

## Lab Report

### Abstract:

In the given assignment, it mentions about orientation discrimination task, which was done for 100 trials by the participant to determine the difference in the hit, miss, false alarm, and correction rejection and how it has been calculated. With that further results and discussions are mentioned concluding the results determined.

The experiment was designed in a software called PsychoPy. The experiment was designed and explained by the faculty through a tutorial video.

### Introduction:

At its most basic level, the signal detection hypothesis asserts that a stimulus's ability to be detected relies on the individual's physical and psychological health. The most significant and prominent theoretical framework for simulating perceptual choices in forced-choice tasks is likely Signal Detection Theory, or SDT. The idea at its core is that the representation of inputs inside the brain that underlies perceptual judgements is stochastic or probabilistic.

### Method:

Finding the **decision & criterion and through std.** The subject group for this investigation were university students. All of the participants in this experiment underwent each of the experiment's conditions as part of its within-subject experimental design. Simple procedures were used in the experiment's design. It started with a blank grey screen which lasted for approximately less than a second. Then, either on tilted or not of the screen, a grating picture debuted, followed by the appearance of a fixation polygon in the center of the display which is a triangle. The grating's placement was decided at random. The participants were told to use the up and down keyboard keys to determine the triangle's tilt and indicate it. The answer data was downloaded onto an excel sheet after 100 trials. The data for accuracy (key resp.corr) were plotted and transmitted for additional investigation. Computers and keyboards are the equipment needed which are “up” and “down”.

## **Results:**

In the given experiment, the participant has **43 hit**, **14 miss**, **27 false alarms** and **16 correct rejection**; the decision was determined by  $[d\text{-prime} = z(\text{prop hit}) - z(\text{prop fa})]$  and the formula which was applied  $[=NORMSINV(F3) - NORMSINV(F4)]$  and the answer determined is **0.362042**.

For the criterion, was determined by  $[c = - z(\text{prop hit}) + z(\text{prop fa})/2]$  and the formula which was applied  $[=-NORMSINV(F3) + NORMSINV(F4)]$  and the answer determined is **-0.36204**.

## **Discussion:**

Due to the difference between the hit and correct rejection miss and false alarm,  $D'$  stands for accurate answers. The bias, or respondent's inclination to answer up or down, is denoted by  $C$ , and  $c'$  is  $C$  relative to  $d'$ .

In the hit, it was determined when the conditions “key\_resp.keys” was “up” and “tilt” was “0” and “key\_resp.corr” was “1”.

In the miss, it was determined when the conditions “key\_resp.keys” was “down” and “tilt” was “0” and “key\_resp.corr” was “0”.

In the False Alarm, it was determined when the conditions “key\_resp.keys” was “down” and “tilt” was “-1 to -5 or 1 to 5” and “key\_resp.corr” was “0”.

In the Correction Rejection, it was determined when the conditions “key\_resp.keys” was “up” and “tilt” was “-1 to -5 or 1 to 5” and “key\_resp.corr” was “1”.