CONSTANCY

1) Lightness Constancy

   a) Albedo

2) Size Constancy

   a) Emmert's Law

   b) Limits of size constancy

3) Shape Constancy

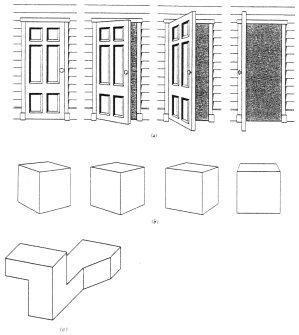


figure 10.9 Shape constancy. (a) Various projected images from an opening door are quite different, yet a rectangular door is perceived. (b) Similarly, various projections of trapezoids and parallelograms yield the perception of the faces of a cube as seen from different perspectives. (c) A drawing of an unfamiliar object that appears to be a composite of many right angles and rectangular shapes. However, as depicted, the figure does not contain any right angles. (Devised by Roger Shepard.)

4) Summary of Constancy

ILLUSIONS

- Visual illusions are often the result of heuristic perceptual processes trying to deal with rare, ambiguous, or contrived stimuli

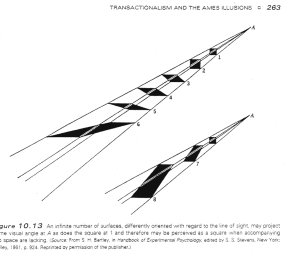


figure 10.13 An infinite number of surfaces, differently oriented with regard to the line of sight, may project the same visual angle as A as does the square at 1 and therefore may be perceived as a square when accompanying cues to space are lacking. (Source: from S. H. Bartley, in *Handbook of Experimental Psychology*, edited by S. S. Stevens. New York: John Wiley, 1951, p. 904. Reprinted by permission of the publisher.)

1) Ames Illusions

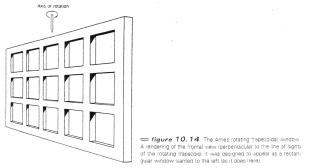


figure 10.14 The Ames rotating trapezoidal window. A rendering of the frontal view perpendicular to the line of sight of the rotating trapezoid. It was designed to appear as a rectangular window slanted to the left (as it does here).

a) Trapezoidal window

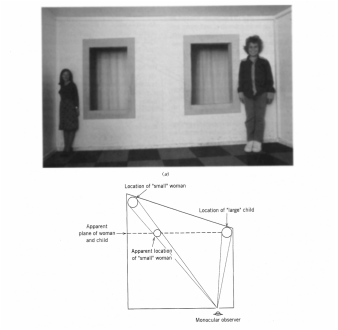


figure 10.15 The distorted room illusion. The woman on the left in (a) appears distorted relative to the child on the right. Actually, the woman is much taller than the child. The illusion is created by the design of the room, as indicated by its floor plan in (b). The room is constructed so as to make the woman and child appear equidistant from the viewer. Actually, however, the woman is standing about twice as far away from the monocular observer as is the child. (Source: Part a from Barron Wolman/Woodin Camp & Associates.)

b) Ames room

2) Moon Illusion

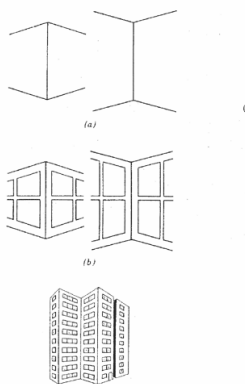
a) Possible explanations

i) Angle of regard

ii) Apparent distance

iii) Others

3) Muller-Lyer Illusion



4) Ponzo Illusion

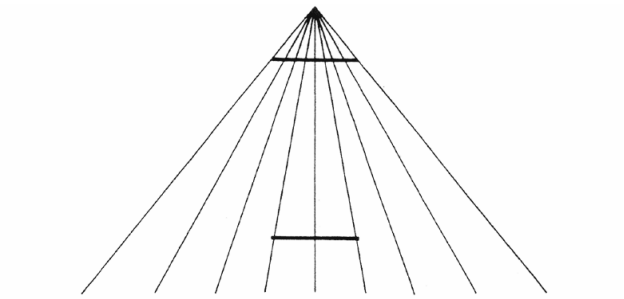
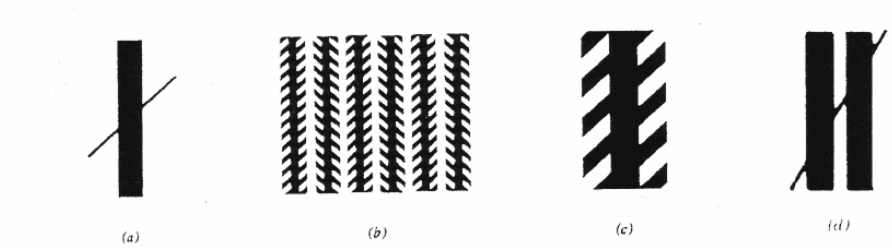


figure 10.20 A version of the Ponzo illusion. The two horizontal lines are equal. (Devised by M. Ponzo in 1913.)

5) Poggendorff Illusion



6) Contrast Illusions

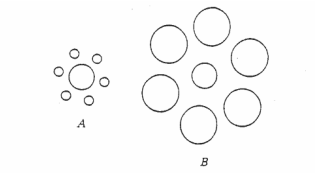


figure 10.29 The Ebbinghaus illusion and contrast effects. The center circle in *A* appears enlarged due to the smaller surrounding circles. The identical circle in the center of *B* appears diminished due to the larger surrounding circles. (Described by Ebbinghaus in 1902.)

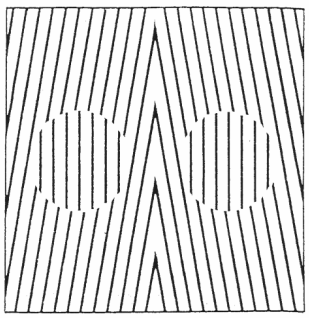


figure 10.31 Tilt contrast illusion. The surrounded circular areas contain vertical lines, yet their apparent orientation is displaced in the direction opposite to the lines in the surrounding fields.

7) Reversible and Multistable Images

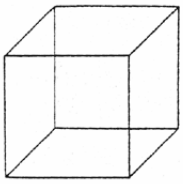


figure 10.35a The Necker cube. After a brief period of inspection, the cube spontaneously reverses in depth. (*Source:* Based on a rhomboid figure devised by L. A. Necker in 1832.)

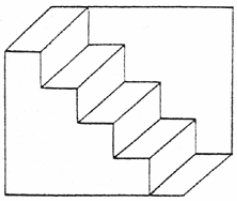


figure 10.35c Schröder's staircase. The figure reverses from a staircase to an overhanging cornice. (Devised by H. Schröder in 1858.)

8) Components/Factors in Illusory Perception

a) Optical and retinal factors

b) Cognitive components

9) Impossible Figures

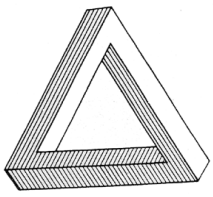


figure 10.41b An impossible triangle.

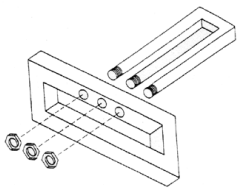


figure 10.41a An "impossible" construction. The three-pronged figure is called a *trident* or "devil's fork." (*Source:* From *North American Aviation's Skywriter*, February 18, 1966, Braun & Co., Inc.)

10) Summary

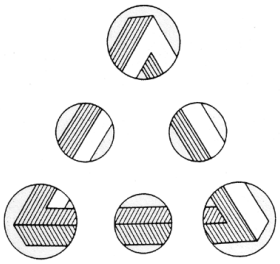


figure 10.42 V
impossible triangle (Figur
appear as simple drawi
lengths in depth. Howe
viewed as a whole, appe
dimensional object, the
signed to the isolated fea
each other. (Source: After Li