

## Reinforcement-Learning Theory Glossary

Base line /rate – the initial rate of a behavior before modification.

Chaining – one response produces the stimulus for the next.  $S^D \rightarrow R^D \rightarrow S^D \rightarrow R^D \rightarrow S$

Chained schedule – a set of two or more reinforcement schedules, each signaled by its own discriminative stimulus that must be completed in sequence before the primary reinforcer occurs.

Classical conditioning - The procedure in which an initially neutral stimulus (the conditional stimulus, or CS) is repeatedly paired with an unconditional stimulus (or US). The result is that the conditional stimulus begins to elicit a conditional response (CR).

Conditional response (CR) - the response that is elicited by the conditional stimulus after classical conditioning has taken place. The response is “conditional” in the sense that it depends on the conditioning experience.

Conditional stimulus (CS) - an initially neutral stimulus (like a bell, light, or tone) that begins to elicit a conditional response after it has been paired with an unconditional stimulus.

Contingent – dependent upon some other event. For example when a teacher modifies behavior, reinforcement becomes contingent on the desired behavior.

Cue – that aspect of the environment which provides an individual with information about what he is to do if he is to receive reinforcement.

Discrimination – connections between stimuli and responses that have come about by way of generalization.

Discriminative stimulus ( $S^D$ ) - a specific “cue” that elicits a response.

Differentiation ( $R^D$ ) - a skill-variation in response leading to reinforcement.

Error rate – the objectively recorded rate at which errors are emitted.

Elicited - brought on by something that comes before. Respondent behaviors are elicited by an antecedent event.

Emitted - literally, “to send forth.” Organisms are said to emit operant behaviors in the sense that such behaviors are not elicited by an antecedent event; they appear spontaneous (but are really controlled by their consequences).

Extinction – the diminution/weakening of a response through withholding reinforcement.

Fading – gradual removal of cues and prompts in the learning of responses.

Generalization – when an operant may be invoked, without further conditioning, in another situation. The transfer of a learned response from one stimulus to a similar stimulus.

Interfering behavior – undesirable behavior which occurs at a high rate, impeding desirable behavior.

Operant behaviors – (“voluntary”) behavior that is controlled by its consequences; have an effect on, or do something to the environment.

Operant conditioning – (“law of effect”) a behavior may be altered in strength by its consequences (reinforcement).

Premack principle - behavior that occurs at a high frequency can be used as a reinforcer for behavior that occurs at a low frequency.

Prompt – a very specific cue used to accelerate the rate of emission of a learned response.

Punishment – a weakening of a behavior by aversive stimuli that follows the behavior.

Reinforcement:

Positive – presentation of a stimulus (event or object) which increases (strengthens) the rate of behaviors which it follows.

Negative – removal of an aversive stimulus which increases the rate of a response

Reinforcer – an event or object (stimulus) which strengthens or increases the probability behaviors they follow.

Primary ( $R^+$ ) – “naturally” reinforcing stimuli e.g. food

Secondary ( $r^+$ ) – acquired reinforcing stimuli e.g. praise or tokens that can be exchanged

Reinforcement schedules:

Continuous - a reinforcer is delivered after each response

Fixed interval (FI) – reinforcement is given for the first response following a fixed period of time.

Fixed ratio (FR) – reinforcement is contingent on a specific number of responses.

Variable interval (VI) – reinforcement is given for the first response following a systematically varied period of time.

Variable Ratio (VR) – the number of responses required for reinforcement is systematically varied.

Respondent behaviors – (reflex, “involuntary”) elicited by stimulus changes in the environment.

Respondent conditioning – pairing a neutral stimulus with an eliciting stimulus to get the same response.

Response – a single complete action (behavior) which has a clearly observable beginning and end.

Stimulus:

Pavlovian conditioning – sensory stimulus which elicits a response ( $S \rightarrow R$ )

Operant conditioning (two types) – discriminative (cue) and outcome (reinforcer or punisher)

Stimulus control - When operant behaviors are controlled by the stimuli that precede them.

Unconditional response (UR) - in classical conditioning, an innate response that is elicited by a stimulus in the absence of conditioning.

Unconditional stimulus (US) - in classical conditioning, the stimulus that elicits the response before conditioning occurs.