Gestalt Principles and Illusions

Psy12000.003

Gestalt Theory

- First arose in the 1890s in reaction to *atomism*
  - Atomism examined parts of things with the idea that these parts could then be put back together to make wholes.
  - Atomists believed the nature of things to be absolute and not dependent on context.

Gestalt View

- Gestalt theorists were intrigued by the way our mind perceives wholes out of incomplete elements
- To the Gestaltists, things are affected by where they are and by what surrounds them
  - Things are better described as "more than the sum of their parts."
  - The Gestalt Effect refers to the form-forming capability of our perceptions

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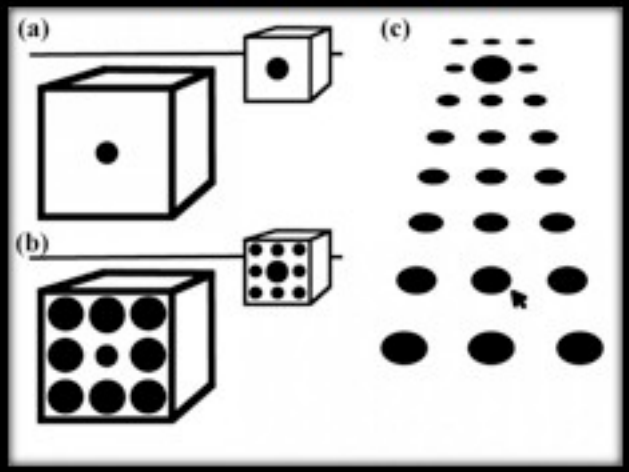
Gestaltists believed that context was very important in perception. An essay by Christian von Ehrenfels discussed this belief using a musical example. Take a 12 note melody. Play it in one key, say the key of C. Now change to another key, say the key of A flat. There might not be any notes the same in the two songs, yet a person listening to it knows that it is the same tune. It is the relationships between the notes that give us the tune, the whole, not which notes make up the tune.

Children Do Better Than Adults



Gestalt Principles

- Figure and Ground
- Similarity, Proximity, and Continuity
- Closure, Area, Symmetry

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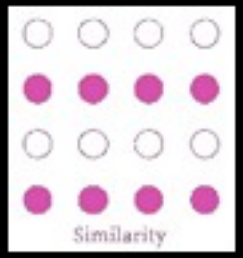
- What is figure, what is ground? Why?

Notice the painting of the bird below. Only with great difficulty can you separate the bird from the log it is perched on. Figure and ground have merged together.

Similarity

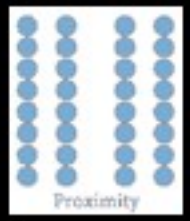
- Things that share visual characteristics such as shape, size, color, texture, value or orientation will be seen as belonging together.
- In the example to the right, the two filled lines gives our eyes the impression of two horizontal lines, even though all the circles are equidistant from each other.



- In the example to the left, the larger circles appear to belong together because of the similarity in size.

Proximity

- Things that are closer together will be seen as belonging together.



Looking at the picture to the right, since the horizontal rows of circles are closer together than the vertical columns, we perceive two vertical lines. Since the first two columns and the last two columns have less space between them than the center two columns, we perceive two groups of two columns.

Continuity

- Predicts the preference for continuous figures.

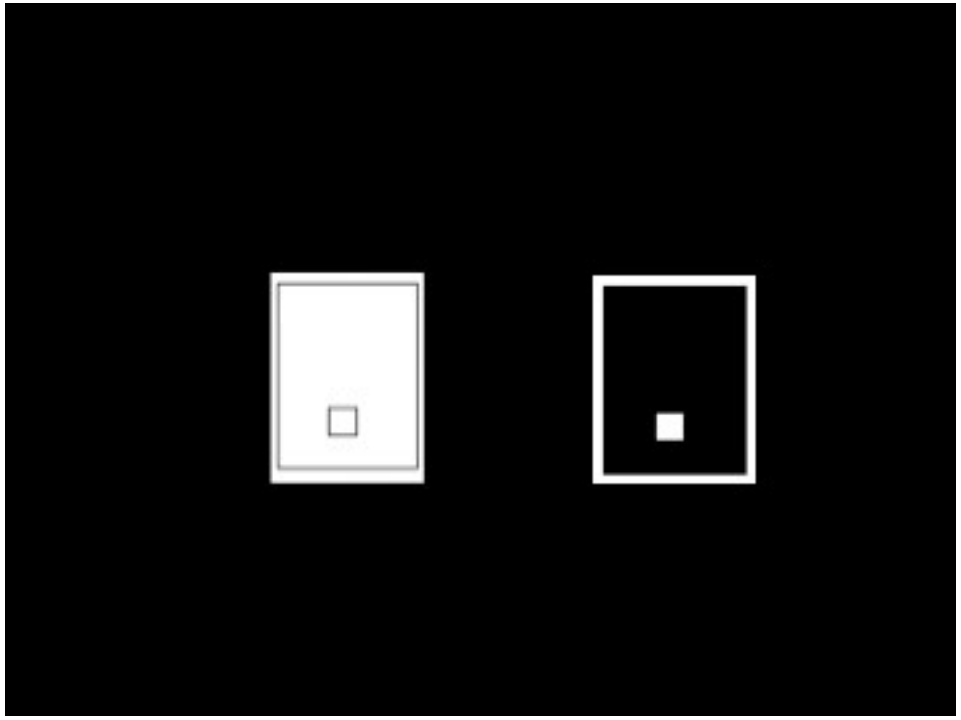
We perceive the figure as two crossed lines instead of 4 lines meeting at the center.

Closure

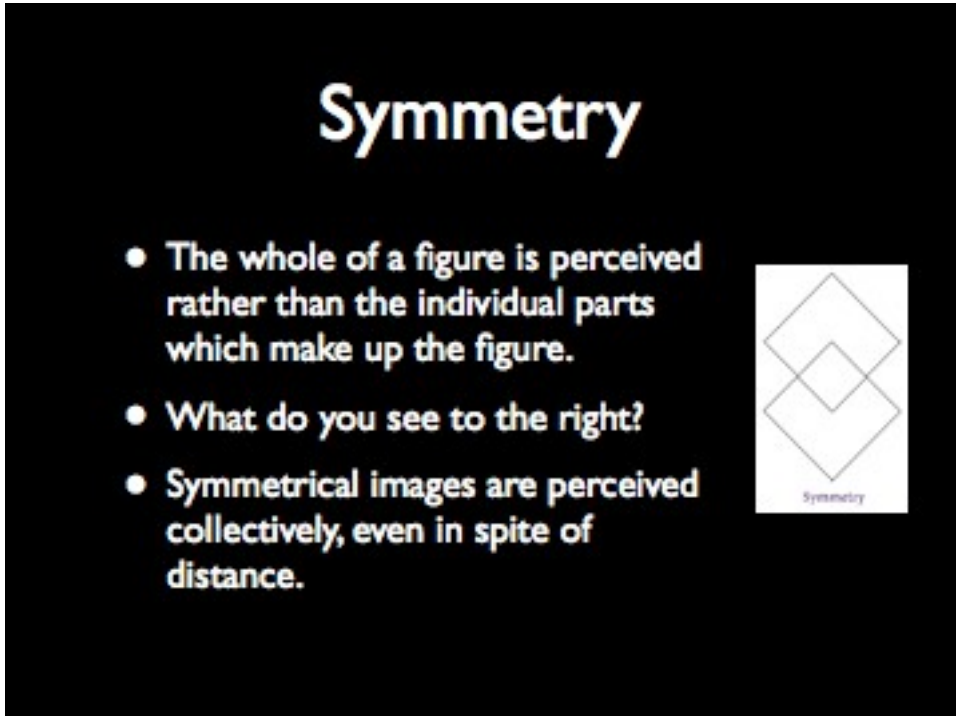
- We tend to see complete figures even when part of the information is missing.
- Our minds react to patterns that are familiar, even though we often receive incomplete information.
- This is a survival instinct, allowing us to complete the form of a predator even with incomplete information.

Area

- The principle of area states that the smaller of two overlapping figures is perceived as figure while the larger is regarded as ground.



We perceive the smaller square to be a shape on top of the other figure, as opposed to a hole in the larger shape. We can reverse this perception by using shading to get our message across, as seen below.



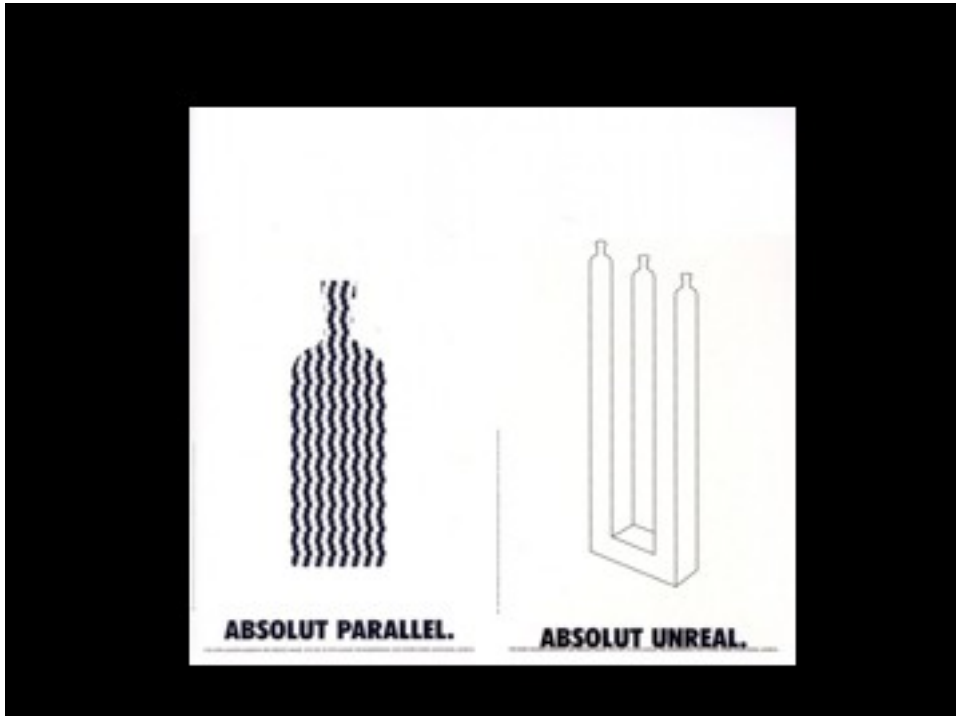
Two overlapping diamonds, or three objects, a small diamond and two irregular objects above and below it? If you are perceiving according to the principle of symmetry, you will probably see two diamonds overlapping.

Illusions

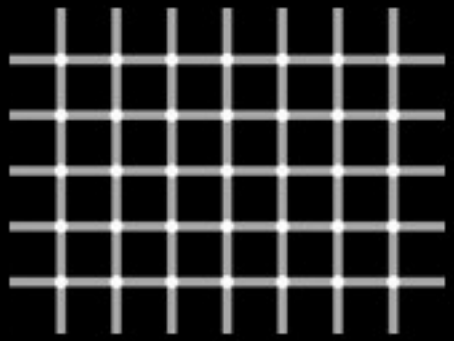
- Three kinds of visual illusions
  - literal optical illusions
    - creates images that are different from the objects that make them
  - physiological illusions
    - effects on the eyes and brain of excessive stimulation of a specific type (brightness, tilt, color, movement)
  - cognitive illusions
    - where the eye and brain make unconscious inferences

Literal Optical Illusions

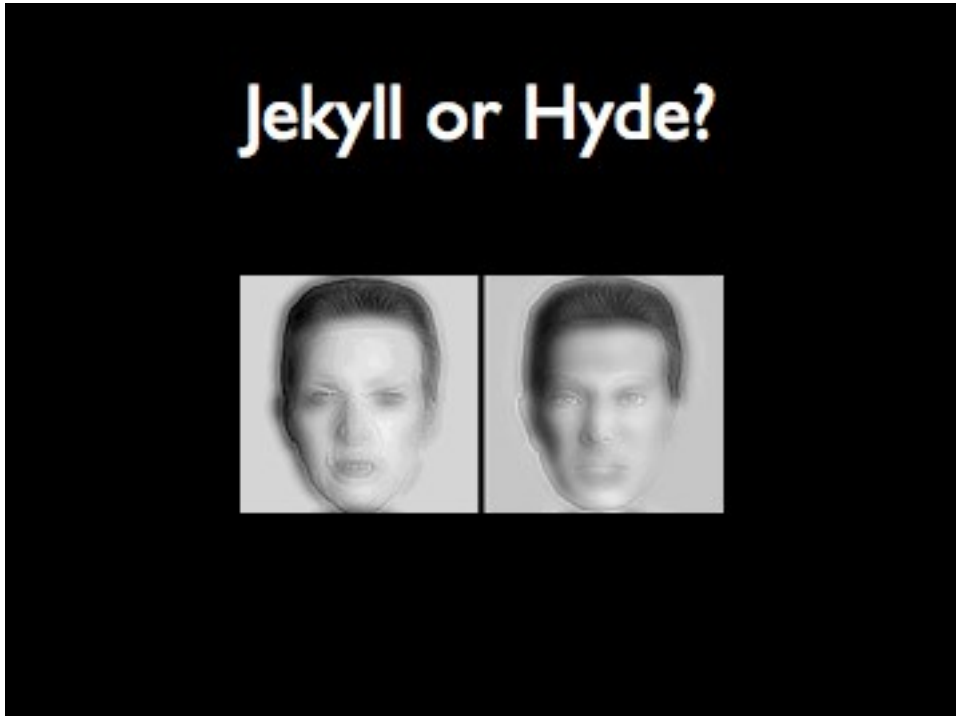

FedEx


ABSOLUT PARALLEL.
ABSOLUT UNREAL.

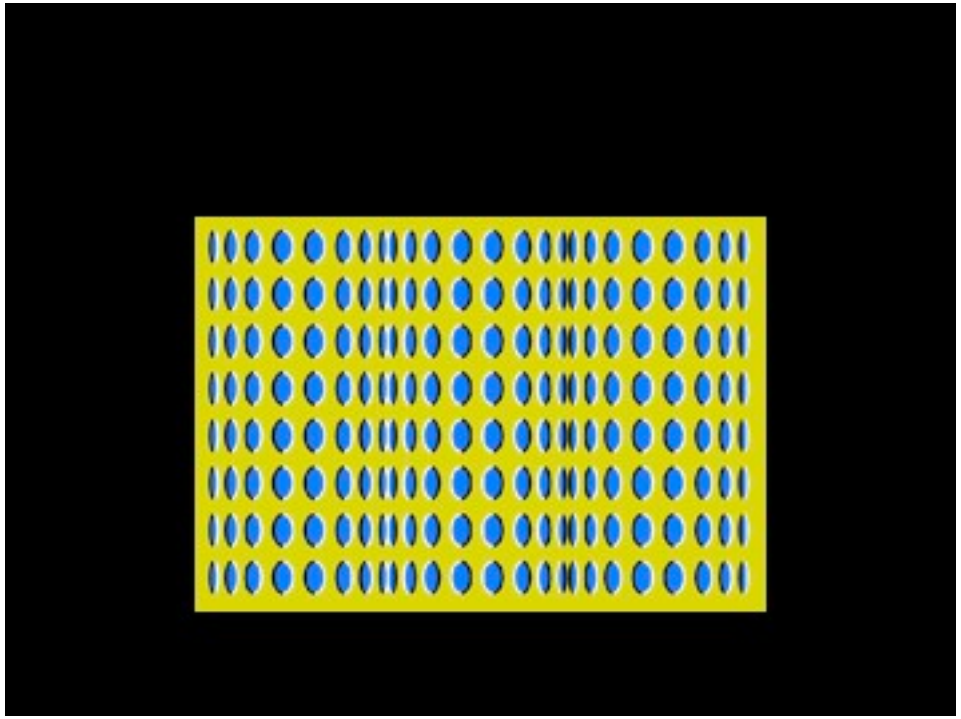
Physiological Illusions



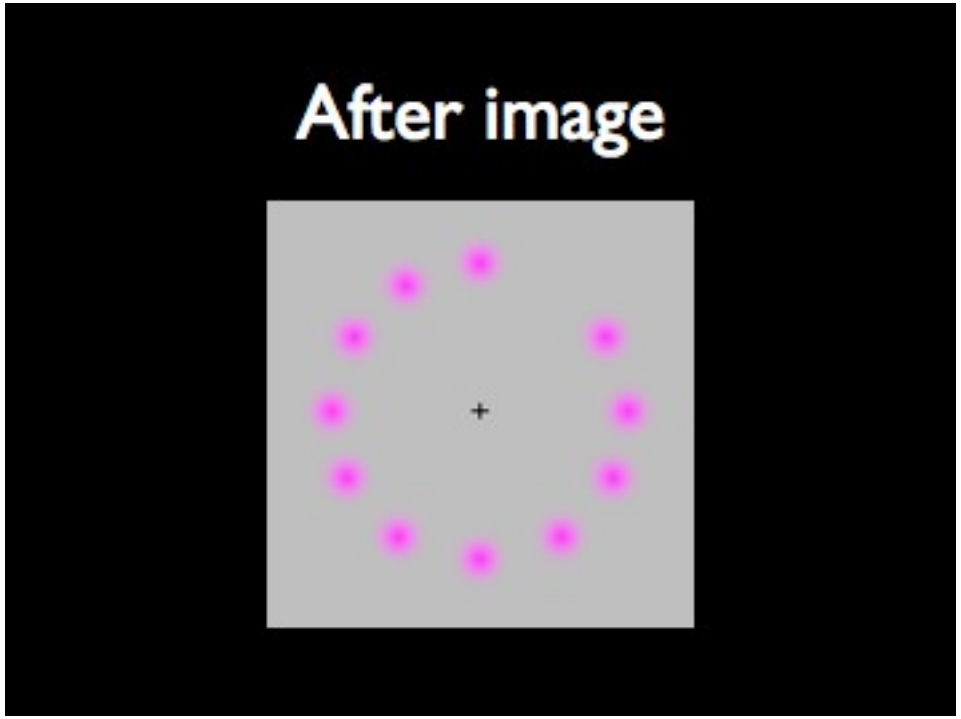
Just count the little black balls...

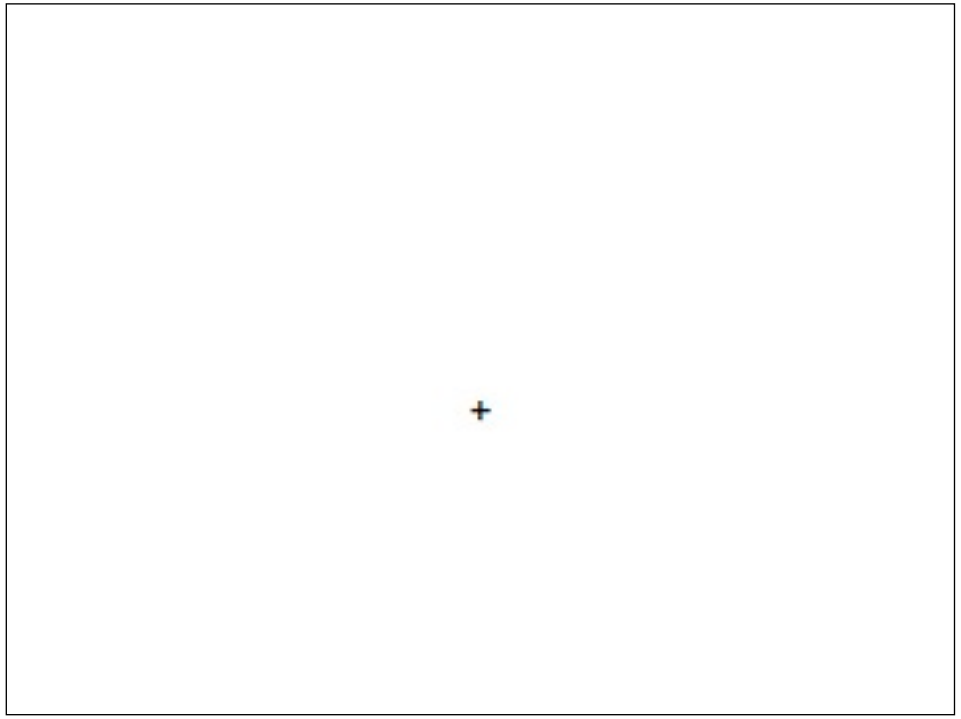


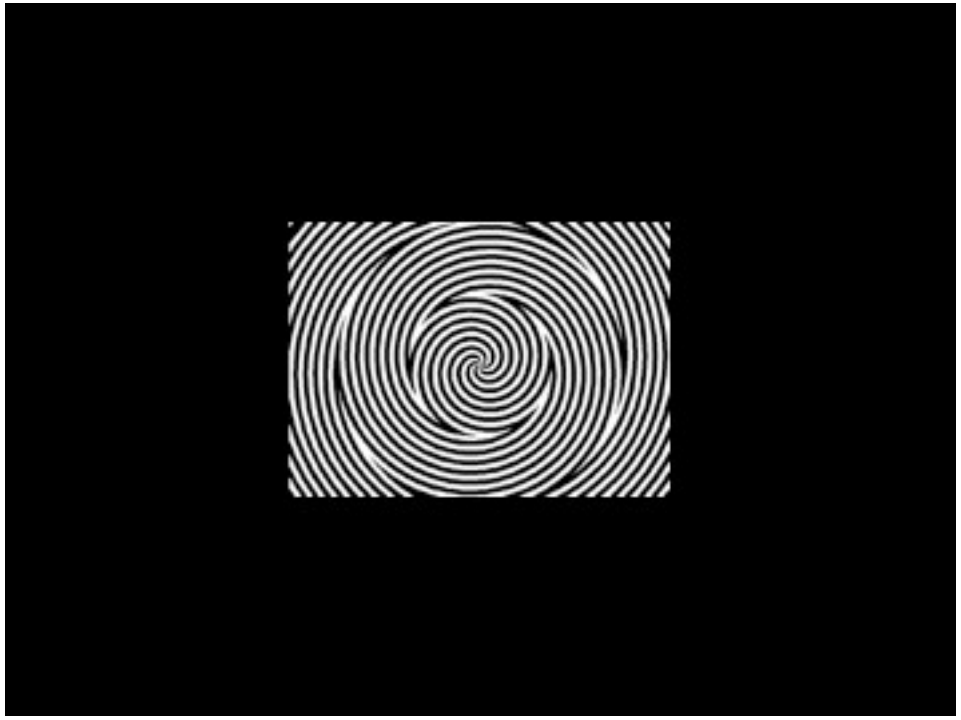
When we look at an object, we can normally see both fine detail and coarse detail. However when we are close, the fine detail will dominate, and when we are further away, we lose the fine detail, and see more of the coarse detail.
Both of the faces you see above are hybrids - each face is actually a combination of two faces. The left hand face shows an angry man in fine detail, but within the picture there is also coarse detail of the calm face. Move away, and you lose the fine (angry) detail, and just see the coarse (calm) detail.
The right hand face shows the calm face in fine detail, and the angry face in coarse detail.

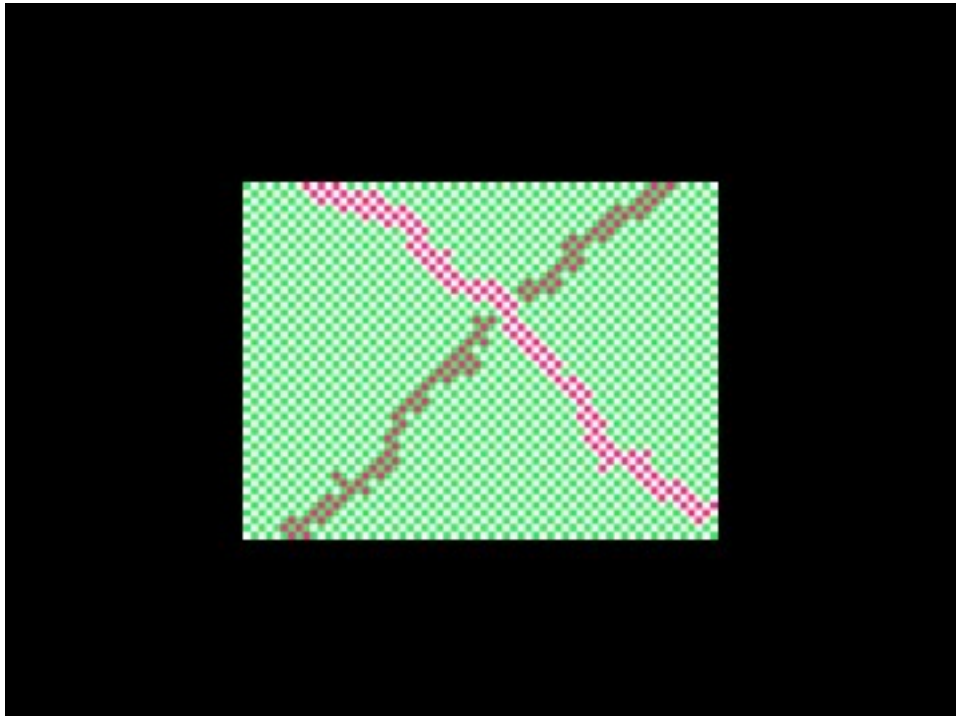


The moving wave...it's not really moving!


After image





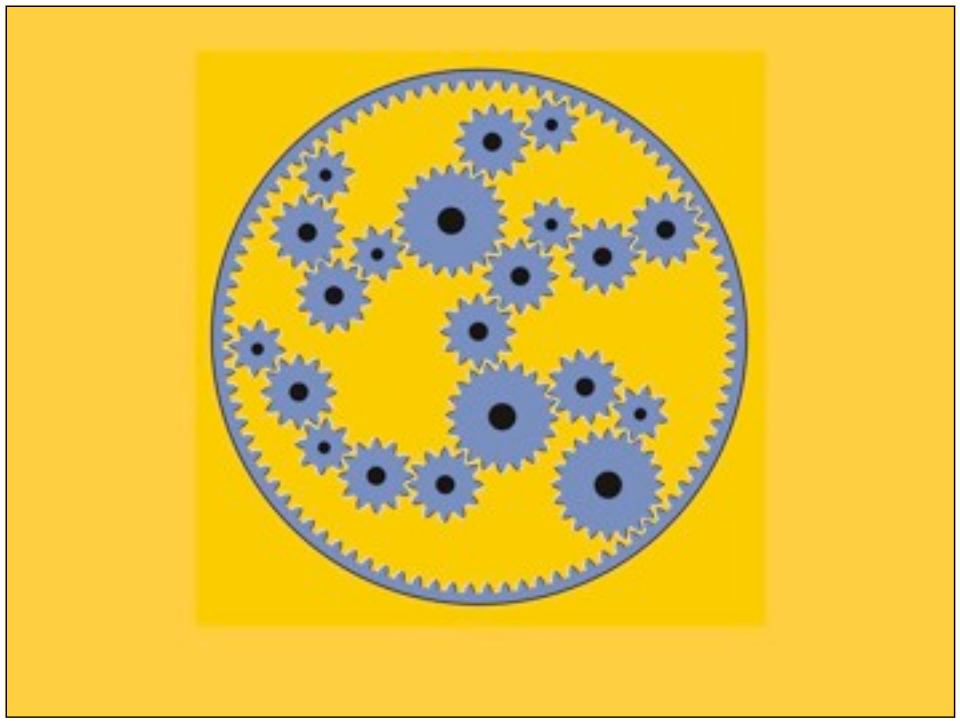


It may look as if the two arms of the 'X' use different shades of pink, but in fact the whole X only uses a single color.

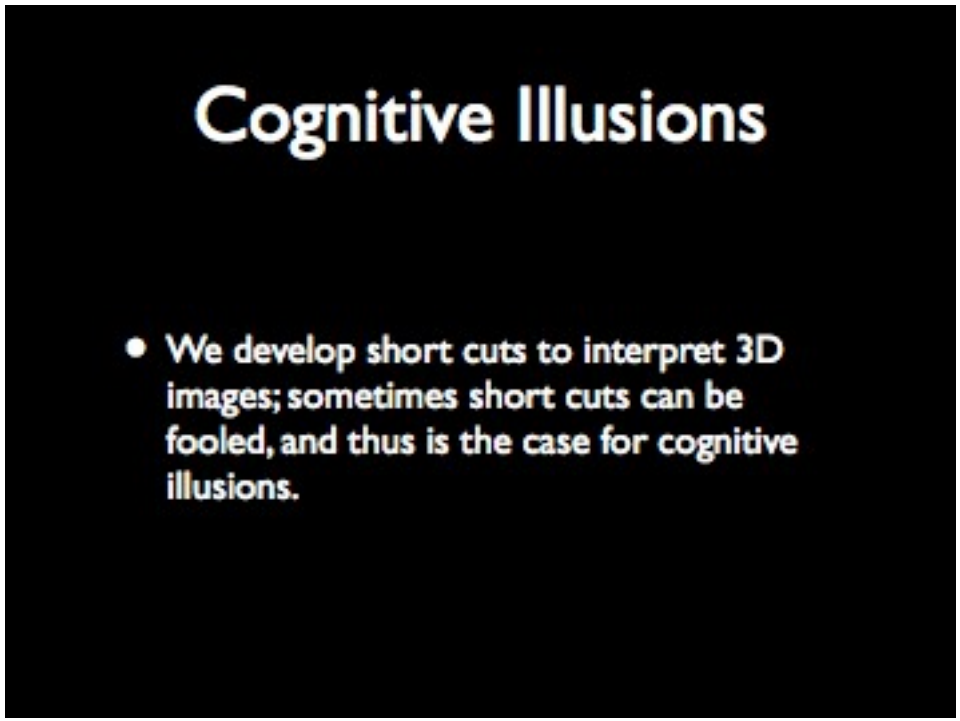
Explanation

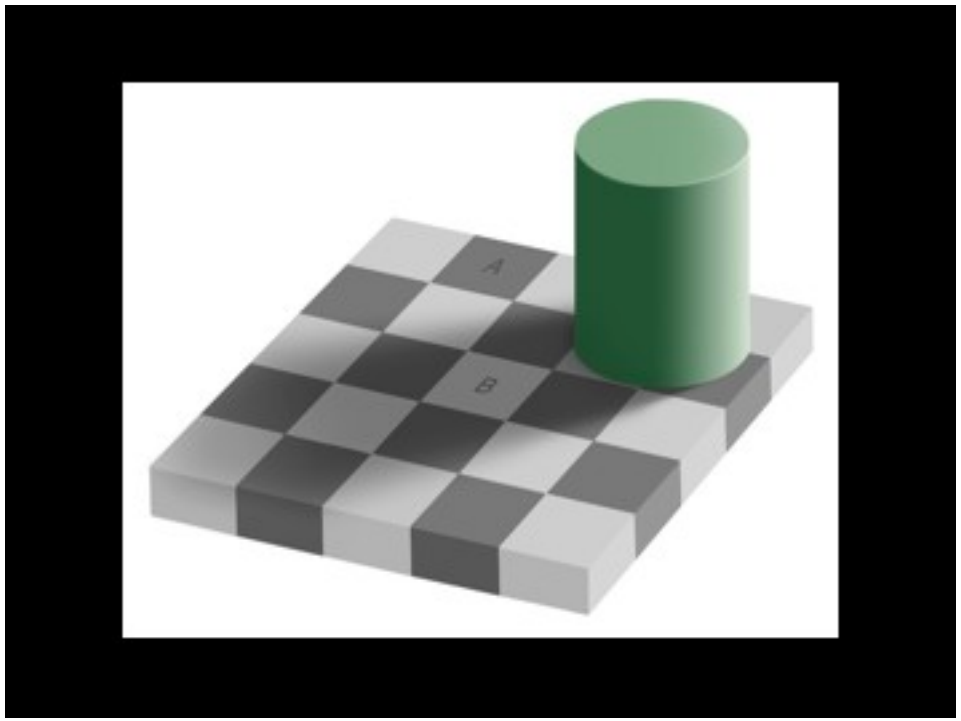
The difference is that one arm of the X consists of pink squares that replace white squares in the background. Thus these pink squares are surrounded by green squares. The other arm of the X also consists of pink squares, of an identical color, but in this case they replace green squares in the background, and are therefore surrounded by white squares.

Painters have long known that the way a color looks in a painting is affected not only by the actual shade of the color itself, but also by the colors that surround it.



Looks like someone has invented perpetual motion - these cogs are certainly never going to stop moving!
Mr. Shebzukhov from Moscow in Russia created this illusion in October 2004, and owns the copyright. This and other illusions can be seen on the **'friends'** section of the web site belonging to Mr A Kitaoka, from Japan.





Are square A and B the same color?

Dragon Illusion
(hollow face illusion)

How does it work? If we move around when viewing a solid object, our brain knows how the object we are looking at should behave. However the dragon gives us the wrong clues, because we mis-interpret what its shape is. We assume that the nose of the dragon is pointing out towards us, but in fact the dragon's head is concave.

Subliminal Perception


Mommy and are one


Mommy and are one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