

JOR Experiment Using Arabic Alphabet

Zahra Aldar

Mentor: Zoran Tiganj

Introduction

Many important advancements made in the field of computer science, artificial intelligence, in particular, were inspired by the nature in which the human's brain functions. The judgment of recency (JOR) experiment questions the method in which memories are stored and retrieved in the human brain.

Previous work

JOR has been conducted many times, since the late 70s. The purpose of the experiment is to have a measurement of temporal order judgments of the past using different sequences of stimuli. Each sequence is followed by two probes where participants are asked to choose the more recent probe. The finding of this experiment is that the response time is contingent upon the lag of the more recent probe but not on the lag if the less recent probe, where the lag means the number of steps backward to find the correct probe. Hence, a backward scanning model has been suggested. That is, the memory has a sequential organization where adjacent parts of the memory store correspond to adjacent items in the list.

Question

In this study we aim to investigate whether familiarity with input stimuli impacts their storage and retrieval during JOR experiment.

Tools

JSPsych is a javascript library created to run behavioral experiments on a web browser. It runs the experiment in the form of a timeline containing trials created by previously made plugins. In this study we used JSPsych to create a modified version of the JOR experiment.

Procedure

A previous JOR experiment was modified by adding an extra set of stimuli. That is the set of Arabic alphabets, which was created by finding the letter which has a matching order in the alphabet. The experiment's trials were reduced to 200 trials instead of 320. 100 trials are in English, and 100 trials are in Arabic. The experiment runs as follows:

- odd trials are in English.
- Even trials are in Arabic.
- After every 50 trials, the "you are making progress" message appears.
- Each probe is shown for 182 milliseconds.
- The size of trials is randomly chosen from (9,11,13) set size.
- Participants (nearly 7-12) are native speakers of Arabic with different levels of English proficiency.

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Future work

Based on the fact that the collected data has not been processed and analyzed yet, it is hard to draw any conclusion. For further improvement, it would be beneficial to have a larger diverse group of participants with disparate language backgrounds. It is also crucial to know how long each participant has been using a specific language. We will examine whether familiarity with the input stimuli impacts the ability to store the memories in the form of a scannable representation.

References

Tiganj, Z., Singh, I., Esfahani, Z., & Howard, M. (2017). Scanning a compressed ordered representation of the future. doi: 10.1101/229617
<https://www.jspsych.org/>

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