

# Muller-lyer illusion



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## **Illusion 2**

### **Abstract**

The current experiment was based on the Muller-Lyer Illusion. There were 28 participants that were presented with two vertical lines that appeared on a screen. The line on the upper right of the screen had outward-drawn wings, and the line on the upper left had no wings. Participants were presented with a number of several trials to identify which vertical line was longer. There were two different set of results that were concluded. The first population of 27 participants from a classroom were presented. The second results were found by one single student from the first population of students. The results demonstrated that the 27 participants perceived an increase in illusion by the end of the experiment. The second set of results from the single student also demonstrated an increase in illusion. Nevertheless, the student's graph showed more of a scattered line by the end of the experiment. Overall, the results seem to support the illusory effect.

## **Illusion 3**

### **Lab Report on Muller-Lyer Illusion**

Several theories have been conducted to give explanation on why vertical lines seem longer than horizontal lines. In this experiment, the observer was trying to measure the perception of the vertical lines. Secondly, the purpose of this experiment was to evaluate a technique named the method of constant stimuli. Since this experiment was particularly subjective, the attempt was to relate characteristics of our perceptions to physical characteristics. Many other experiments have been conducted to attempt to find and explain why some vertical lines may appear longer than others. Avery & R. H Day (1957) had a theoretical explanation suggesting that the <https://assignbuster.com/muller-lyer-illusion/>

shape of your visual field is to hold responsible for the misconception of the length of a line. The Avery and R. H Day supported Kunnapas' (1957) approach that since a visual fields horizontal image is longer than its vertical image, an individual will see the horizontal line as being shorter than the vertical line. The results found by Avery et al. (1958) suggested that the lengths between the two lines of an “ L figure” are explained by the orientation of the retinal image. It is expected to find that the bisection of the line is critical to the illusion, and not some difference in judging vertical and horizontal lines. Girgus and Coren (1975) measured the amount of perspective convergence photographs affected when depth cues were at hand. This experiment demonstrated that perspective convergence was identified in pictures with depth cues, which resulted in the participant's size scaling mechanisms. In other words, the illusion of a picture using depth cues should become stronger when using horizontal-vertical lines. Similarly to the Muller-Lyer Illusion, these studies identified a perceptual approach, and also considered other external variables that may have a relation to the size constancy of the two lines.

#### **Illusion 4**

Based on this present experiment, it can be hypothesized that our perception of size constancy, shape, and depth cues interconnect with our illusions whether the vertical line are longer or shorter. In addition, time frame spent on a stimulus can be an effective and important factor upon our perceptions of illusions. Lastly the line with the wings generally seems to be longer, oppose to the line without wings.

## **Methods**

### **Participants**

Participants in this experiment consisted of 28 Cognitive Psychology students. The single student observer in this study was a 21 year old female and a current BAHS Psychology student attending Laurentian University through Georgian college. The observer's participation in this experiment was due to interest of the topic and cognitive assignment. The experiment was completed independently, and in the subject's home during lunch hours. Prior of completing the experiment, there was a brief summary written on the Coglab website to inform the student some background and instructional information from the experiment being presented. The participant had no health concerns, and wore corrected-to-normal-vision wearing eyeglasses.

### **Apparatus**

The subject conducted the experiment on a 2008 HP laptop and was logged onto Wadsworth Cog Lab 2. 0 Online laboratory where the Muller-Lyer Illusion could be identified. A window appeared that filled the entire screen.

### **Illusion 5**

The Z key was used to identify if the vertical line on the left hand side seemed longer. The key was used to identify if the vertical line on the right seemed longer.

### **Procedure**

There were a total of 150 trials shown for each participant. For each trial, there was no time frame. If the participants were going too quickly, the computer would ask them to take their time and give an accurate response of relative line length. A black screen would appear at the beginning of the

experiment. Participants were asked to press the bar key when they were ready to start the trial. Participants were asked to give 15 minutes of their time to complete this experiment. At the end of the experiment, they were asked to save their data to a set of a global data of the other participants. Then a new webpage showed the class averages and the personal average of the subject.

## **Results**

The results were calculated by Wadworth Cog Lab 2. 0 Online Laboratory. In experiment 1, participant responses were averaged. In figure 1, the graph displays the statistics based on the 28 participants. The results show that as the size of the line without wings (pixels) increased so did the proportion of line without wings ‘ bigger’. There was a significant increase when the size of the line without wings (pixels) was 100 and increase to 103 from 0. 0392 to 0. 0785 respectively.

## **Illusion 6**

When examining individual results, the results differ from that of the class average. When the size of the line without wings (pixels) was 85 to 100 there was no increase or decrease in response to proportion of line without wings ‘ bigger’. Proportion of line without wings ‘ bigger’ was not apparent until the pixel of the line was approximately 103. Figure 2 displays the results that were obtained by an individual participant from the study.

## **Illusion 7**

It is also interesting to note that the increase was not gradual when compared to the average of the 28 participants. From the results from both

class average and individual average does support the Muller-Lyer Illusion hypothesis.

### **Discussion**

The major studies that were conducted with the horizontal-vertical illusion and the Muller-Lyer illusion were established while examining the results of the 28 participants. These results do support the Muller-Lyer illusion view when measuring the sizes of the two vertical lines. The illusory effect was much stronger for the class participants oppose to the individual data. If there would have no appeared to have any kind of illusions, then the graphs would have shown a line at approximately 0.5 for a line without wings length of 100 pixels. Avery et al. (1969) previous research demonstrated on how the influence of illusion on apparent size, depth cues and size and shape, these lines or images attributed to vertical-horizontal illusions, length judgments are made appropriately to the visual field. Nevertheless, the results did support that the bisection of the line is important and influential to the illusion.

This also supported the observers claim that depending on the size, depth cues, it did affect a “stronger” or “weaker” illusion for both conditions. The other variables, such as size constancy, Kunnapas (1957) explained that same size constancy, whether you are far away or closer, your visual field is affected by the other object. In other words, as the experiment was repeated several times with the difference of short, medium and long vertical lines, this still did not create a false illusion to the observer; it only increased the illusion when the lines became smaller.

**Illusion 8**

Another variable such as relative height indicated that the higher the images are being interpreted as being farther away, than the lower the images became. Previous research done by Ward, Porac, Coren, & Girgus, J. S. (1977); explained how depth cues associated and elicited by illusion figures. They confirmed other variables concerning the constancy scaling and misapplied illusion. In future research, studies should be performed to create a greater chance of false illusion, such as in the Muller-Lyer Illusion, making the top line not as evidently different so that the illusion does not appear again. This would increase the illusion effect and may analyze another characteristic to try and measure these different interpretations. In addition, scientists and psychologists should place more emphasis on the external and internal conditions; such as time and place, different factors contributing to psychological disorders, situational factors, and many other conditions. Of these different illusions, in a natural environment, it would be interesting to see on whether there is a greater or weaker impact among our perception of the world around us; the things we observe, think, and perceive.

Specific studies related to biological views of perception and illusions could underway and help us understand why we think and perceive visual images the way it is presented to us. Although some of these findings are different, the overall results support the idea that illusory effect is visually apparent when the lines are increasingly presented to the observer.

## Illusion 9

### References

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