

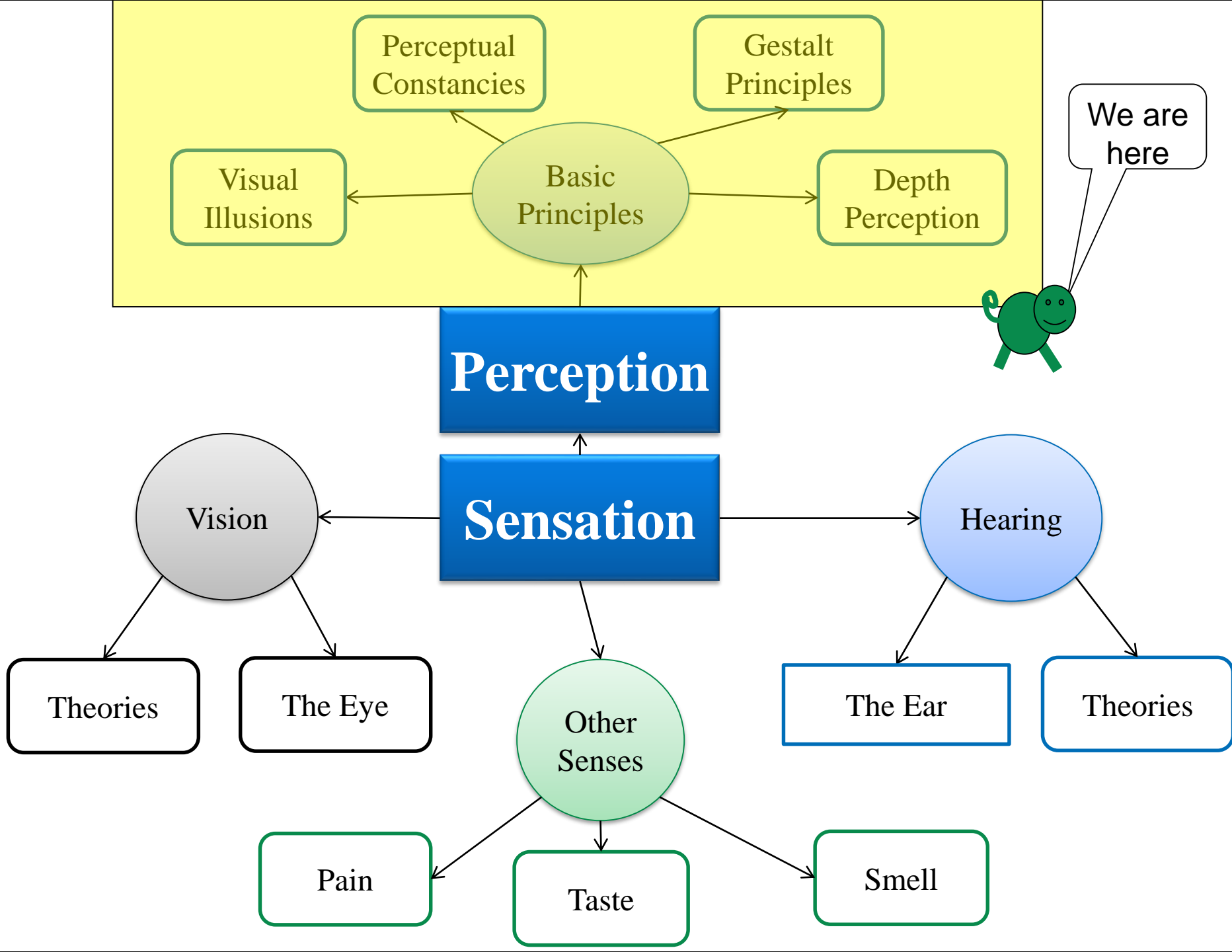


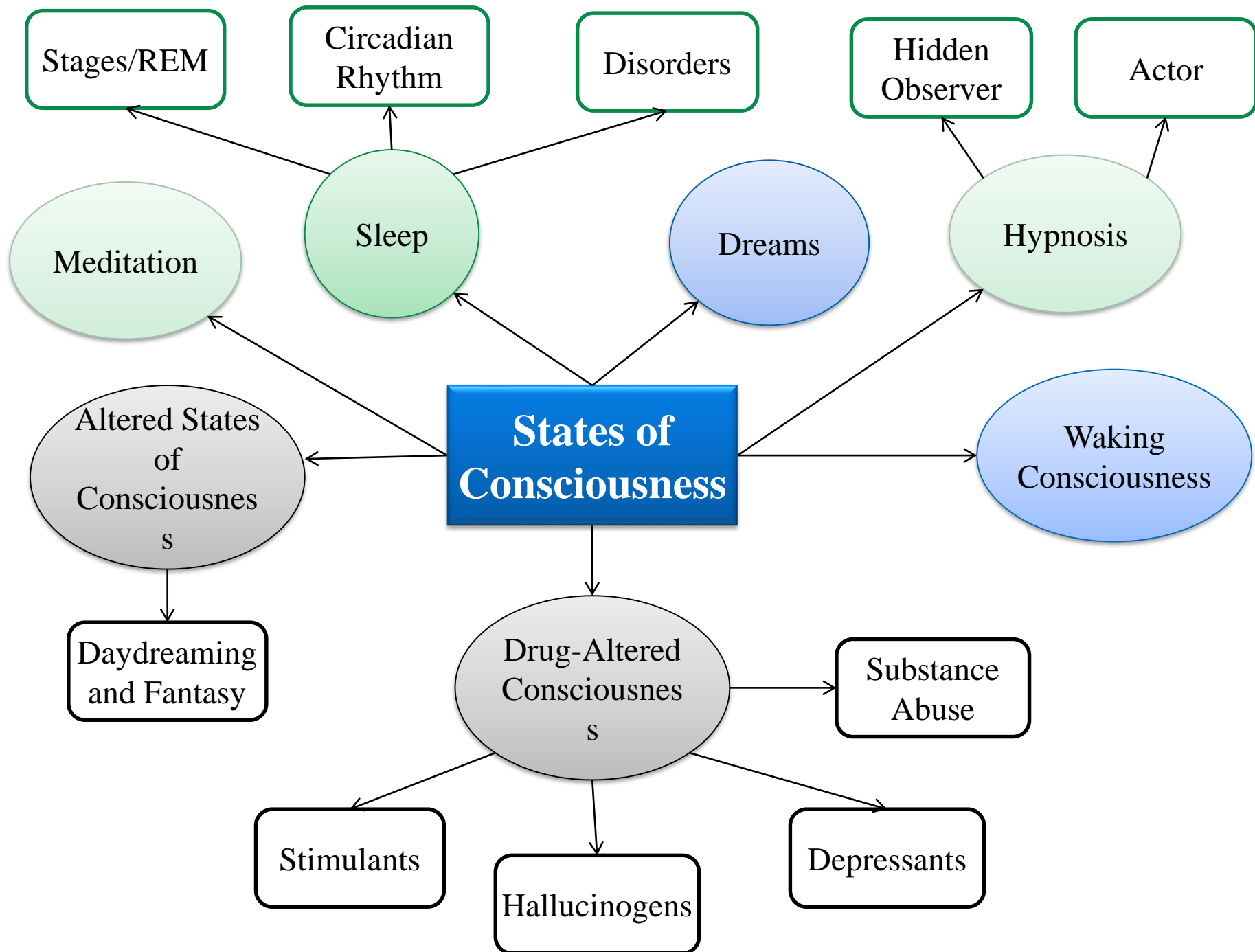
WHS AP Psychology



Unit 4: Sensation, Perception and States of Consciousness

Essential Task 4-5: **Essential Task 4-5**: Describe general principles of perception/ top down processing (organizing and integrating sensation) that promote stable awareness of the external world with specific attention to the Gestalt principles of figure/ground, closure, proximity, connectedness, similarity and the mono and binocular cues for depth perception).







Essential Task 4-5:

[Outline](#)

- Describe general principles of perception/top down processing
- Gestalt principles of:
 - Figure-ground
 - closure
 - proximity
 - connectedness,
 - similarity
- Depth perception
 - Monocular cues
 - Binocular cues



Our brains are meaning machines

- We organize the sensory information coming into our brains.
- We make assumptions about the sensory information. Oftentimes our **perception is greater (different) than the sum of the parts** actually presented to our senses.
- **Gestalt Psychology (“whole”) studied human perceptual self-organizing tendencies.**
- Found that the brain creates a coherent perceptual experience that is more than simply the sum of the available sensory information AND it does this in predictable ways.

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WHAT I IF TOLD YOU

**YOU READ THE FIRST
SENTENCE WRONG**



Sidewalk chalk art



[3D art](#)



First step in visual PERCEPTION

- Determine Figure from the background (**figure-ground**)
- We organize the visual field into objects (figures) that stand out from their surroundings (ground).

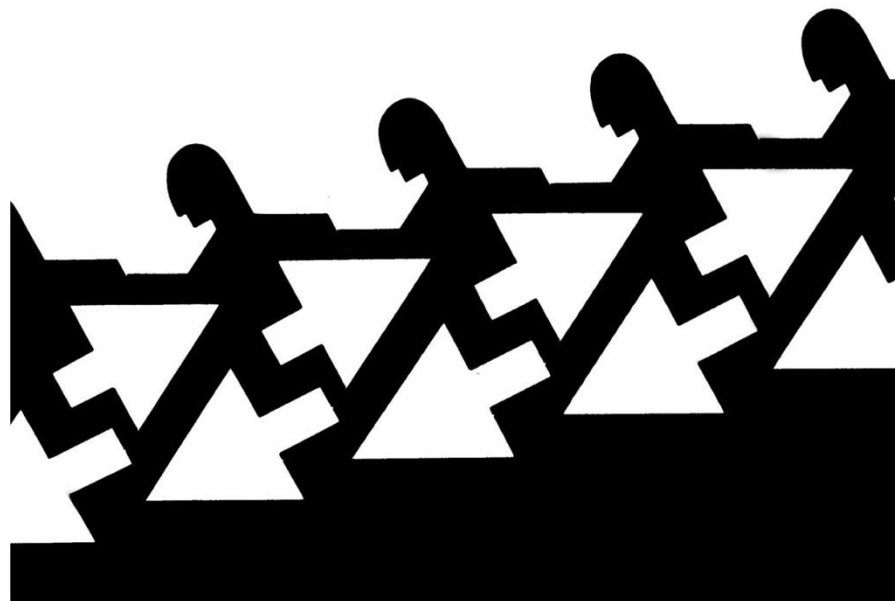


Figure-ground





Examples of figure-ground



What you make the figure and what you make the background determines your perception



Figure-ground



This cup tells you what's in it...





Figure-ground examples



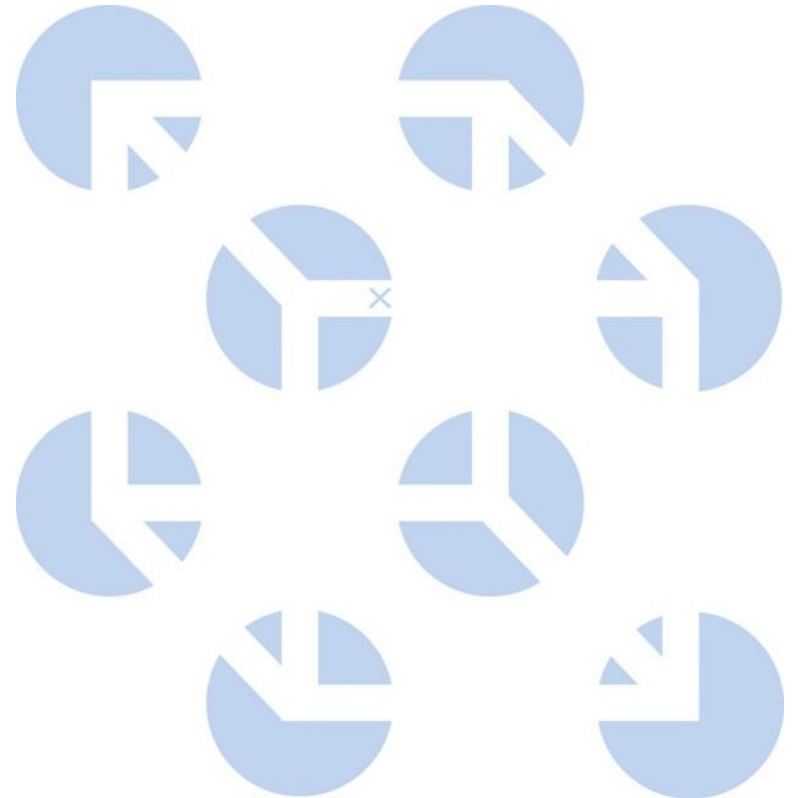


How people form perceptions

- Closure
- Proximity
- Similarity
- Continuity
- Connectedness

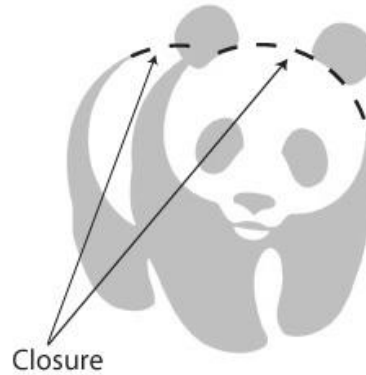


We organize by **closure**





Closure



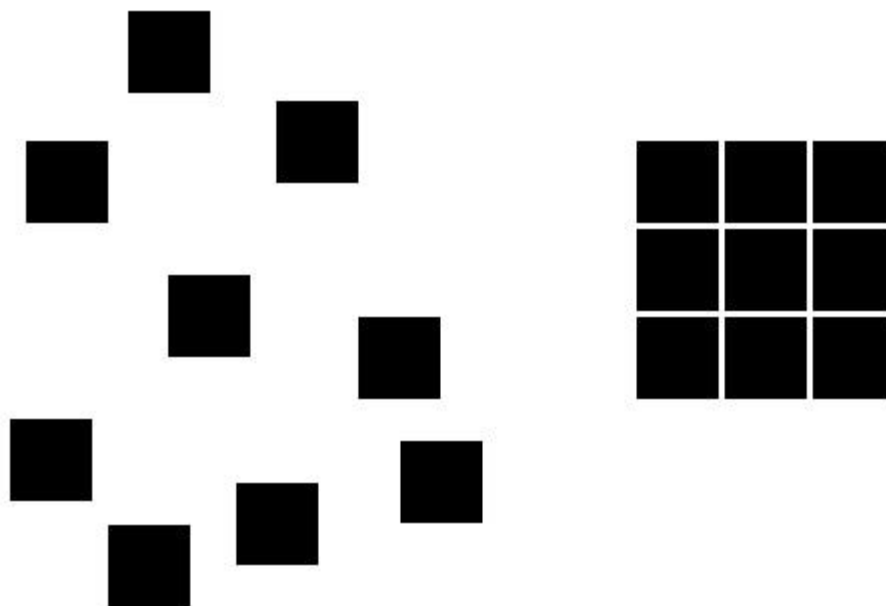
Closure



Playboy Logo & NBC Logo Using Closure



We organize by **Proximity**





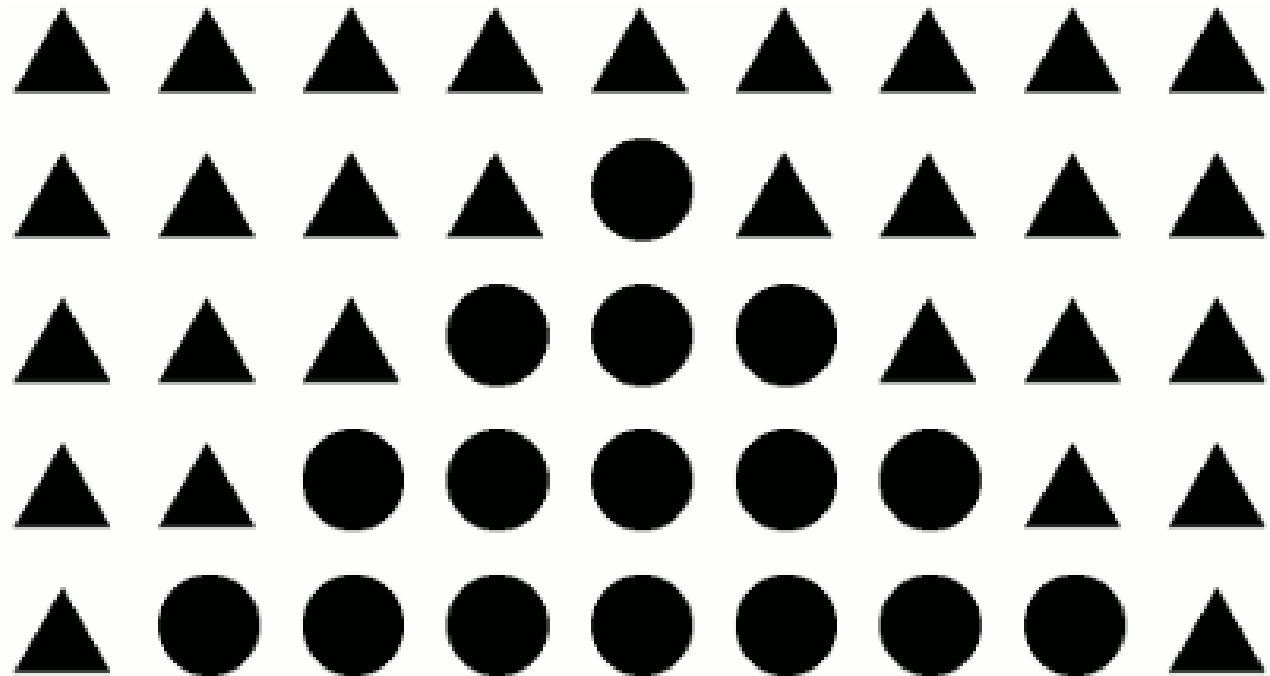
Proximity





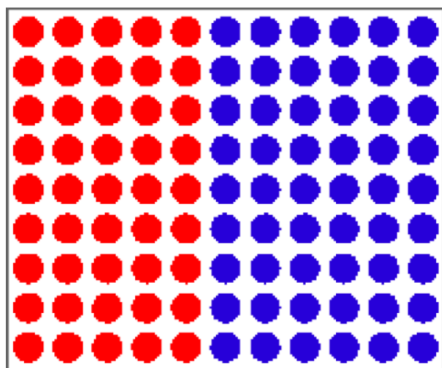
Proximity and Closure



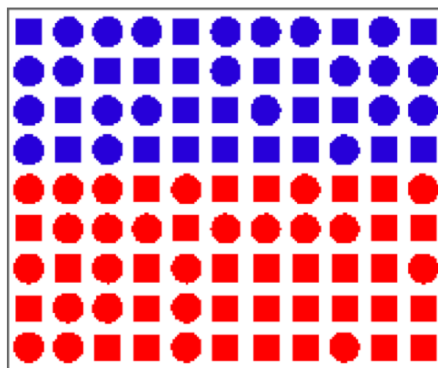




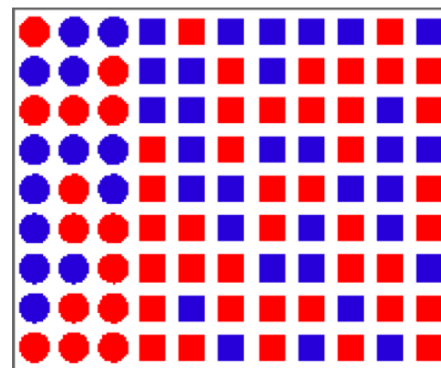
Similarity



(a)



(b)



(c)

(a) Vertical hue boundary pre-attentively detected.

(b) Horizontal hue boundary pre-attentively detected despite variation in shape.

(c) Vertical shape boundary is “masked” by random hue.



We organize by similarity



FIND THE PANDA

BY WESTUM

BLACK
METAL







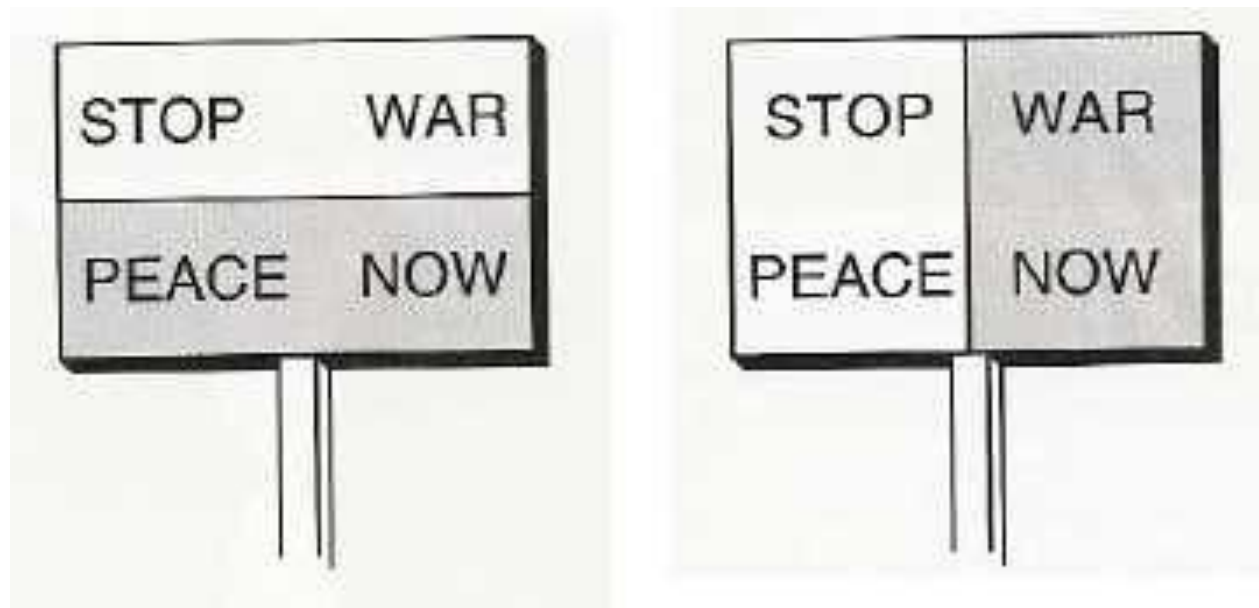
Continuity



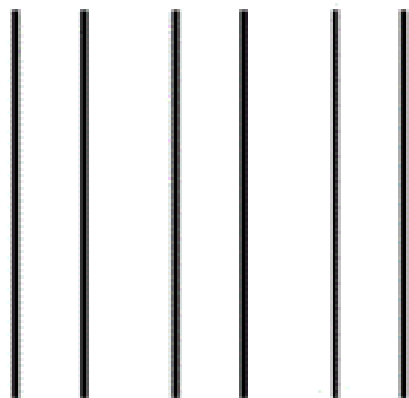
SPACE



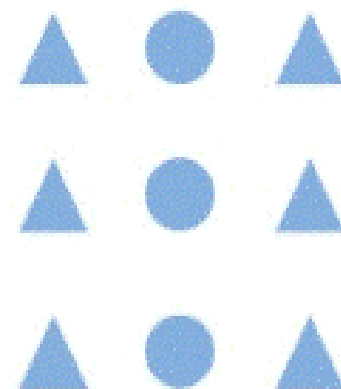
Connectedness



The Principle of Common Region states that objects that are within the same region are perceptually grouped together.



Proximity



Similarity



Continuity

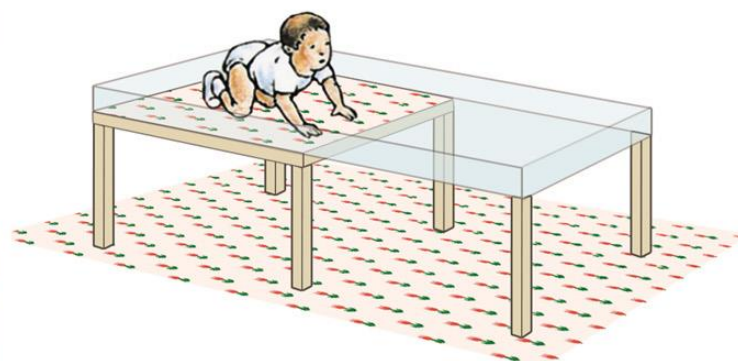


Connectedness



Depth Perception

Depth perception enables us to judge distances. Gibson and Walk (1960) suggested that human infants (crawling age) have depth perception. Even newborn animals show depth perception.



Visual Cliff



Binocular Cues

- Depth perception that you have because you have two eyes!

1. Retinal Disparity

2. Convergence



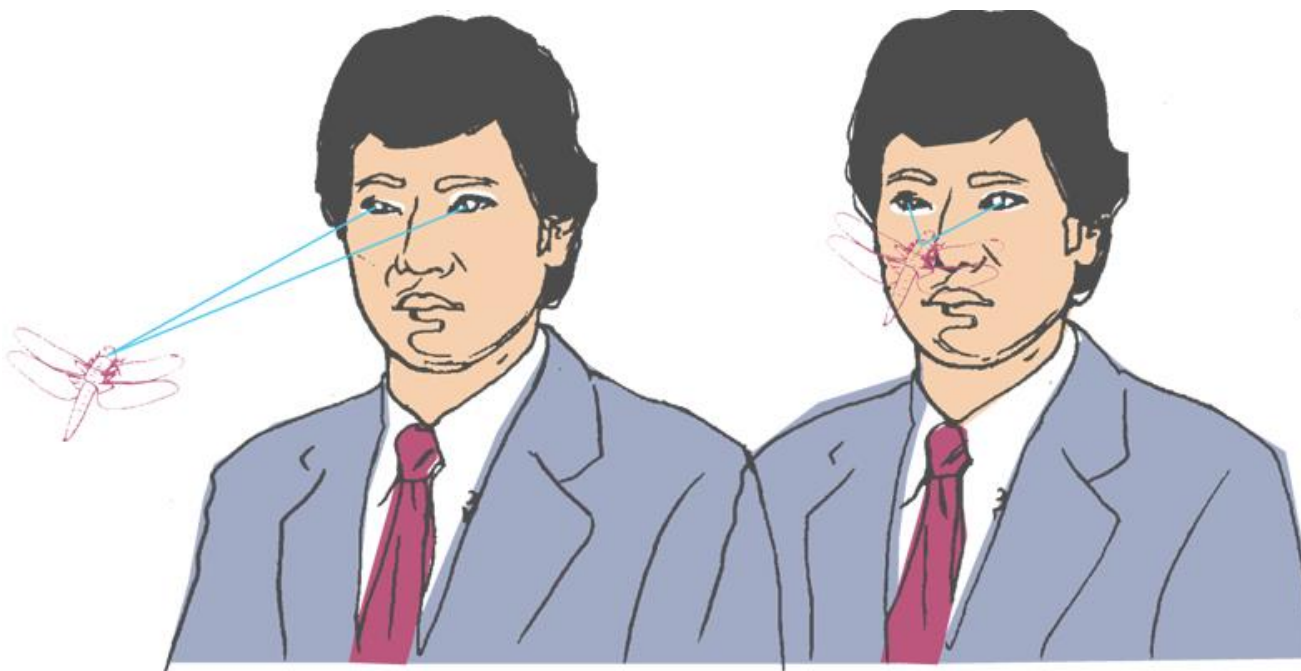
Binocular Cues: Retinal Disparity

- **Retinal disparity:** Images from the two eyes differ.
- The amount of disparity (difference) between the two images can be used as a cue for distance
- Try holding up two fingers one in front of the other. Focus on the front one (you should now see two images of the back one). Now move the back one away from, then back towards you, while still focusing on the front one.
 - Close one eye then line the fingers together so that the closer finger eclipses the one in the back.
 - Now open your eye that was closed, then shut the one that was open.



Binocular Cues: Convergence

Convergence: Neuromuscular cues. When two eyes move inward (towards the nose) to see near objects and outward (away from the nose) to see faraway objects.





Monocular Cues – depth cues

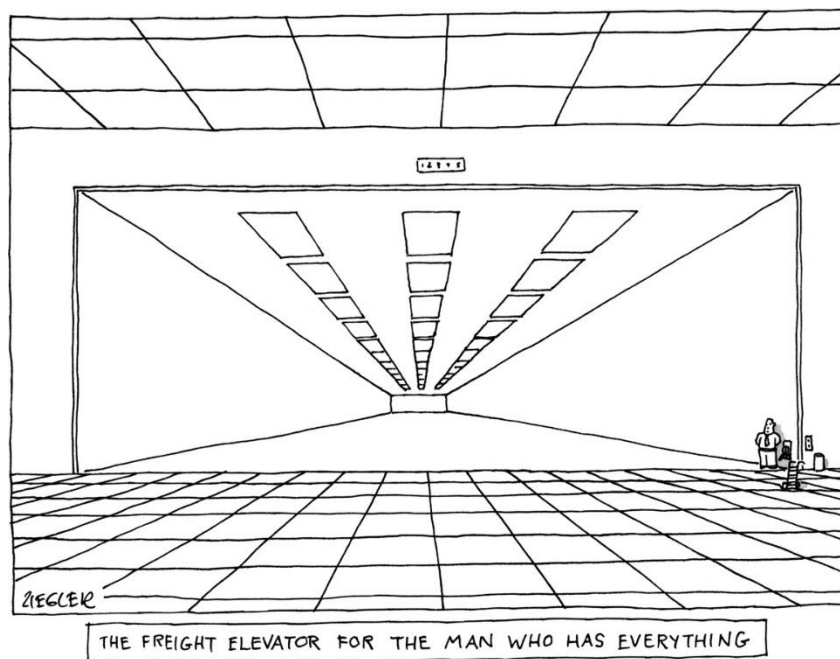
Relative Size: If two objects are similar in size, we perceive the one that casts a smaller retinal image to be farther away.





Monocular Cues

Linear Perspective: Parallel lines, such as railroad tracks, appear to converge in the distance. The more the lines converge, the greater their perceived distance.





Monocular Cues

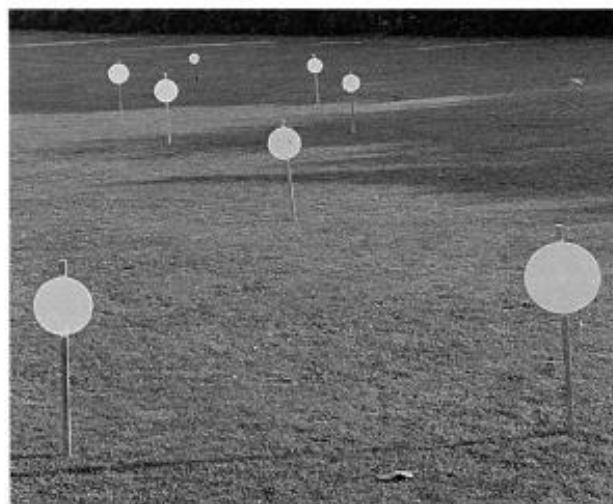
Interposition: Objects that occlude (block) other objects tend to be perceived as closer.



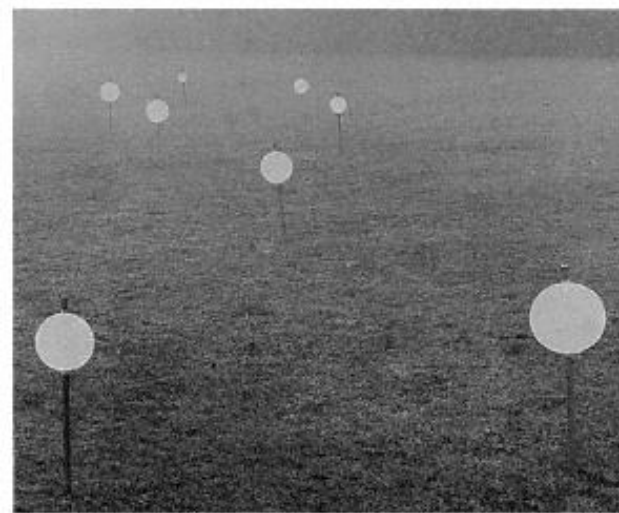


Monocular Cues

Relative Clarity: Because light from distant objects passes through more light than closer objects, we perceive hazy objects to be farther away than those objects that appear sharp and clear.



Midday Sunshine

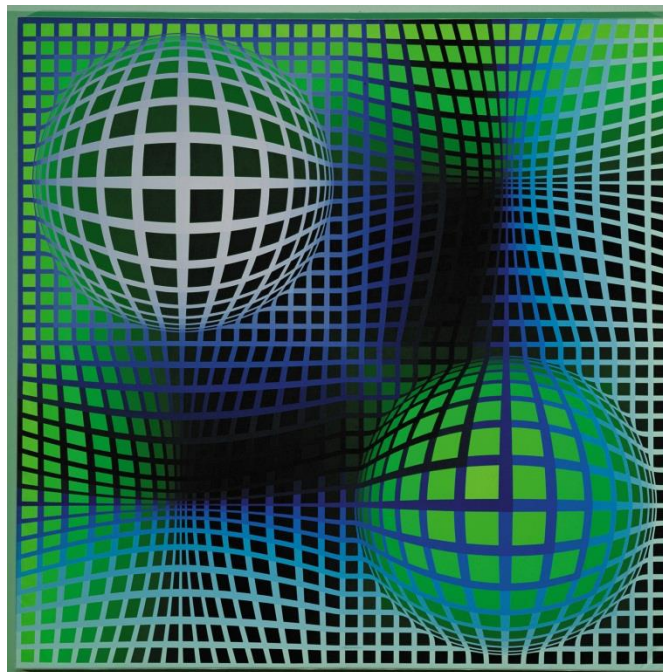


Morning Fog



Monocular Cues

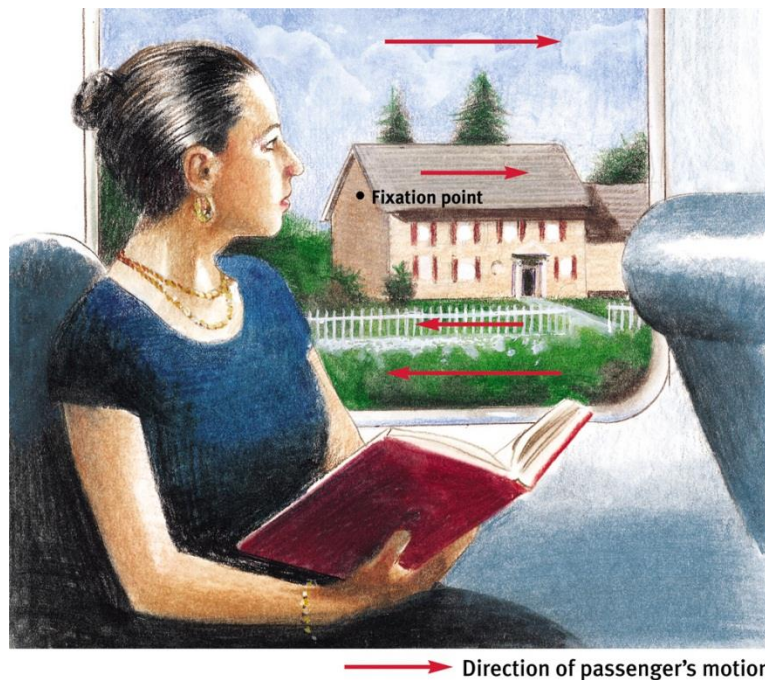
Texture Gradient: Closer objects tend to have a courser texture than to far way objects





Monocular Cues

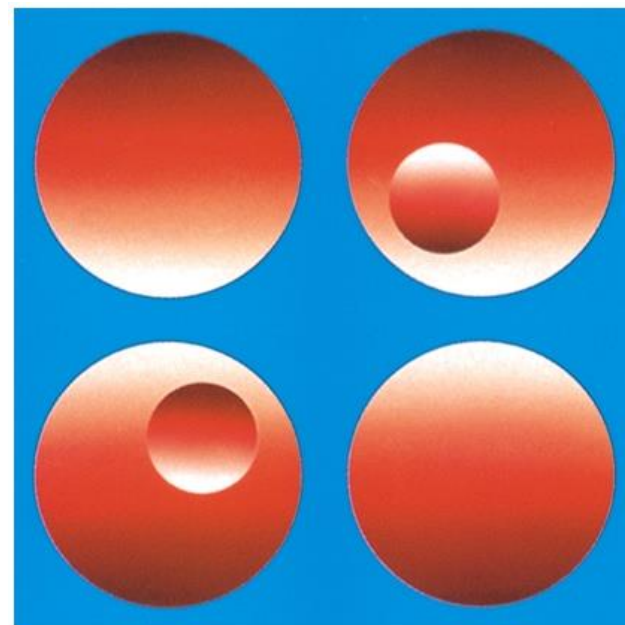
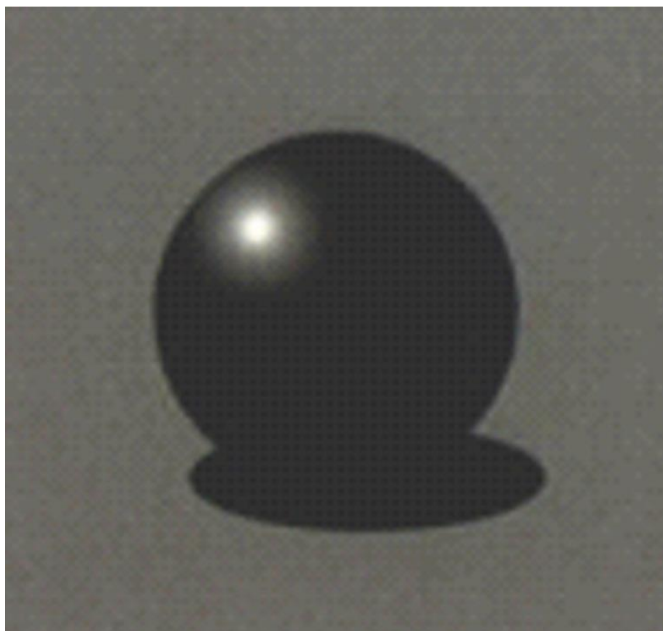
Relative motion: Objects closer to a fixation point move faster and in opposing direction to those objects that are farther away from a fixation point, moving slower and in the same direction.





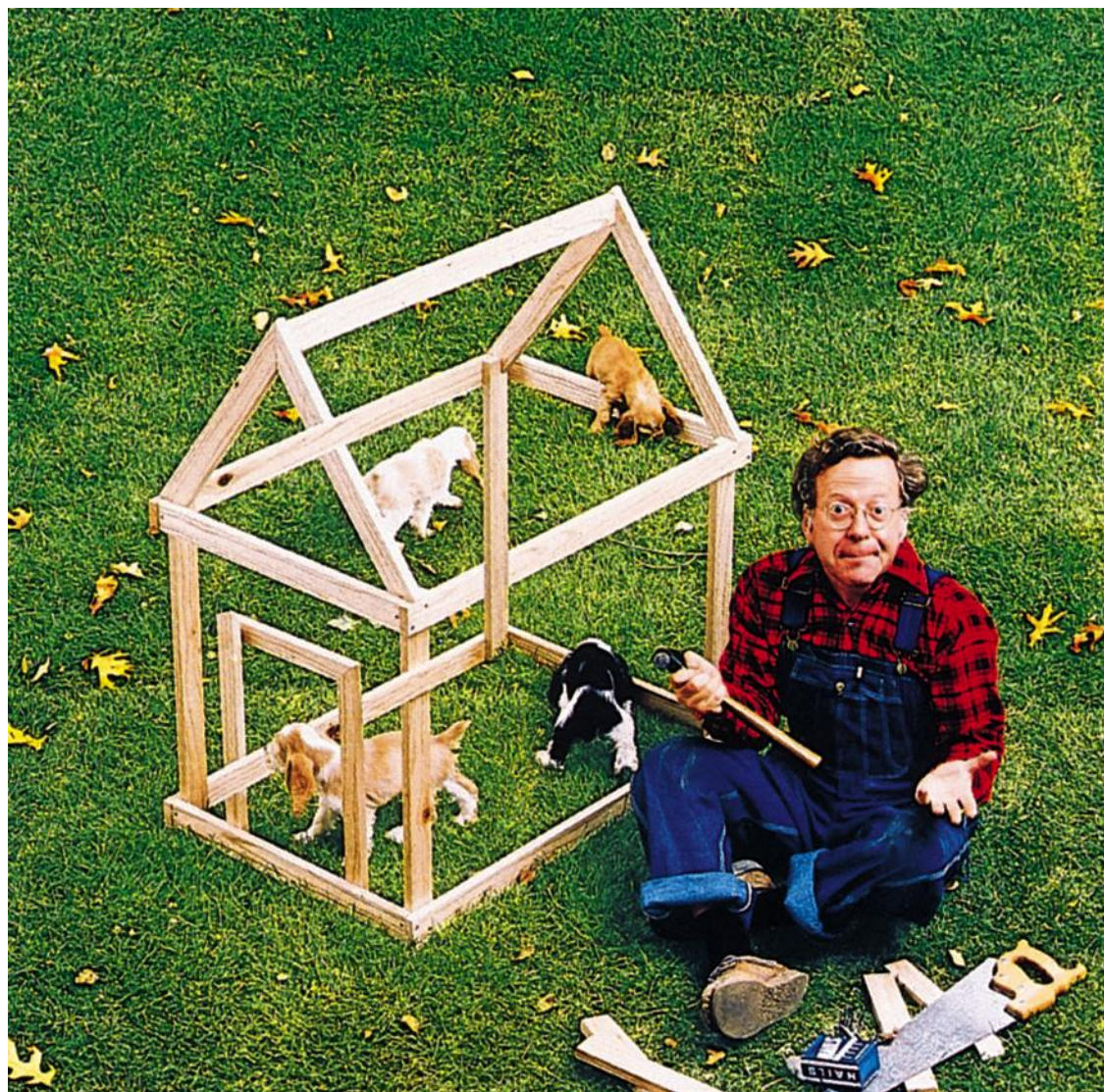
Monocular Cues

Light and Shadow: Nearby objects reflect more light into our eyes than more distant objects. Given two identical objects, the ones that are shaded on top are seen as “sticking out toward us”

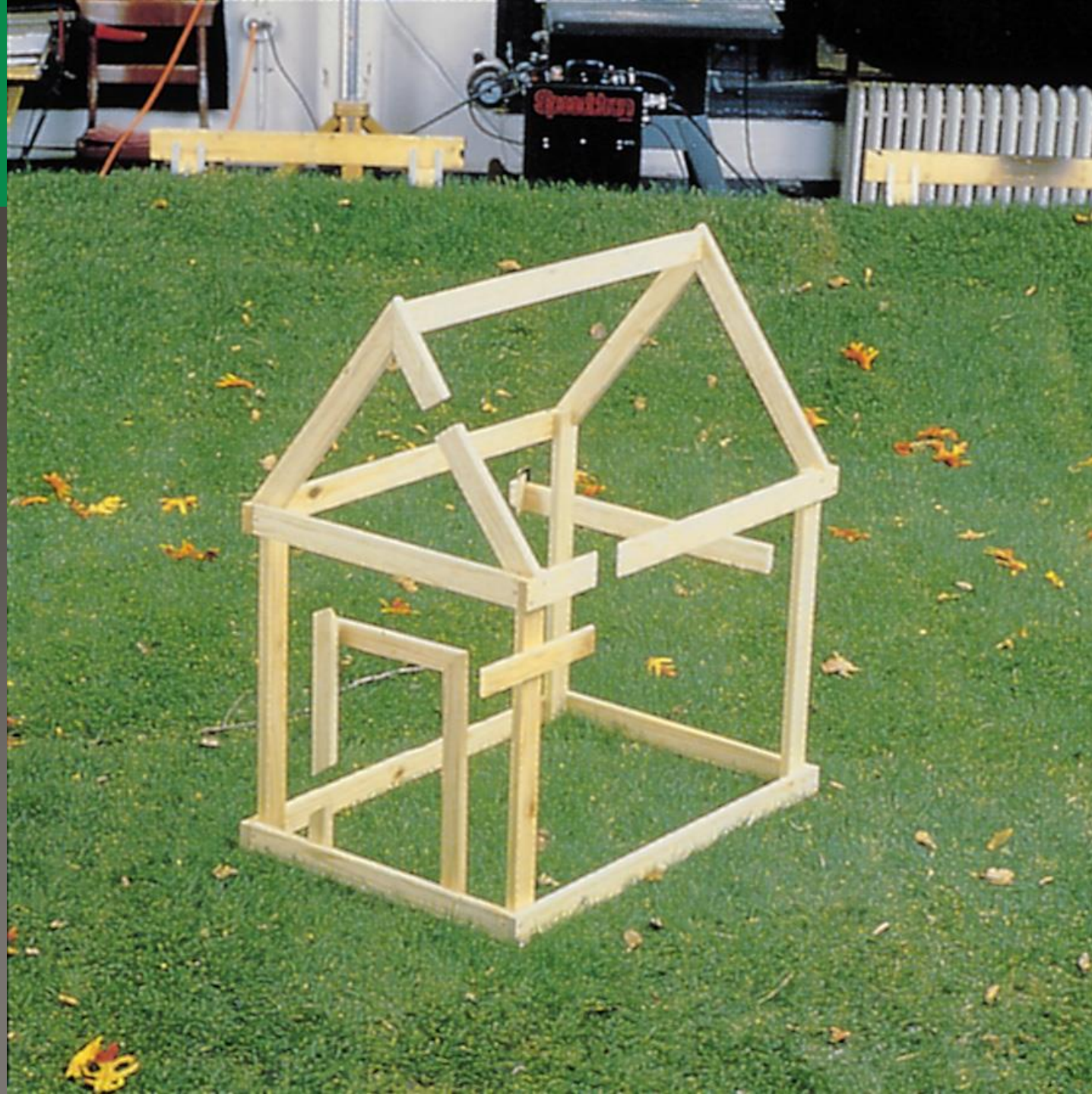




Our perceptions are predictable and therefore they can be exploited.



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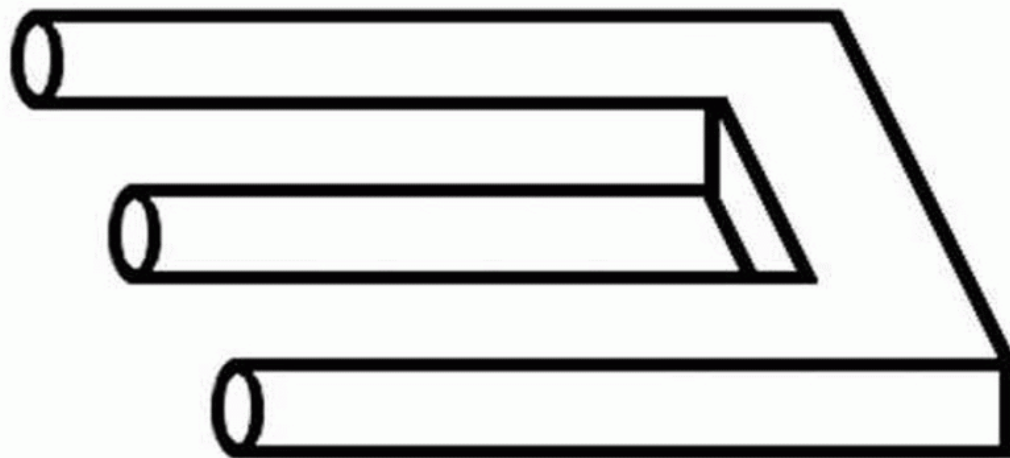




Impossible Figures

impossible object (also known as an impossible figure)

- looks three-dimensional but cannot be a two-dimensional projection of a real three-dimensional object





How do we perceive forms?

- Perceptual Constancy
 - Our tendency to perceive objects as stable and unchanging despite changing sensory information
- Color constancy
- Shape constancy
- Size constancy





Perceptual constancy

Perceiving objects as unchanging

- Color Constancy

- Perceiving familiar objects as having consistent color even if change in illumination alters the wavelength

- <https://www.youtube.com/watch?v=wiMDO2yXCsk>



What is the color of the dress?!

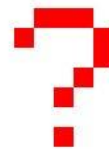
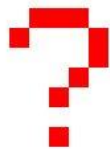
**BLUE
AND
BLACK?**



**WHITE
AND
GOLD?**



Is That Dress White and Gold or Blue and Black?





Are you actually seeing what you are seeing?

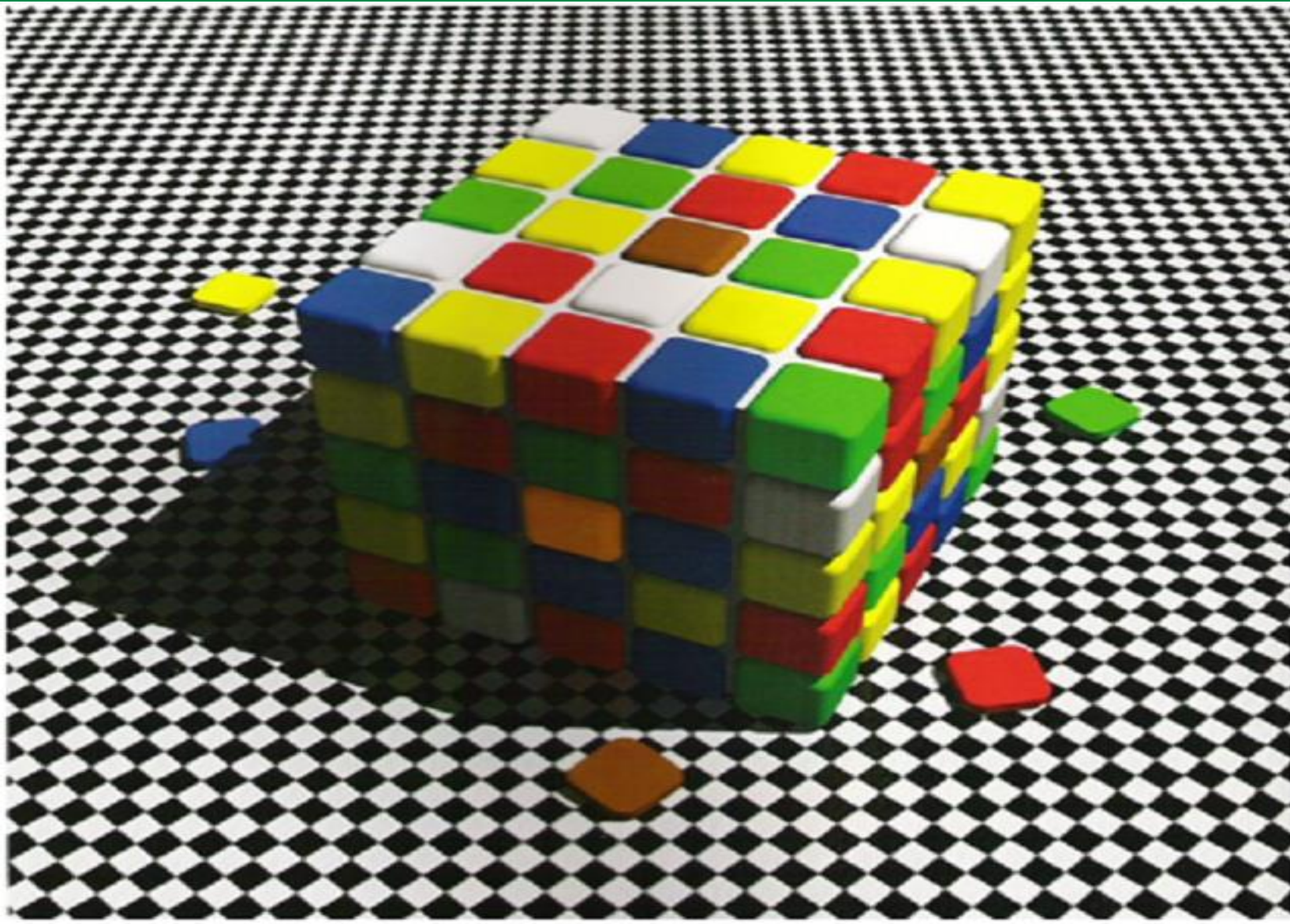
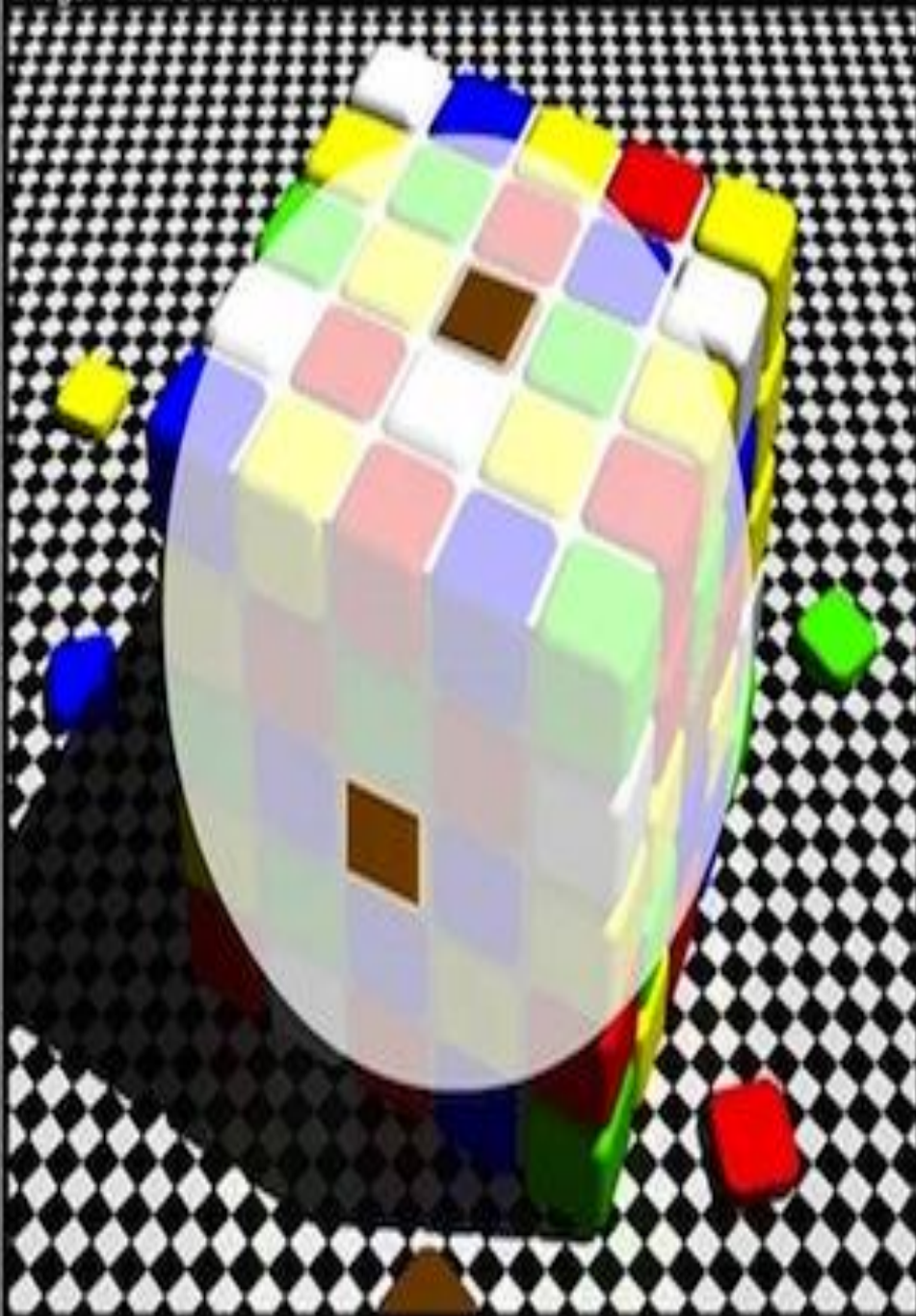


Image: © R. Beau Lotto



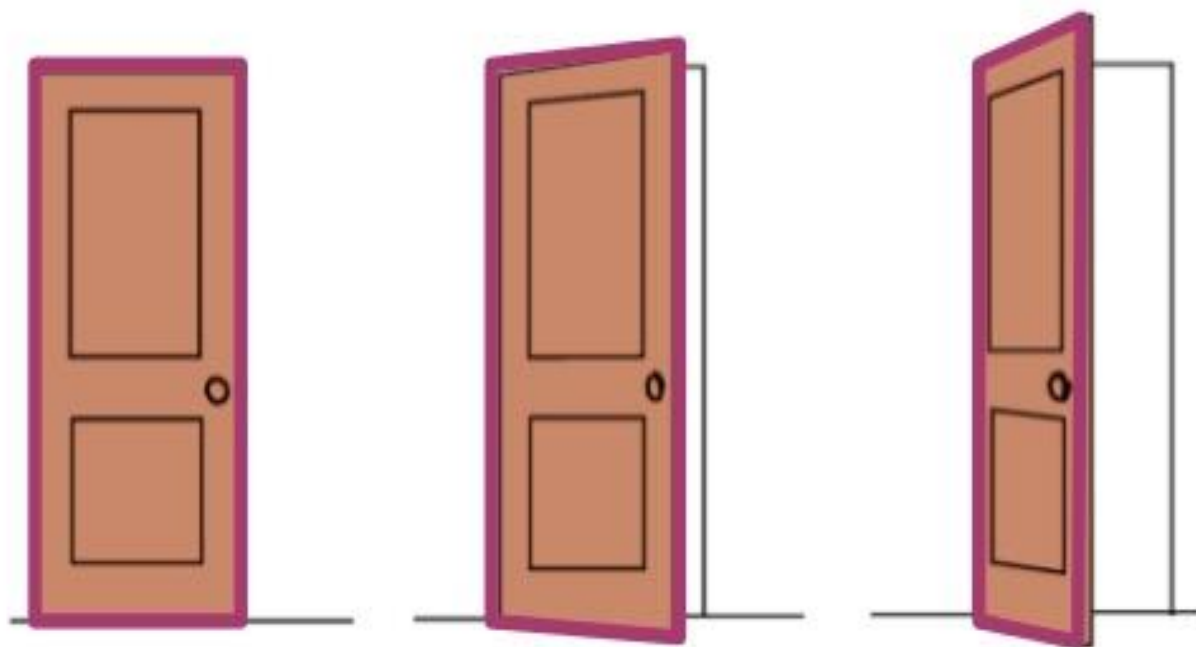
Image: © R. Beau Lotto





Shape Constancy

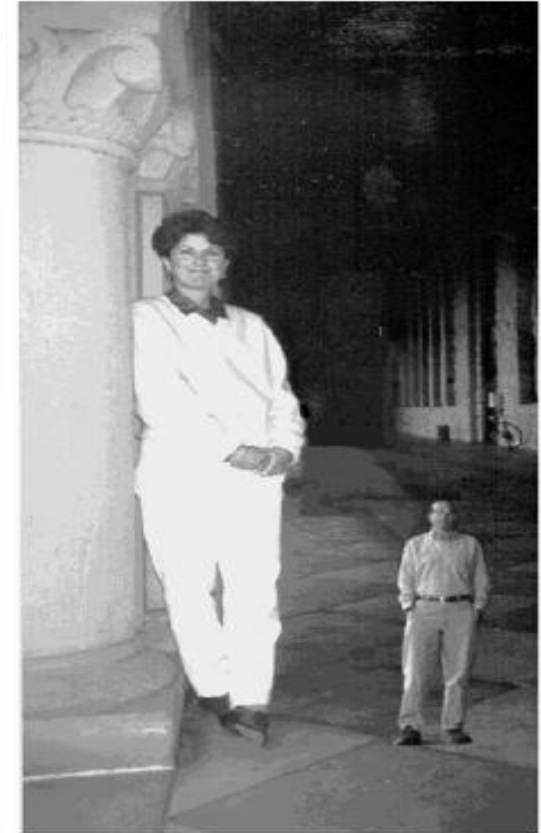
Shape constancy refers to the ability to perceive objects as having a constant shape despite receiving different sensory images. This helps us see the door as a rectangle as it opens. Because of this, we may think the red shapes on screen are also rectangles.







Size constancy



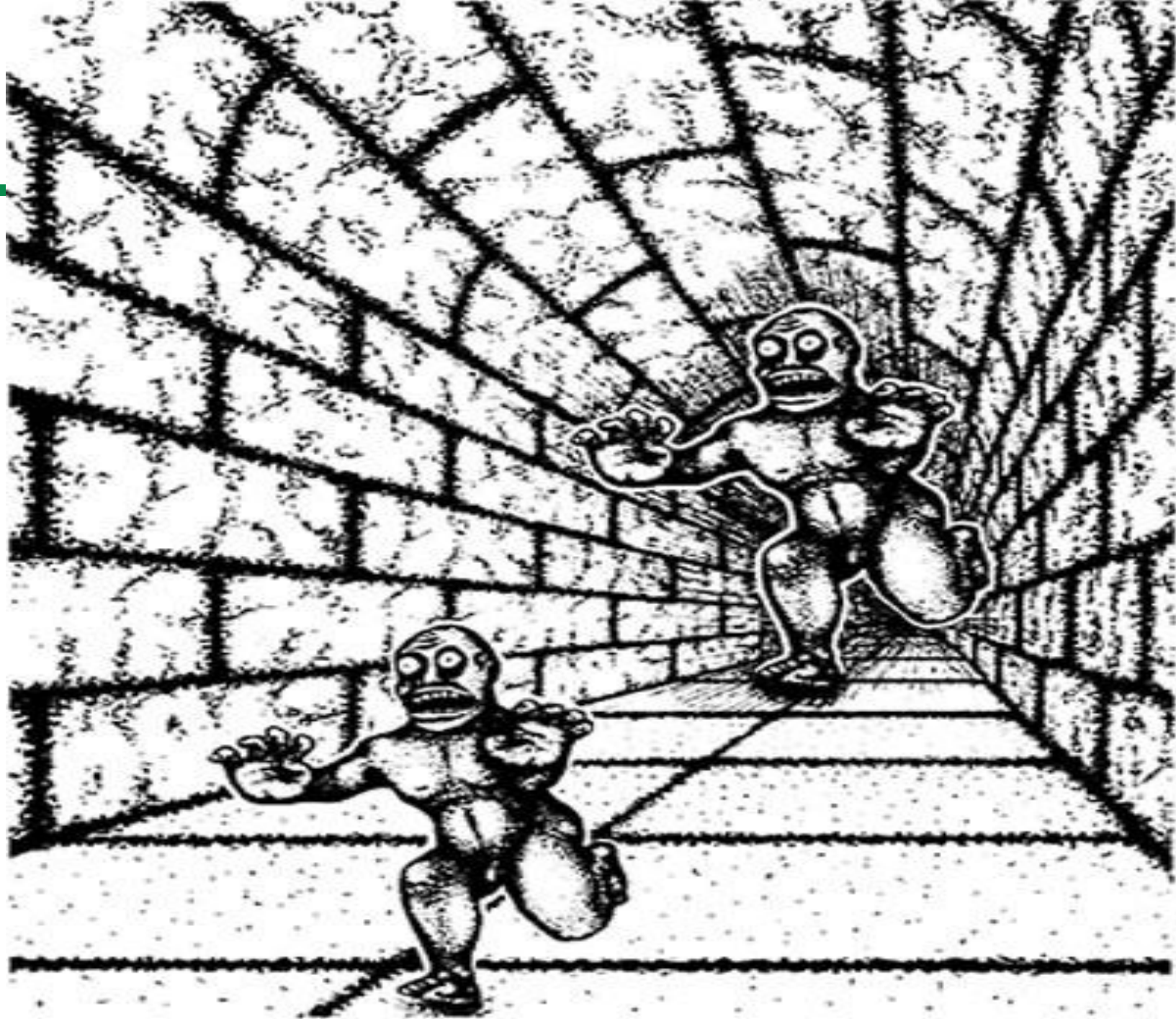
People's perception of one particular object's size will not change

<https://www.youtube.com/watch?v=hCV2Ba5wrcs>

Ames Room

<https://www.youtube.com/watch?v=gJhyu6nIGt8>

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Perception of Movement

Apparent movement

- optical illusion that makes a still object appear to move
- <https://www.youtube.com/watch?v=glkzvdLRSo8>
- https://www.youtube.com/watch?v=TKqF9xN0_q4

- Stroboscopic motion

- Created by a rapid series of still pictures
- <https://www.youtube.com/watch?v=UFvTrL2cGMO>

- Phi phenomenon

- Apparent motion created by lights flashing in sequence
- <https://www.youtube.com/watch?v=UfcNoMnKjY>

- Autokinetic illusion

- Perceived motion of a single object due to eye movements on an 'impoverished background'
- <https://www.youtube.com/watch?v=DVakQSYL8SA>



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False Pattern Recognition

NOT ON THE AP EXAM! Just food for thought!

- Apophenia
 - human tendency to perceive meaningful patterns within random data
 - Perceptual set



False Pattern Recognition



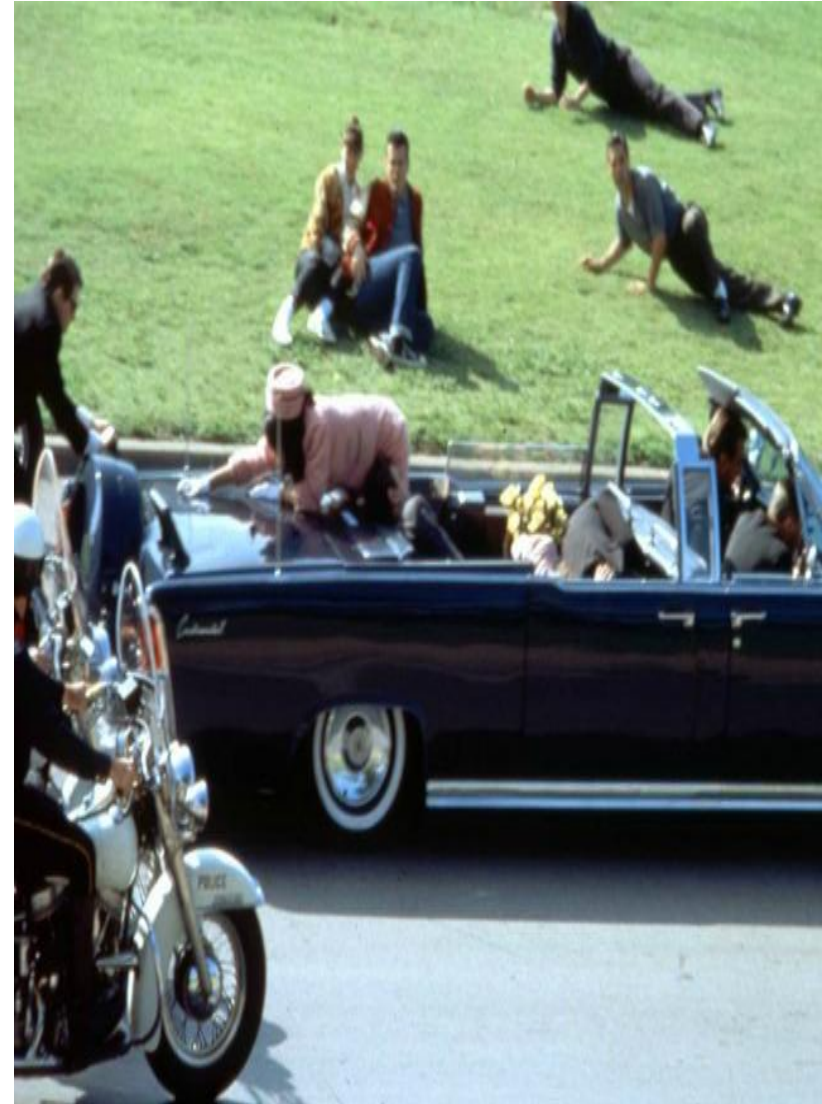


False Pattern Recognition





False Pattern Recognition





False Pattern Recognition





False Pattern Recognition



- What did you see?
- What did you perceive?



Perceptual Set

- Predisposition/readiness to perceive something in accordance to what we expect:
 - Motivation
 - Culture
 - Past experiences
 - Context
 - Schema
 - Expectations (expectancy)



PARAPSYCHOLOGY
CAN THERE BE PERCEPTION
WITHOUT SENSATION?



Parapsychology

Field of psychology that studies evidence of psychological phenomena that are currently inexplicable by evidence.

ESP – Extrasensory perception—
controversial and paranormal claim that
perception can occur apart from sensory
input.



Extrasensory perception (ESP)

- Precognition -- supernormal knowledge of future events (that has been predetermined)
- Clairvoyance -- the ability to see or know things without actually perceiving them via the senses.
- Telepathy – mind to mind communication
- Telekinesis/psychokinesis – moving remote objects through mental process



Anamorphic illusion

- <https://www.youtube.com/watch?v=GlvD-ITco8&feature=youtu.be>

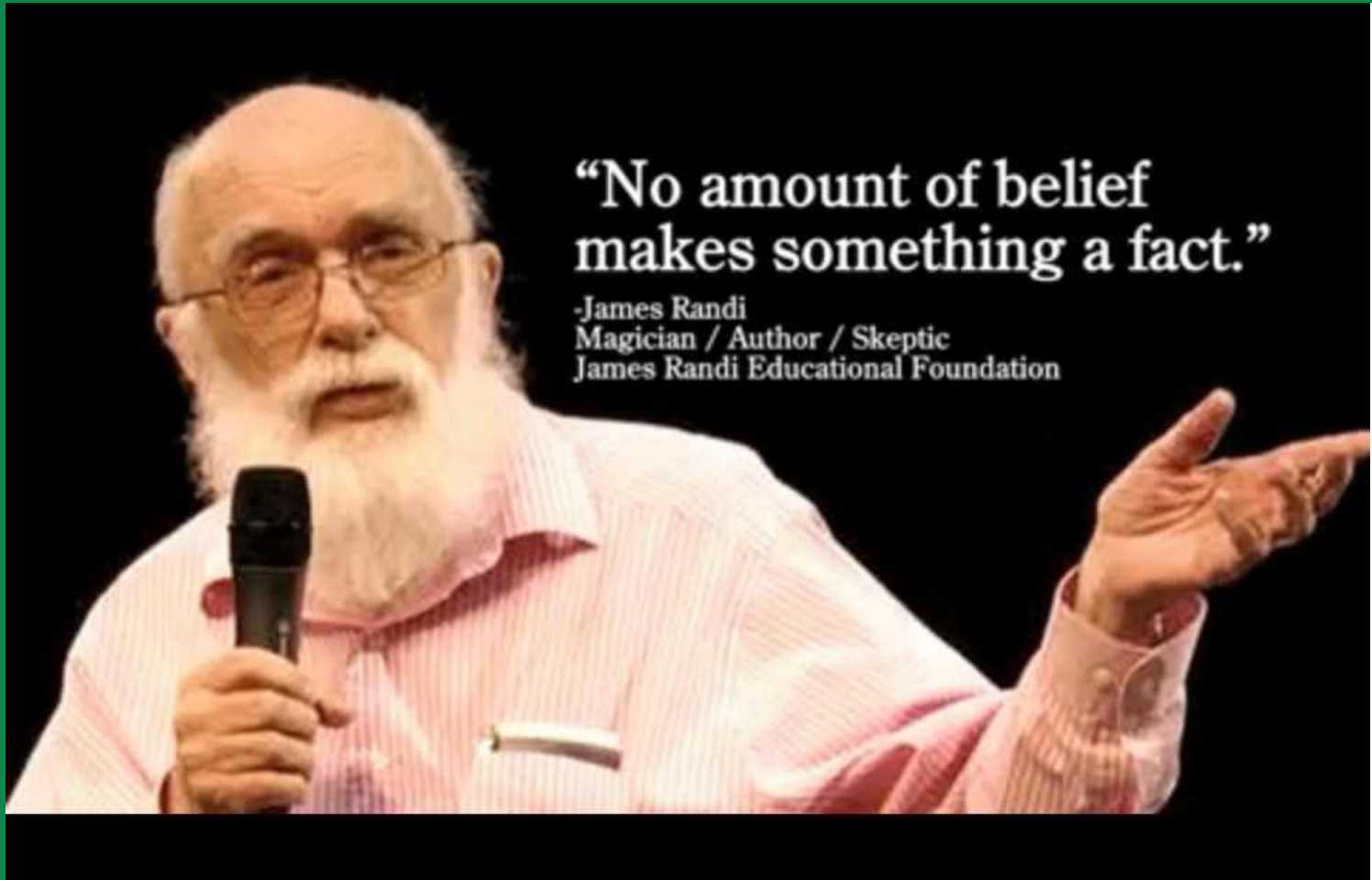


ESP Continued

- 1998 National Research Council investigation on ESP concluded that there are **no strong evidence to support that such phenomenon exist.**
- **Parapsychologists have been unable to replicate ESP phenomena under controlled conditions.**
 - It cannot be replicated in an experiment.



James Randi



James Randi has offered one million dollars to anyone who can prove a genuine psychic power under proper conditions