

Simple Schedules of Reinforcement

One of the simplest schedules of reinforcement is the continuous reinforcement schedule (CRF). Every behavior is reinforced.

- Inserting money into a vending machine (almost always) gives you your candy, soda, etc.
- Turning on the air conditioner (almost always) leads to a blast of cool air on a hot day.

The opposite of CFR is extinction, which can be thought of as a schedule of nonreinforcement.

Although continuous reinforcement typically leads to the most rapid learning of a new behavior, it is probably rare in the natural environment. Most behavior is reinforced on some occasions and not others. When reinforcement occurs on some occasions and not others, the behavior is said to be on an intermittent schedule.

The most common intermittent schedules of reinforcement are:

- Fixed ratio
- Variable ratio
- Fixed interval
- Variable interval

Description of the Schedules of Reinforcement

Schedule of reinforcement: The delivery of a reinforcer according to a preset pattern based on the number of responses (a ratio) or the time interval (interval) between responses.

	FIXED	VARIABLE
RATIO (#)	<p><u>fixed ratio (FR)</u>: A reinforcement schedule in which a reinforcer is delivered after a fixed <u>number of responses</u> has occurred.</p> <p><u>Example</u>: A food dispenser drops one food pellet after a pigeon pecks at a bar 25 times.</p>	<p><u>variable ratio (VR)</u>: A reinforcement schedule in which a reinforcer is randomly delivered on a preset ratio.</p> <p><u>Example</u>: A pigeon has a 1/25 chance of receiving a food pellet for every peck on the bar.</p>
INTERVAL (time)	<p><u>fixed interval (FI)</u>: A reinforcement schedule in which a reinforcer is delivered for the first response after a fixed <u>time interval</u> has elapsed.</p> <p><u>Example</u>: A pigeon received a food pellet after the first press of the bar after a two minute interval.</p>	<p><u>variable interval (VI)</u>: A reinforcement schedule in which a reinforcer is randomly delivered for each <u>time interval</u>.</p> <p><u>Example</u>: A pigeon has a 1/120 chance every second to receive a food pellet after every press of the bar.</p>

Examples of the Schedules of Reinforcement

	FIXED	VARIABLE
RATIO (#)	<p><u>fixed ratio (FR):</u> A reinforcement schedule in which a reinforcer is delivered after a fixed <u>number of responses</u> has occurred.</p> 	<p><u>variable ratio (VR):</u> A reinforcement schedule in which a reinforcer is randomly delivered on a preset ratio.</p> 
INTERVAL (time)	<p><u>fixed interval (FI):</u> A reinforcement schedule in which a reinforcer is delivered for the first response after a fixed <u>time interval</u> has elapsed.</p> 	<p><u>variable interval (VI):</u> A reinforcement schedule in which a reinforcer is randomly delivered for each <u>time interval</u>.</p> 

Examples of each Schedule of Reinforcement

	FIXED	VARIABLE
RATIO (# of responses)	<ul style="list-style-type: none"> A food dispenser drops one food pellet after a pigeon pecks at a bar 25 times. You win for every 4th card flipped over from a 52 card deck. ♠♦♣♥ ♥♦♠♦ ♣♥♠♦ ♣♣♥♦ Phil, a real estate broker gets a bonus for every ten houses sold. Buy 12 cookies, get 2 free. 	<ul style="list-style-type: none"> A pigeon gets a food pellet, on the average every 25 pecks on the bar. A pigeon has a 1/25 chance of receiving a food pellet for every peck on the bar. You win for every <u>heart</u> that is flipped over from a 52 card deck. ♠♦♣♥ ♥♦♠♦ ♣♥♠♦ ♣♣♠♦ A baseball player with a batting average of .333 will get a hit about 1/3 of the time. Baseball cards packs have four "premium card" per box of 36. Slot machines payouts.
INTERVAL (time)	<ul style="list-style-type: none"> A pigeon received a food pellet after the first press of the bar after a two-minute interval. Health inspections that occur in January and July. Scheduled drug testing Levar, an employee at McDonalds gets paid every two weeks. Receiving \$40 for every day spent collecting signatures for a constitutional amendment. 	<ul style="list-style-type: none"> A pigeon receives a food pellet after the first press of the bar at about 2 minutes. A pigeon has a 1/120 chance every second to receive a food pellet after every press of the bar. Random health inspections that occur twice a year. Random drug testing.

Schedules of Reinforcement: The likely effect of a schedule of reinforcement on behavior

	FIXED	VARIABLE
RATIO	<p>Produces a high rate of responding that follows a burst-pause-burst pattern. A pause after each reinforcer is usually occurs.</p> <p><u>Example:</u> If you get paid \$20 for mowing 2 lawns, you tend to take a break after mowing 2 lawns.</p>	<p>Produces a high rate of response with hardly any pauses between trials or reinforcement. Learning is more permanent and difficult to extinguish or eliminate.</p> <p><u>Example:</u> Imagine having a 50% chance of getting paid \$20 for mowing a lawn. There is no break in behavior.</p>
INTERVAL	<p>Produces a pattern of responses where very few responses are obtained until the fixed interval of time approaches. The rate of response dramatically increases at this interval.</p> <p><u>Example:</u> Employee performance increases when they know their annual review draws near and decreases just as soon as it is over. A health inspection every January and July.</p>	<p>Produces a pattern of moderate and steady responses. It is not a good schedule for initial learning, but produces a highly stable performance.</p> <p><u>Example:</u> Random and/or surprise inspections by the health department.</p>

