioneered by figures like B. F. Skinner, showed that animals do not simply respond randomly, but develop highly structured and predictable temporal patterns of responding based on the schedule contingencies. Understanding the precise timing and form of terminal behavior is essential for researchers attempting to model the cognitive and biological processes underlying reinforcement learning and motivational states.

3. The Role of the Fixed-Interval Scallop

The most iconic illustration of **terminal behavior** in operant conditioning is the Fixed-Interval (FI) scallop, which is a characteristic cumulative record observed when behavior is reinforced on a fixed time schedule. The FI scallop is graphically represented by a period of minimal or zero responding immediately after reinforcement (the post-reinforcement pause), followed by a gradual and accelerating increase in response rate, culminating in a burst of high responding just before the next reinforcer is delivered. This accelerating phase represents the manifestation of terminal behavior.

The scallop pattern is a clear marker of the organism's sensitivity to the passage of time relative to the reinforcement contingency. The behavior is strategically timed, suggesting that the organism is regulating its output based on the expectancy of reward delivery. While the specific topography of the response (e.g., bar pressing, key pecking) might remain constant, the rate at which it is emitted dramatically increases as the end of the interval nears. Furthermore, subtle variations in the environment--such as sounds or visual cues that mark the passage of time--can act as discriminative stimuli, sharpening the transition from the low-rate interim phase to the high-rate terminal phase. Analyzing the slope and length of the terminal phase helps researchers quantify the strength and precision of temporal control exerted by the reinforcement schedule.

4. Terminal Behavior as a Target Goal in Applied Behavior Analysis

In applied settings, particularly educational and therapeutic interventions using shaping procedures, **terminal behavior** serves as the definitive objective toward which all intervention steps are directed. When a therapist or teacher is attempting to teach a complex skill, or a skill that is currently absent from the learner's repertoire (such as speaking a specific phrase, tying shoelaces, or performing a multi-step vocational task), the terminal behavior must first be defined with absolute clarity and precision. It is the final, fully proficient action that defines success.

The pathway to achieving this complex terminal behavior involves the reinforcement of successive approximations--behaviors that are incrementally closer to the final goal. For instance, if the

terminal behavior is "writing a complete sentence," the initial approximation might be "holding the pencil correctly." The reinforcement is gradually withheld for less precise behaviors and delivered only for actions that are closer to the final criterion. This methodical progression ensures that the learner is guided from their baseline behavior to the desired terminal behavior through a series of reinforced steps, making the terminal behavior definition critical for structuring the entire teaching sequence and ensuring fidelity across various instructional settings and providers. Without a clearly articulated terminal behavior, intervention goals become ambiguous, making reliable measurement of progress impossible.

5. Characteristics of a Well-Defined Terminal Behavior

For the purpose of effective intervention and research, particularly within ABA, a terminal behavior must adhere to rigorous criteria to ensure objectivity and measurability. It must be defined behaviorally, meaning it should be observable and countable, avoiding subjective psychological constructs. The definition must specify the dimensions of the behavior, including its rate (how often it occurs), its magnitude (how intensely it is performed), its duration (how long it lasts), and its topography (the exact form it takes).

Defining a terminal behavior requires careful consideration of the context and function. For example, simply stating the terminal behavior as "The student will be polite" is inadequate because "polite" is subjective. A well-defined terminal behavior would be: "The student will initiate conversation with peers using the phrase 'Excuse me' before asking a question, maintaining eye contact for at least three seconds, in 8 out of 10 measured opportunities." This level of specificity allows multiple independent observers to agree on whether or not the behavior occurred, fulfilling the standards of scientific rigor necessary for effective behavior analysis. The **terminal behavior** essentially establishes the performance criterion that signals the cessation of the shaping or intervention phase.

6. Distinction from Interim and Adjunctive Behaviors

While **terminal behavior** refers to the high-rate response observed immediately prior to reinforcement, it is conceptually distinct from **interim behavior** and **adjunctive behavior**, which are also products of reinforcement schedules. Interim behaviors are those actions, often unrelated to the reinforced response, that occur predominantly during the early and middle portions of the fixed interval--the time when reinforcement is least likely. These behaviors may include exploring the environment, self-grooming, or other seemingly idiosyncratic activities. The difference is purely temporal: terminal behavior is concentrated at the end of the interval, while interim behavior dominates the beginning.

Adjunctive behaviors, often called schedule-induced behaviors, are also temporally related but

usually refer to excessive, repetitive behaviors that appear shortly after reinforcement delivery. Examples include polydipsia (excessive drinking) or stereotypy induced by certain schedules. While these behaviors are also controlled by the schedule, they are not typically the target response being reinforced and are often considered side effects. **Terminal behavior**, conversely, is usually the very response that is required by the contingency (e.g., the lever press or key peck), albeit emitted at a heightened frequency due to the proximity of the reward, distinguishing it functionally and temporally from these related phenomena.

7. Significance in Behavior Modification and Learning Theory

The concept of **terminal behavior** is foundational to both the theoretical understanding of learning and the practical application of therapeutic techniques. Theoretically, its study helps behavioral scientists understand the intricacies of temporal discrimination and how organisms predict and react to intermittent environmental contingencies. The precise measurement of terminal behavior under various schedules allows for the development of sophisticated mathematical models of learning, contributing significantly to the literature on motivation and expectation.

Practically, the successful definition and achievement of **terminal behavior** is the defining measure of success in all behavior modification protocols. Whether the goal is teaching complex life skills to individuals with developmental disabilities, training animals, or implementing large-scale organizational behavior management systems, the first critical step is defining the final, successful outcome. This structured approach, rooted in the clear identification of the terminal behavior, is what lends rigor and efficacy to behavior modification, ensuring that interventions are data-driven, systematic, and focused entirely on observable, measurable change in performance.

8. Further Reading

[Operant conditioning \(Wikipedia\)](#)

[Applied Behavior Analysis \(Wikipedia\)](#)

[Shaping \(Psychology\) \(Wikipedia\)](#)

Ferster, C. B., & Skinner, B. F. (1957). *Schedules of Reinforcement*. Appleton-Century-Crofts.