B.A. II Psychology - Paper A

Form Perception

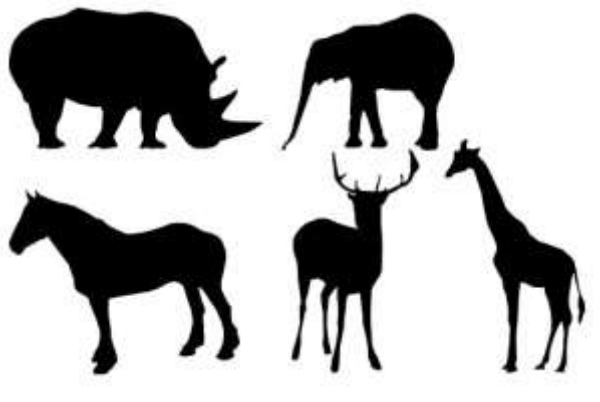
Dr. Neelam Rathee

Department of Psychology

G.C.G.-11, Chandigarh

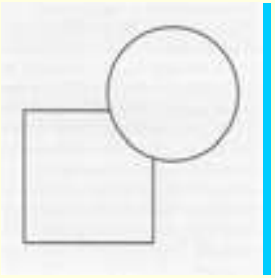
Form Perception

- ***What it is? How do we recognize an object?*** (form perception)



Perception of Form

Form is our major avenue for identifying what we see. The question is how? How do we recognize the various forms and patterns taken by different objects, and how do we recognize a form even if its components parts are altered?



Is this a square?

Are these all triangles?

Perception of Form

Solution to these issues was advanced by ***Gestalt psychology***, a school of psychology whose adherents believed that organization is an essential feature of visual perception.

They argued that a form is not perceived by somehow summing up all its individual components, but by considering is as a coherent, intact *Gestalt*, a whole that is different from the sum of its parts.

The Elements of Form

Perceiving a visual scene involves:

1) The detection of its features

2) The parsing of the scene so that figures can be identified from the background

3) The grouping of the figures' parts into single objects

4) The recognition of the pattern, i.e., answering the question: What is it?

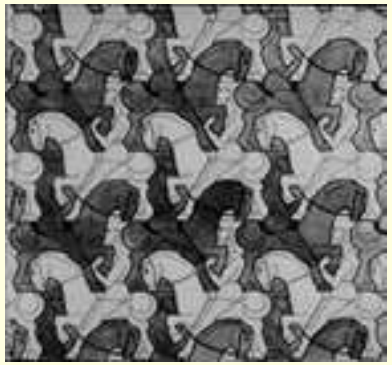
Perceptual Segregation

A crucial step in visual segregation is the separation of the object from its setting, so that the object is seen as a coherent whole, separate from its background.

This separation of ***Figure*** and ***Ground*** allows us to recognize as focal both objects that we are familiar with and objects without particular meaning.

Figure and Ground

The differentiation of ***Figure*** and ***Ground***, like all aspect of perceptual segregation, is contributed by the perceiver. It is not a property of the stimulus itself. There can be more than one way to parse a stimulus!



Perceptual Organization

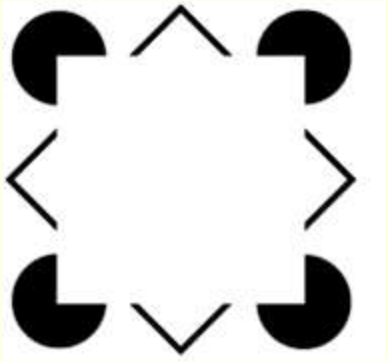
The ***Perceptual Organization*** of the elements within a visual scene is guided by some factors that were described by *Gestalt* psychology and regarded as principles.

These principles demonstrate that "*the whole is different than the sum of its parts".*

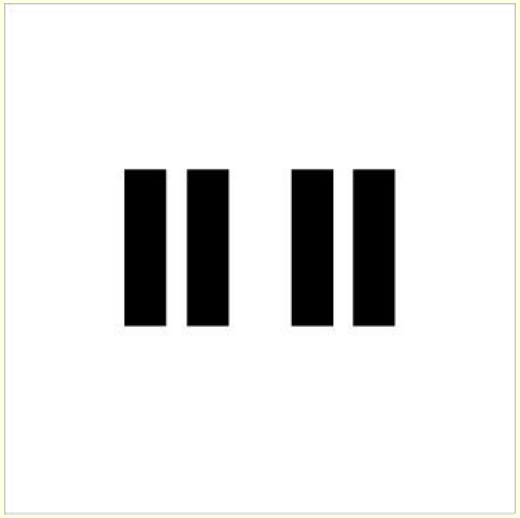
Perceptual grouping is an achievement of the perceiver and not a property of the stimulus.

Principles of Perceptual Organization

- Law of Closure – Objects grouped together are perceived as a whole. We tend to ignore gaps and complete contour lines.

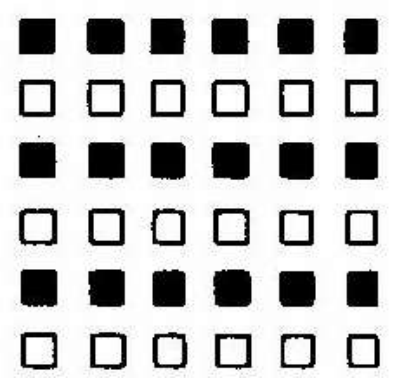


- Law of Proximity – Objects near each other tend to be grouped together.

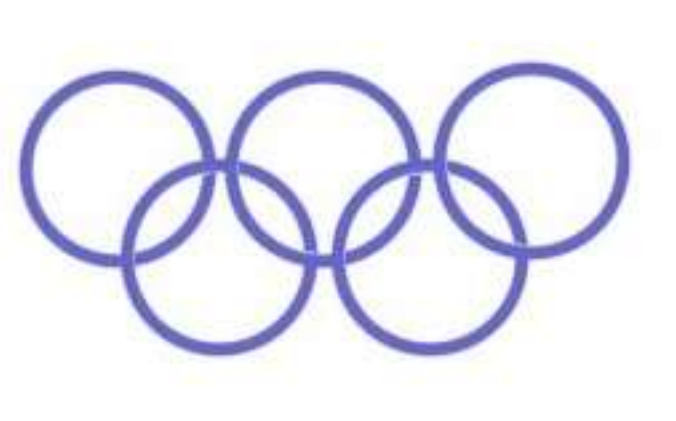


Principles of Perceptual Organization

- Law of Similarity - Items that are similar tend to be grouped together.

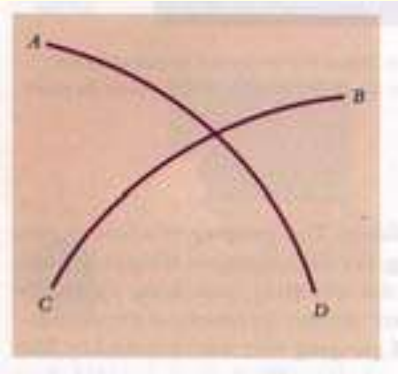


- Law of Pragnanz – Reality is organized to the simplest form possible to perceive as a good figure.

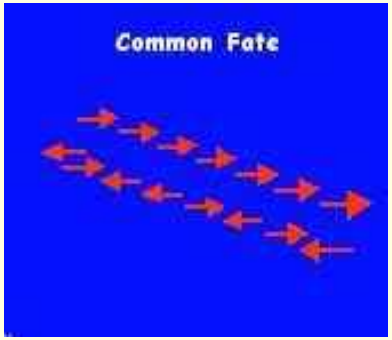


Principles of Perceptual Organization

- Law of Continuity - Points that form smooth, straight, or curving lines appear to belong together.



- Law of Common Fate - Objects that are moving in the same direction appears to be grouped together.



The Maximum-likelihood Principle

The Gestalt principles emphasize fact that we tend to perceive objects in the world according to rules that we have learned from observing the regularities of our environment.

These perceptual grouping principles can all be united under a single general rule: ***the principle of maximum likelihood***.

Form Perception & Feature Analysis

Bottom-Up Processing

- Based upon properties of the stimulus (e.g., patterns of light & dark areas

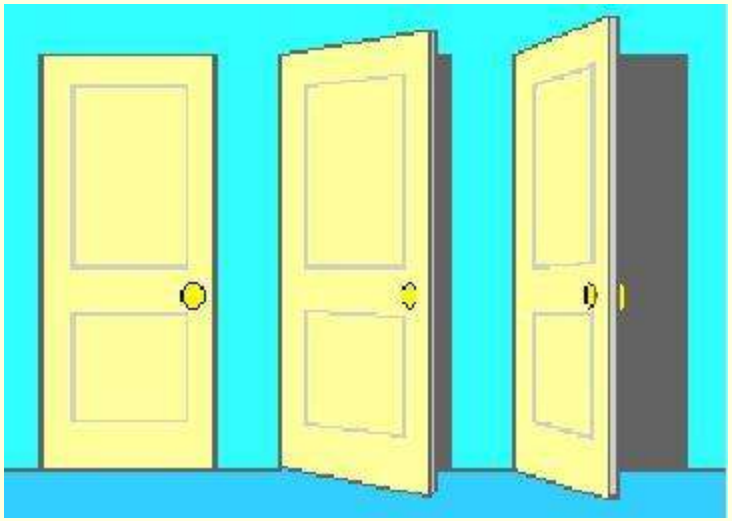
Top-Down Processing

- Based upon higher-order information

(e.g., prior knowledge & context)

Shape Constancy

The tendency of perceiving the shape of familiar objects as relatively stable, constant and unchanging despite the fact that the retinal images may vary greatly depending on the viewing angle.



Once the features of a visual scene are detected, that the figures have been segregated from each others and from the scene background, that the parts of the figures has been grouped into single objects, it leads to ***recognizing the pattern***, i.e., answering the question: what is the object?

Thank You!