Classical Conditioning [1]

The Most Basic Type of Associative Learning

Developed by the Russian scientist Ivan Pavlov, classical conditioning is the first type of learning wherein an organism responds to an environmental stimulus. Pavlov established the laws of classical conditioning when he studied dogs deprived of food and their response (salivation) to Pavlov's assistant as he walks into the room.

A. Key Concepts

In classical conditioning, the stimulus **(S)** triggers the response **(R)** of an organism. With the exposure of the organism to the stimulus, reflex results. Reflex is the involuntary behavior which comes from within. One of the most common reflexes seen to us is the blinking of the eye whenever air is blown into it or a foreign object approaches it. The concept of reflex, no conscious control, is incorporated in classical conditioning.

Pavlov developed a model for classical conditioning so we can have a better understanding of it. Generally, there are four consecutive concepts under this model, which include:

1. **The Unconditioned Stimulus (US) triggers the Unconditioned Response (UR)**

   This means that without learning, a stimulus can elicit a reflex. Reflex is called the unconditioned response because as what we mentioned, it is involuntary and we do not need to learn it for the event to occur.

2. **The Neutral Stimulus (NS) is a stimulus that does not elicit the Unconditioned Response (UR)**

   This means that when this stimulus is presented to the organism, it would not execute the same response he showed when it encountered US.

3. **US and NS are repeatedly paired and presented to the organism in conjunction**
4. **The pairing of US and NS transforms NS into a Conditioned Stimulus (CS)**

   This means that whenever the previously neutral stimulus is presented alone (US is not

showed anymore) to the organism, it causes UR to occur. But this time, UR is changed into Conditioned Response (CR), because the response is elicited due to conditioning. Therefore, CS elicits CR.

B. Pavlov's Experiment

To better understand the basic concepts of classical conditioning, let us look at the observations studied by Pavlov on his dog, as illustrated in the image below:

Classical Conditioning

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Classical Conditioning (Source: schoolworkhelper.com [3])

1. **Before Conditioning**

   As Pavlov observed his dog he found out that there should be a stimulus present which can automatically trigger a reflexive response (US > UR). Since no learning is involved in the relationship between that stimulus and the corresponding response, both the stimulus and response are considered unconditioned. In the experiment, US is the food, which reflexively triggers UR, salivation. In addition, before conditioning occurs NS must also be presented to the organism. In the picture, when the tuning fork (NS) is rung, no salivation occurs.

2. **During Conditioning**

When conditioning is initiated, the neutral stimulus will be presented together with the unconditioned stimulus. As shown in the image, the tuning fork (NS) is presented with the food (US), causing salivation (UR). With the repeated presentation of this pairing, the organism will learn to create a connection between NS and US.

3. **After Conditioning**

After conditioning, US becomes CS and UR become CR, as they are both products of the process of conditioning. Just ringing the tuning fork, without even encountering the food, the dog salivates. Although conditioning is a type of learning, it is said that there are no new behaviors learned. What is learned is the connection between the two stimuli.