

3a. Pattern Recognition

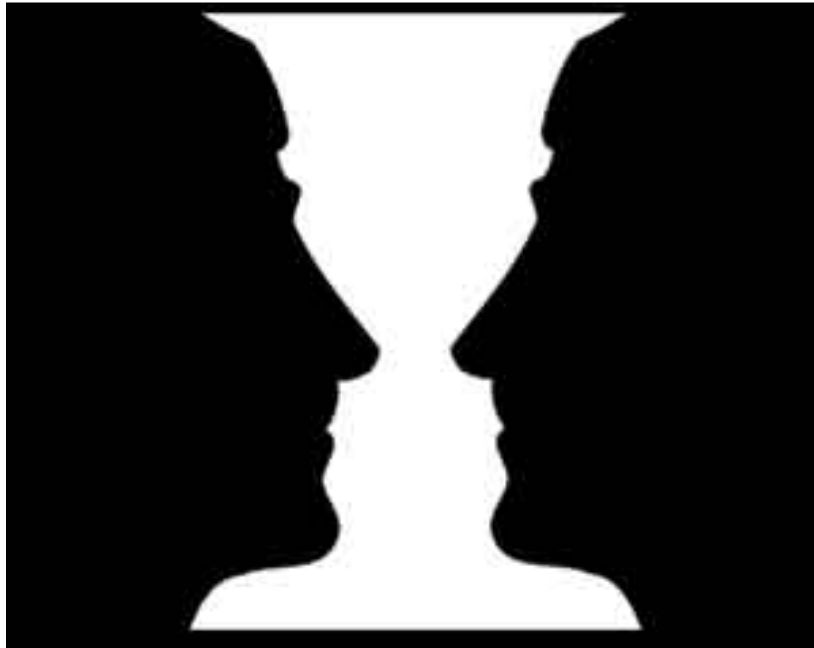
(Perspective theory does not recognize objects)



Spotting the animal in this picture initially took me a few moments.

Recognizing objects seems to be an important function of human eyesight. Basic perspective theory does not recognize patterns or distinguish objects – our brains alone perform that function, using the visual information our eyes receive.

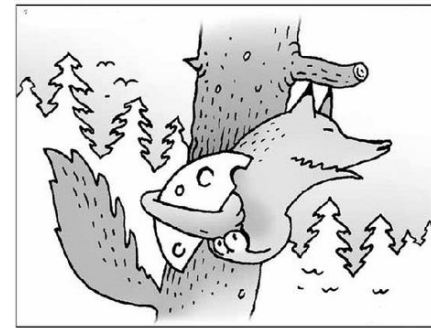
In this famous figure-ground reversal, I can see either a white vase, or the profile of two dark faces; but I cannot see both the vase and the faces together at the same time.



This change of mental “recognition” has nothing to do with any change in the image, nor any other change in what is being received by the eye’s retina – it is purely a change wrought by varying thought.



Unlike Perspective theory, which is completely neutral with respect to orientation, eyesight’s ability to recognize objects varies with vertical alignment.



Here, I am able to recognize the animal only when their image is turned “up”. When seen upside down, the recognition disappears!

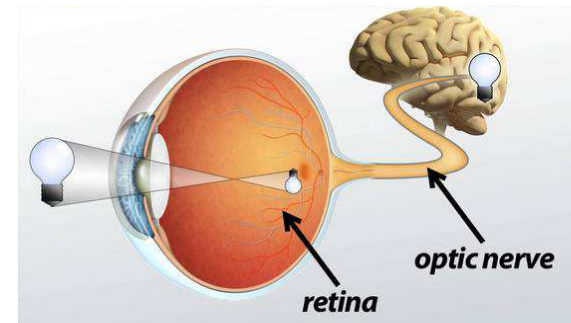
A great deal of effort has been spent during the last 25 years trying to create computer software programs able to recognize images appearing in Perspective photographs. So far, the mathematical methods based on Perspective theory have not been as successful as computer software programs in which the computer merely “trains itself” by sheer experience. In this 2019 year of history, even the best such image recognition software is far from infallible and consumes considerably more energy and circuitry than a human brain.

Human eyesight is not all the same for every person. The recognition skill of a brain seems (also) to expand with experience and training.

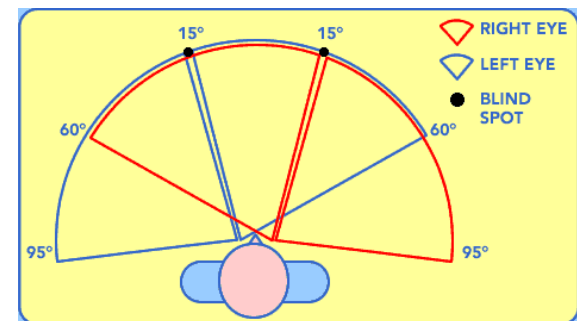
3b. The Blind Spot

(The human eye unconsciously fills-in missing data)

Where our *Optic Nerve* enters our retina, small areas of the retina have no vision receptor cells. These are often called our “blind spots”.



Both “blind spots” are within a normal field of view, but typically the images in these areas are never missed, even with one eye closed.

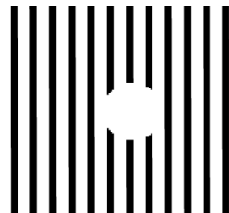


The brain automatically “makes up” the missing pieces of image.

Two examples showing eyesight at the *Optic Nerve*:



Close your right eye. With your left eye, look at the red circle. Slowly move your head closer to the image. At a certain distance, the blue line will not look broken!! This is because your brain is "filling in" the missing information.



Close your left eye. With your right eye, look at the + . Slowly move your head closer to the image. The space in the middle of the vertical lines will disappear.

In general, where a retina is damaged a brain will start to try to manufacture in-fill images.

The image manufactured by the brain tends to match the pattern the brain sees in the region surrounding the blind spot. The brain completes the expected pattern, or expected object image.

3c. Idealization

(We tend to see what we familiar understandings)

In our brain's "recognition" of object patterns, there are many near-misses, and "adjustments". This ability for biological eyes easily to be deceived becomes a significant feature of evolutionary and cultural design.



When I first saw this photograph of moths, my eyesight mistook it for an owl's face. Rather quickly afterwards, I then started to see separate antennae, insect legs, and moth wings; so I quickly reconfigure my eyesight to see moths. It is interesting that in the fleeting moment when I thought I saw an owl, my eyesight tries to "fill-in" other owl details – feather tips, owl body -- embellishing my initial idea with fabricated details of vision.

What happens if visual recognition remains uncertain?

The world is full of “look-a-likes”. I am sometimes delighted and sometimes annoyed to be deceived by mere visual appearances.



Queen Elisabeth II “look-alike” — Tower Bridge 2013

Such visual “camouflage” is not only defensive, it may also have erotic or economical function. Such similarities drive an endless stream of small improvements and technological adaptations. Appearing to be “close to the same thing” can be either better or worse.

Looking closely at thing is an endless effort to see what is really there.

Quite often, we are willing to go along with these visual deceptions – such is fashion and style – entertainment and fantasy.

I would say that a Perspective picture is, in a sense, such a deception - - a camouflage convincing enough to excite my visual imagination, permitting me to “believe” that the flat plane is a window onto a real space. It is a deception that I can easily nullify – the Perspective visual imagination is an illusion thoughtfully controlled.

In the following image, the arrangement of fruits and vegetables is so suggestive that I am unable to dispel the visual construct of a face.



1590--Vertumnus -- Arcimboldo's portrait of Emperor Rudolph II

It seems to me reasonable to believe that a rather large proportion of what I think I am seeing is the mentally remembered, or falsified detail, of what I do not care to examine in greater visual detail. I am both a willing participant in visual fantasies and an unwilling victim of my self-trained visual habits.

If the patterns are incorrect or incomplete, we tend to adjust our brains to recognize something anyway ...



... we tend to see patterns, and to recognize objects, everywhere.

3d. Dreams and Visions

(The brain sees more than the eye receives)

The human brain is also capable of seeing complete patterns and whole objects where there are no sightlines of projected light. Visions, hallucinations, and dreams can fill our brains with pure illusion.



When we are tired, sick, or in altered states of mind (such as due to medicinal drugs or recreational intoxication) our brains are prone to seeing distorted images and sometimes even purely imaginary views.

Visions are sometimes friend and sometimes foe –
sometimes amazingly prophetic and uplifting, ...



... while sometimes
terrifying and amazingly
harmful.

106.



Eye-witness accounts of the
sightings of witches, goblins,
and ghosts were numerous for many
centuries.

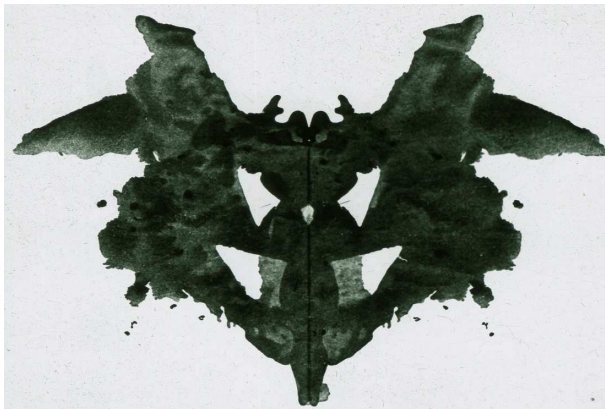
In modern times, numerous “sightings” of Unidentified Flying Objects (UFOs)
are now numerous.



107.



While full blown hallucinations are rarely reported by most people, almost everyone reports seeing scenes in their sleeping dreams (or nightmares) ...



Exactly how all these object-recognition idealizations, visions, hallucinations, dreams, and nightmares should be differentiated remains uncertain (at least to most people in 2019).

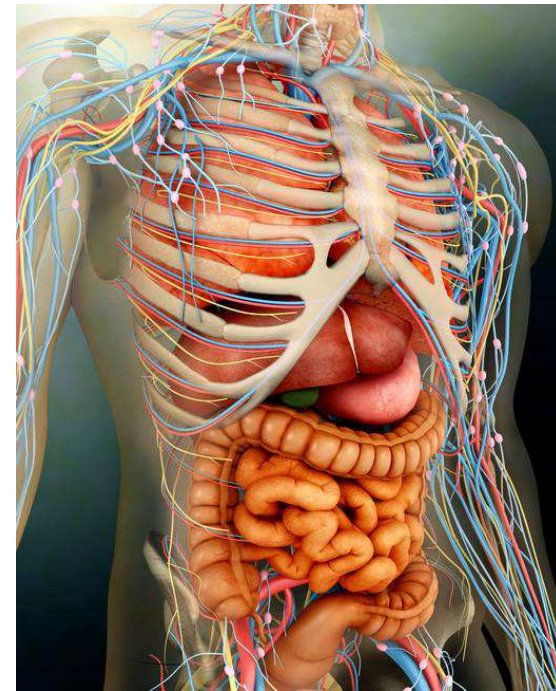
How they should be interpreted, or applied to our lives – what is their beneficial use -- is the subject of ongoing study and speculation.

How Eyesight Differs from Perspective

3d. Imagination

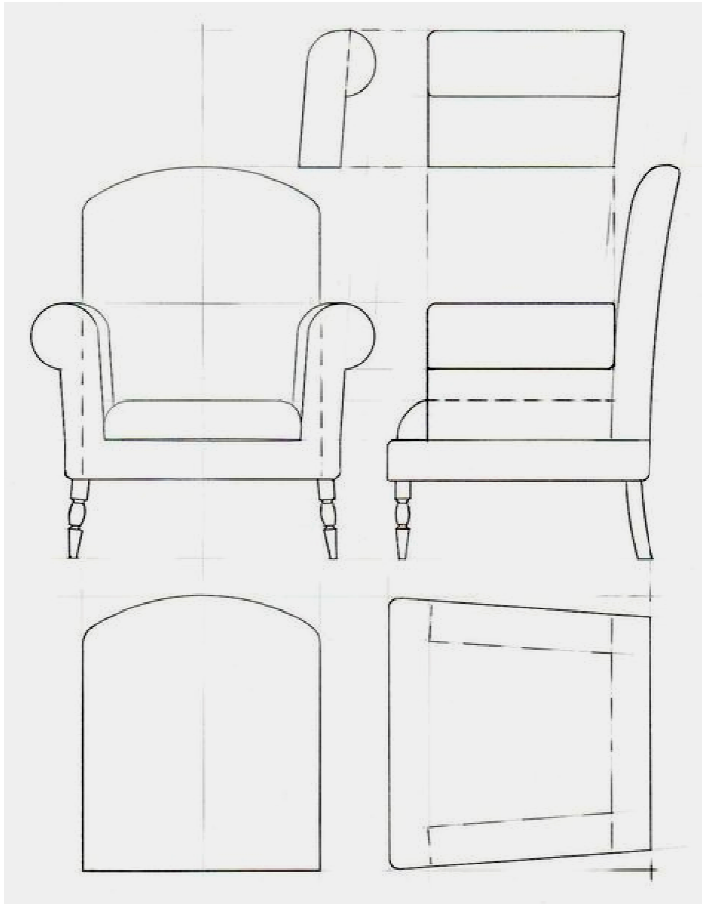
(Our brains “see” without Sight Lines)

It seems to me that virtually everyone has some sort of mental power of visual imagination – we “see” things in an abstract mental sense – with or without Perspective sightlines.

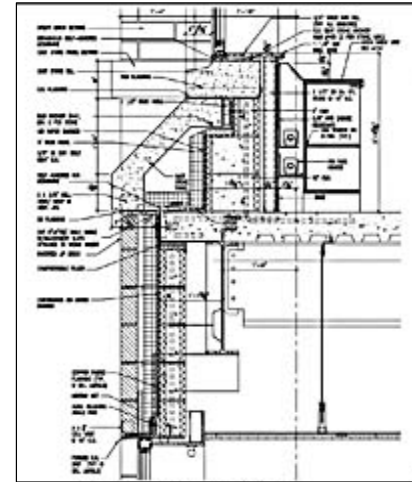


Perspective illustrations can aid us in developing mental pictures of how complicated elements and otherwise invisible pieces, are arranged together.

But there also non-Perspective illustration methods capable of exciting similar mental visual imaginations.



"Orthogonal Projections" describing a chair



Construction and manufacture use many standardized methods of non-Perspective drawing (altogether forming the topic of "Descriptive Geometry").

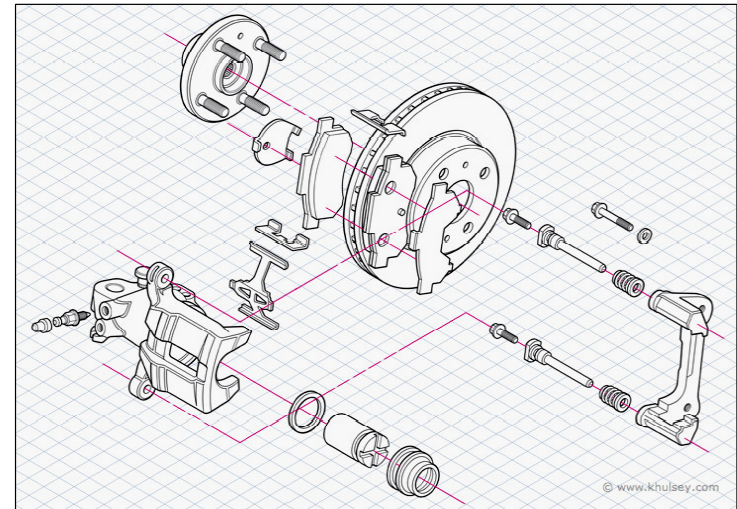


That we learn from what our eyes see is certain, but when and how we learn from what our eyes see is still quite uncertain.

Often the illustrations that help us most depart far from being realistic. Graphic artists have learned that simplified subway maps are easier for passengers to grasp mentally than accurately scaled and detailed depictions.



Academic legal practices and scientific training techniques have long pushed visualizations aside as being secondary to precise verbalizations of thoughts and skillful management of mathematical equations.



We are somewhat unprepared to accept and develop the advantages of the rapid proliferation of pictures brought to us by industrial image-producing methods.



We have a purely mental capacity to visual things, both real and unreal. In that sense our brains “see” without any external light – entirely without any Perspective -- no external stimulus at all.