Concepts and Principles

Behavior analyst certification examination

24 tasks · 24 questions on the exam · BACB Test Content Outline (6th ed.)

This area covers the basic principles every procedure rests on: behavior and stimuli, respondent and operant conditioning, reinforcement and punishment, schedules, extinction, stimulus control, motivating operations, verbal behavior, emergent relations, momentum, matching and imitation. Questions describe a short episode and ask you to classify it, so the skill being tested is reading the effect on future behavior and the exact operation, not the intention or the label someone gave it.

You should be able to: Given a brief episode, you should be able to classify the contingency, schedule, reinforcer or punisher type, antecedent function, verbal operant or learning process it shows, and say which feature of the episode decides the classification.

Every task: the key point and the trap

B.1 Identify and distinguish among behavior, response, and response class.

Behavior is the activity of living organisms: the portion of an organism's interaction with its environment that involves movement of some part of the organism. The dead man test applies: if a dead man can do it, it is not behavior.

Trap: Responses that look nothing alike can be one response class if they produce the same effect, and responses that look alike can belong to different classes if they serve different functions.

B.2 Identify and distinguish between stimulus and stimulus class.

A stimulus is an energy change that affects an organism through its receptor cells; stimuli can be described formally (physical features), temporally (before or after a behavior) and functionally (their effect on behavior).

Trap: One stimulus is a single energy change; a stimulus class is a set of stimuli grouped by shared features, timing or function, and an exam item will describe several different objects controlling one response to test whether you see a class.

B.3 Identify and distinguish between respondent and operant conditioning.

Respondent behavior is elicited by antecedent stimuli and is controlled by them; the basic unit is the reflex, an unconditioned stimulus (US) that elicits an unconditioned response (UR) without learning.

Trap: Respondent conditioning pairs two stimuli and does not depend on what the person does; operant conditioning depends on a consequence of a response, so a pairing of stimuli with no response requirement is never operant.

B.4 Identify and distinguish between positive and negative reinforcement contingencies.

Reinforcement is a response followed immediately by a change in stimulus that increases the future frequency of similar responses; it is defined by its effect, not by whether the consequence seems pleasant.

Trap: Negative reinforcement is not punishment; it increases behavior by removing a stimulus, and a question that describes something unpleasant being taken away after a response that then increases is negative reinforcement.

B.5 Identify and distinguish between positive and negative punishment contingencies.

Punishment is a response followed immediately by a change in stimulus that decreases the future frequency of similar responses; like reinforcement, it is defined only by its effect on future behavior.

Trap: A procedure is called punishment only when the behavior decreases; an aversive event that the person dislikes but that does not reduce the behavior is not punishment in the technical sense.

B.6 Identify and distinguish between automatic and socially mediated contingencies.

A socially mediated contingency is one in which another person delivers the consequence: attention, access to items, or the removal of a demand by a teacher or parent.

Trap: Automatic does not mean unlearned or without a consequence: the behavior is still operant and reinforced, just by its own sensory product rather than by another person.

B.7 Identify and distinguish among unconditioned, conditioned, and generalized reinforcers.

An unconditioned reinforcer (primary) functions as a reinforcer without any learning history because of the species' evolutionary history: food, water, warmth, sexual stimulation, and escape from painful stimulation.

Trap: A stimulus is not a generalized reinforcer simply because it is effective for many people; it is generalized because it has been paired with many different reinforcers for this person.

B.8 Identify and distinguish among unconditioned, conditioned, and generalized punishers.

An unconditioned punisher functions as a punisher without prior learning: painful stimulation, extreme temperatures, loud noises, intense light, and other stimuli the species evolved to be sensitive to.

Trap: Conditioned and generalized punishers are acquired through pairing; an exam item that describes a word or look acquiring its effect through a history of association is describing a conditioned punisher, not an unconditioned one.

B.9 Identify and distinguish among simple schedules of reinforcement.

Continuous reinforcement (CRF) reinforces every response and is best for establishing new behavior; intermittent schedules reinforce only some responses and are best for maintaining it, producing greater resistance to extinction.

Trap: On an interval schedule the passage of time alone does not deliver the reinforcer; a response is still required after the interval ends, which separates FI and VI from fixed-time and variable-time schedules.

B.10 Identify and distinguish among concurrent, multiple, mixed, and chained schedules of reinforcement.

Concurrent schedules: two or more schedules are in effect at the same time, each for a different response, and the person chooses among them; they are the basis for studying choice and the matching law.

Trap: Multiple and mixed schedules differ only in whether each component is signaled; chained and tandem differ the same way, and the difference between those two pairs is whether each component is reinforced or only the last one.

B.11 Identify and distinguish between operant and respondent extinction as operations and processes.

Operant extinction as an operation: reinforcement for a previously reinforced behavior is discontinued, so the response no longer produces its maintaining consequence.

Trap: Removing a stimulus the person already had is negative punishment; withholding the specific reinforcer that used to follow the response is extinction.

B.12 Identify examples of stimulus control.

Stimulus control exists when the rate, latency, duration or magnitude of a response is altered in the presence of an antecedent stimulus; the behavior occurs more often (or differently) when the stimulus is present than when it is absent.

Trap: A stimulus exerts control because of a history of differential consequences in its presence, not because it forces or elicits the behavior; an operant SD evokes behavior, a respondent CS elicits it.

B.13 Identify examples of stimulus discrimination.

Stimulus discrimination is responding differently in the presence of different stimuli: the response occurs to the SD and not, or less, to the S-delta.

Trap: A learner who answers correctly only when the correct choice is in the same position is showing discrimination, but to the wrong stimulus; correct answers alone do not prove the intended stimulus control.

B.14 Identify and distinguish between stimulus and response generalization.

Stimulus generalization: a response reinforced in the presence of one stimulus also occurs in the presence of other, untrained stimuli that share physical properties with it.

Trap: Ask which part is new: if the antecedent situation is new and the response is the same, it is stimulus generalization; if the response form is new, it is response generalization.

B.15 Identify examples of response maintenance.

Response maintenance is the extent to which a learner continues to perform a target behavior after part or all of the intervention that produced it has been withdrawn.

Trap: Performance during the intervention, however high, is acquisition; maintenance is shown only after the intervention has been partly or fully withdrawn.

B.16 Identify examples of motivating operations.

A motivating operation (MO) is an environmental variable that alters the effectiveness of some stimulus as a reinforcer or punisher (the value-altering effect) and alters the current frequency of all behavior that has been reinforced or punished by that stimulus (the behavior-altering effect).

Trap: An MO changes how much a consequence is worth right now and how often behavior that produced it occurs; it does not signal that the consequence is available, which is the job of an SD.

B.17 Distinguish between motivating operations and stimulus control.

Both MOs and SDs are antecedents that evoke behavior, which is why they are confused; they differ in why they evoke it.

Trap: If the antecedent changes how much the person wants the consequence, it is an MO; if it changes the likelihood that the consequence will follow the response, it is an SD.

B.18 Identify and distinguish between rule-governed and contingency-shaped behavior.

Contingency-shaped behavior is behavior selected by direct contact with its consequences, through a history of reinforcement and punishment.

Trap: Behavior that changes when a consequence is delayed by days or weeks is almost certainly rule-governed, because consequences that remote do not directly reinforce or punish behavior.

B.19 Identify and distinguish among verbal operants.

Mand: verbal behavior evoked by an MO and reinforced by the specific consequence specified (asking for juice when thirsty, reinforced by juice). It benefits the speaker directly.

Trap: The same word can be any operant; classify it by the controlling antecedent and the consequence, not by the form of what was said.

B.20 Identify the role of multiple control in verbal behavior.

Most verbal responses are controlled by more than one variable at once (Skinner's multiple causation); a full analysis identifies all of them.

Trap: Convergent control is many variables to one response; divergent control is one variable to many responses.

B.21 Identify examples of processes that promote emergent relations and generative performance.

An emergent relation is a stimulus relation or response that appears without having been directly trained or reinforced, derived from other relations that were trained.

Trap: A relation that was directly reinforced is not emergent, however advanced it looks; the defining feature is that it appears without direct training.

B.22 Identify ways behavioral momentum can be used to understand response persistence.

Behavioral momentum is a metaphor (Nevin) for the persistence of behavior: just as an object's momentum depends on its mass and velocity, behavior's resistance to change depends on its history of reinforcement.

Trap: Momentum theory says persistence is governed by the reinforcement in the context as a whole, so more reinforcement for an alternative in that context can make the target behavior more persistent, not less.

B.23 Identify ways the matching law can be used to interpret response allocation.

The matching law (Herrnstein) states that, on concurrent schedules, the relative rate of responding to an alternative tends to match the relative rate of reinforcement obtained from it.

Trap: The matching law describes relative allocation among alternatives available at the same time; it predicts proportions of responding, not the absolute rate of a single behavior under one schedule.

B.24 Identify and distinguish between imitation and observational learning.

Imitation is behavior that meets four conditions: a model's behavior is the antecedent; the imitative behavior follows within a short time; it has formal similarity to the model (looks or sounds like it); and the model is the controlling variable for it.

Trap: Imitation requires that the model controls an immediate, formally similar response; delayed behavior acquired by watching someone else's consequences is observational learning.

Key terms

Response class: A group of responses that share a common function or form.

Positive reinforcement: A stimulus is added after a response and the response increases in future.

Negative reinforcement: A stimulus is removed after a response and the response increases in future.

Positive punishment: A stimulus is added after a response and the response decreases in future.

Negative punishment: A stimulus is removed after a response and the response decreases in future.

Generalized conditioned reinforcer: A conditioned reinforcer paired with many other reinforcers, effective across motivational states.

Postreinforcement pause: The absence of responding after reinforcement, typical of fixed ratio and fixed interval schedules.

Extinction burst: An initial increase in the frequency, duration or intensity of behavior when reinforcement is first withheld.

Spontaneous recovery: The reappearance of an extinguished behavior after a period without it, while extinction remains in place.

Discriminative stimulus (SD): A stimulus in whose presence a response has been reinforced, which evokes that response.

Motivating operation: An environmental variable that alters the value of a consequence and the current frequency of behavior that produced it.

CMO-T: A conditioned motivating operation that makes another stimulus effective as a reinforcer.

CMO-R: A conditioned motivating operation that signals worsening or improvement and makes its own removal or presence a reinforcer.

Mand: A verbal operant evoked by an MO and reinforced by the specific consequence it specifies.

Tact: A verbal operant evoked by a nonverbal stimulus and maintained by generalized conditioned reinforcement.

Intraverbal: A verbal operant evoked by a verbal stimulus without point-to-point correspondence.

Stimulus equivalence: Emergence of untrained reflexive, symmetrical and transitive relations among stimuli after training some relations.

Resistance to change: The persistence of behavior when a disruptor such as extinction is applied.

Matching law: On concurrent schedules, the relative rate of responding matches the relative rate of reinforcement.

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