

# Contiguity Theory and One Trial Learning

## General

Contiguity theory or *law of contiguity* and *one trial learning* are ideas introduced in 1920s by American philosopher, mathematician and psychologist [Edwin Guthrie](#) in collaboration with Stevenson Smith. Law of contiguity states that a **close temporal relationship** between a stimulus and a response is the only necessary condition for an association between the two to be established.

## What is contiguity theory and one trial learning?

Guthrie attempted to explain learning through **association** of stimuli with responses.<sup>1)</sup> Learning, in terms of behavior is a function of the environment. According to Guthrie, learning is associating a particular stimulus with a particular response. This association, however, will only occur if **stimuli and responses occur soon enough** one after another (*the contiguity law*). The association is established on the **first experienced instance of the stimulus (one trial learning)**. Repetitions or **reinforcements** in terms of reward or punishment do not influence the strength of this connection. Still, every stimulus is a bit different, which results in many trials in order to form a general response. This was according to Guthrie the only type of learning identifying him not as *reinforcement theorist*, but *contiguity theorist*.

More complex behaviors are composed of a **series of movements (habits)**<sup>2)</sup>, where each movement is a small stimulus-response combination. This movements or are actually what is being learned in each one trial learning rather than behaviors. Learning a number of moves forms an act (incremental learning). Unsuccessful acts remain not learned because they are replaced by later successfully learned acts.<sup>3)</sup> Other researchers like [John Watson](#) studied whole acts just because it was easier, but movements are, according to Guthrie what should actually be studied.

Forgetting occurs not due to time passage, but due to interference. As time passes, stimulus can become associated with new responses. Three different methods can help in forgetting an undesirable old habit and help replacing it<sup>4)</sup>:

- **Fatigue method** - using numerous repetitions, an animal becomes so fatigued that it is unable to reproduce the old response, and introduces a new response (or simply doesn't react).
- **Threshold method** - first, a very mild version of the stimulus below the threshold level is introduced. Its intensity is then slowly increased until the full stimulus can be tolerated without causing the undesirable response
- **Incompatible stimuli method** - the response is "unlearned" by placing the animal in a situation where it cannot exhibit the undesirable response.

Although it was intended to be a general theory of learning, Guthrie's theory was tested mostly on animals.<sup>5)</sup>

# What is the practical meaning of contiguity theory and one trial learning?

In Guthrie's own words, "*we learn only what we ourselves do*"<sup>6)</sup>. Learning must be active, but as such must involve both **teacher's and students' activity** in order to relate stimulus with a response within a time limit. Guthrie also applied his ideas to treatment of **personality disorders**.

## Criticisms

Guthrie's theory was first preferred, due to its **simplicity**, but later criticized for the same reason. Its simplicity was later turned into **incompleteness**. It was also based on too little experimental data and criticized for being unable to explain why people often behave differently in same situations<sup>7)</sup>.

## Keywords and most important names

- **contiguity theory, one trial learning, movement, forgetting**
- [Edwin Guthrie](#)

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