

## Classical Conditioning Exercises

This week's readings and exercises focus on classical (Pavlovian) conditioning. Pavlovian conditioning is the fundamental building block of learning; it is central to how organisms adapt to their environment. Classical conditioning occurs in all animals. Single-celled creatures, such as paramecia, are capable of Pavlovian conditioning, and classical conditioning is operating in many behaviors exhibited by humans. Classical conditioning is founded on the relationship between in-born reflexes called unconditioned responses and the unconditioned stimuli that produce those reflexes. The term *unconditioned* is instructive; *unconditioned* implies no learning required. The relationship between the *unconditioned stimulus* (US) and the *unconditioned response* (UR) exists the first time the unconditioned stimulus is presented. Furthermore, each time the US is presented, the UR reliably follows. In contrast, a *conditioned stimulus* requires learning (conditioning) before it will elicit a *conditioned (learned) response*. Many inborn reflexes have importance to an organism because of their survival value. Some examples are eye blinks that occur in response to something directed to the eye, or salivation in response to food in one's mouth. You may ask what is the survival utility of these responses? Well, if one did not blink, one could suffer an injury to the eye, and without saliva present, it is difficult to swallow one's food, and saliva contains enzymes that begin digestive processes.

To reiterate, unconditioned stimuli are stimuli that produce unconditioned responses. In the instances noted above the unconditioned stimuli are projectiles toward the eye and food in the mouth. A projectile approaching your eye (an unconditioned stimulus) causes a reflexive blink (unconditioned response), you don't have to learn to blink to avoid something approaching your eye. When food (unconditioned stimulus) is placed in one's mouth you salivate automatically (unconditioned response).

The following terms must be mastered, in order to understand classical conditioning principles.

**Unconditioned stimulus (US)** - a stimulus that elicits a predictable response without learning, for example, an air puff to your eye will cause you to blink. The air puff is the US and the blink is the UR.

**Unconditional response (UR)** - the automatic, unlearned response to an unconditioned stimulus (US). For example, salivating is an unconditioned response to food in one's mouth. Food is the US (unconditioned stimulus) and salivation is the UR (unconditioned response).

**Conditioned stimulus (CS)** – the critical feature of a conditioned stimulus is that learning (conditioning) must occur before it can elicit a response. Prior to conditioning a CS is a neutral stimulus to an organism. By neutral stimulus it is meant that it has no capacity to produce an unconditioned response. After pairing a conditioned stimulus with an unconditioned stimulus, however, a conditioned stimulus comes to have the properties of the unconditioned stimulus in that it can elicit a response, a conditioned response. For example, the tone of a bell is neutral with regard to salivating. A bell ring doesn't produce salivation. However, if we were to ring a bell prior to placing food in your mouth several times, the tone of the bell will acquire the capacity to elicit salivation. The bell, which had been a neutral stimulus, is now a conditioned stimulus (CS); it now elicits salivation, a conditioned response.

**Conditioned response (CR)** – a response to a conditioned stimulus. In the example above, the conditioned response (CR) is the salivation to the bell (CS).

## Internet exercises

1. Internet Activity 1. Go to: <http://www.users.csbsju.edu/~tcreed/pb/p2.html>

You will need Shockwave for this demonstration to work. After the page loads, click on “Fido,” and a new page will load. Read the brief scenario and listen to the sound file.

2. Describe your response to this demonstration in a post to the “Turn it off” discussion forum.

This little demonstration is a good one, because it shows how central classical conditioning is in our lives and how it is often operating in the absence of our awareness. Classical conditioning is the mechanism by which we attach emotional responses to new situations. For example, how do you feel when you see the love of your life? How do you feel when you see the *former* love of your life? You weren’t born with these reactions to these people, so your responses must have been learned; they were classically conditioned.

3. Internet Activity 2. Go to: [http://cwabacon.pearsoned.com/bookbind/pubbooks/woodic\\_ab/](http://cwabacon.pearsoned.com/bookbind/pubbooks/woodic_ab/)

When the page loads, click on Learning Activities. From the drop down menu select “Principles of Learning in the Real World.” Select “Classical Conditioning” from the list of options.

- condition the pup,
- then do the “Test your Understanding” exercises,
- and the higher-order conditioning activity.

4. When you are done, close the window to return to the listing of chapters. Use the drop-down menu to choose Chapter 5 – Learning. From the list of options on the left, select “Activities.” Do:
  - 5.2 - Fill in the blank (NOTE: In Activity 5.2, item #5 should read “After conditioning, your Frisbee is the \_\_\_\_\_ *stimulus*.”)
  - 5.4 – True/False factors.