**Muller Lyer Experiment**

**Abstract:**

This experiment was performed to examine the visual illusion. A random subject was selected, who don’t have any knowledge about Muller Lyer illusion. Length of the standard line is 6cm and length of moving lines as perceived by the subject was dependent variable.

In Muller Lyer card, the degree of illusion in descending order is always greater than the degree of ascending order. The main results showed that the degree of illusion in descending order. Arithmetic mean is used as statistical test.

**Introduction:**

The Muller Lyer illusion is a classical optical illusion first popularized by **Franz Carl Muller Lyer** in the late 1800s. On the experimental basis, the founder of measuring visual illusion is German psychologist Muller Lyer. He developed one standard line of 6cm which is static arrow headed.

In this experiment, two lines of identical length (represented in red) are presented with what might be described as fins or wings attached to either end of the lines. The fins (or wings) on one line are oriented out, and on the other they oriented in. The presence of the fins makes the two red lines appear to be different in length, with the fins in arrangement causing the red line to look shorter and fins-out arrangement causing it to look longer. Muller Lyer coined the term “conflux ion” to describe this illusion. The exact nature of this effect has been studied extensively without consensus about which perceptual principles account for the illusion.

**Method:**

* **Type of Practical:** Experimental.
* **Design of Practical:** Repeated measures.

**Independent variable:** Length of standard line.

**Dependent variable:** Length of moving line as perceived by subject.

**Experimental Hypothesis:**

In the Muller Lyer card degree of illusion in descending order is greater than the ascending order.

**Null Hypothesis:**

In the Muller Lyer card degree of illusion in descending order is less than the ascending order.

**Subject:**

* Name: S.F.
* Age: 20 years.
* Gender: Female.
* Education: FA.

**Apparatus:**

* Muller Lyer Card.
* Graph Paper.
* Paper.
* Pencil.
* Scale.
* Calculator.

**Procedure:**

1. Subject was asked to be seated at a comfortable seat showing proper visual angle from the card.
2. Subject was directed to match base line (arrow headed) with moving line wing headed.
3. The experimenter judge carefully 20 ascending and descending readings.
4. At the end point of subjective equality was calculated according and subtracted from the actual length of the base line 6cm which is inducted as the level of illusion.

**Results:**

**Point of subject equality:**

Length of the moving line that is perceived by subject is equal to the standard line is called point of subject equality. The formula to determine the average point of subject equality is equal to the sum of length of moving line in all trials.

PSE= 4.6cm+4.7cm+4.16+4.23cm/40

= 1652/40 cm

=41.30 cm

It means 41.30cm; length of moving line perceived is equal to the standard line. The difference between horizontal and vertical, ascending and descending readings can measure.

Illusion in descending order is greater than the illusion in ascending order, this experiment hypothesis is proved.

**Common Illusion:**

Average distortion in perception is called illusion. It determine by the following;

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| Horizontal   |  |  | | --- | --- | | Descending  Order | Ascending  Order | | 4.2cm | 4.0cm | | 4.0cm | 4.1cm | | 4.1cm | 4.0cm | | 4.0cm | 4.1cm | | 3.8cm | 3.9cm | | 4.2cm | 4.5cm | | 4.2cm | 4.3cm | | Vertical   |  |  | | --- | --- | | Descending  Order | Ascending  Order | | 4.4cm | 4.2cm | | 4.0cm | 4.4cm | | 4.3cm | 4.3cm | | 4.1cm | 4.0cm | | 3.9cm | 4.5cm | | 4.5cm | 4.2cm | | 4.2cm | 4.1cm | | |  |  | | --- | --- | | Standard  line | Trial | | 6.0cm | 1 | | 6.0cm | 2 | | 6.0cm | 3 | | 6.0cm | 4 | | 6.0cm | 5 | | 6.0cm | 6 | | 6.0cm | 7 | |

Length of standard line- average moving line length perceived is equal to standard line

=6cm-3.7cm

=22.30cm

It means 22.30cm shorter moving line perceived is equal is standard line 6cm.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 4.0cm | 4.1cm | 4.1cm | 4.1cm | 6cm | 7 |
| 3.8cm | 4.3cm | 4.3cm | 4.3cm | 6cm | 8 |
| 4.0cm | 4.2cm | 4.0cm | 4.0cm | 6cm | 9 |
| 4.3cm | 4.2cm | 4.5cm | 4.3cm | 6cm | 10 |
| 4.06cm | 4.07cm | 4.16cm | 4.23cm | 6cm |  |

**Conclusion:**

This is proven from the Muller Lyer experiment size and shape of distracter effects the distance perception. The result shows that illusion in descending order is greater than the illusion in ascending order. Thus the experimental hypothesis is proved.

A variation of the same effect (and the most common form in which it is seen today) consists of a set of arrow-like figures. Straight line segments of equal length comprise the "shafts" of the arrows, while shorter line segments (called the fins) protrude from the ends of the shaft. The fins can point inwards to form an arrow "head" or outwards to form an arrow "tail". The line segment forming the shaft of the arrow with two tails is perceived to be longer than that forming the shaft of the arrow with two heads.

**Reference:**

1. Müller-Lyer, FC (1889), "Optische Urteilstäuschungen"; Archiv für Physiologie Suppl. 263–270.
2. Brentano, F (1892), "Über ein optisches Paradoxen", Zeitschrift für Psychologie, 3:349–358.
3. Müller-Lyer, FC (1894), "Über Kontrast und Konfluxion", Zeitschrift für Psychologie, IX p 1 / X p 421.
4. Rivers 1901: The measurement of visual illusion Rep. Brit. Ass., p. 818.