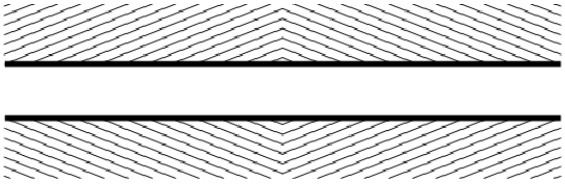
Perceptual illusion

(Latin *in* +ludere *play* → illudere *mocking, making fun of someone* → illusio *mocking*)

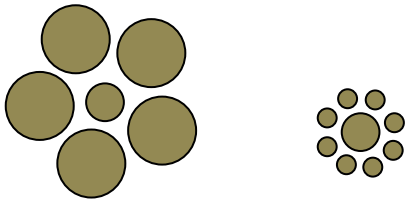
Perceptual error, erroneous **perception**, illusion. Visual or optical illusions are most common are. Example:

I. White lines on the background seem to be curved despite being straight (Zellner illusion);

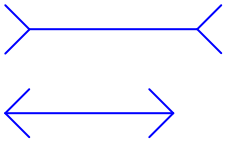


II. One and the same blue (grey) figure looks paler against the dark ground than against the white ground (color);

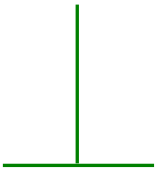
III. The circles in the middle are equal; however, the right one seems to be bigger (Ebbinghaus illusion):



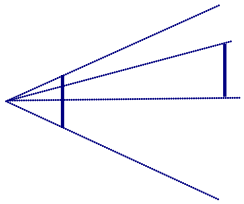
IV. The upper line seems to be longer than the horizontal line, although they are of equal length (Muller – Lyer illusion)



V. The vertical line seems to be longer than the horizontal line despite being the same length



VI. The left vertical line seems to be longer than the right line despite being the same length (Ponzo illusion)



VII. The moon near the horizon seems bigger than at its zenith

VIII. Mirage occurs in the desert.

These illusions are simultaneous (or occur at the same time). They can be also evoked during successive perception. Example I. A research participant is first exposed only to the ground (five times for short periods or consecutive 20 seconds) and then to parallel segments, only. The research participant perceives the segments as bent. The illusion shortly fades away and the segments become straight [Z. Khojava, M.Surguladze].

The opposite also happens: D.Uznadze successive illusions transform into simultaneous illusions [see simultaneous illusions of fixed set]

Illusions in other modalities – muscular, haptic:

IX. A big bag is empty. When lifting the bag we have a strange sensation of lightness, as if the bag is going to fly up. The opposite case: A very small bag is full of stones. When lifting it we have the feeling of heaviness, as if it was stuck to the ground. If we put the small bag into the big one we will lift it in a normal way (Charpentier illusion].

A common cause of all the above illusions is that perception has the **Gestalt** nature and, consequently, the whole image affects its parts and individual qualities (but the opposite is not the case – the whole cannot be obtained through the addition of parts). In particular: I, II, III show contrast : The background changes the figure according to the contrast effect – a small figure is perceived as smaller given big figures (The same happens in the Uznadze classical experiments conducted in the optical modality: After a big object a small object is perceived as smaller).

In IV, the flat images are transformed into three-dimensional ones: The segments are perceived as the ribs of geometrical figures and as a result of assimilation the rib of the large figure is perceived as larger than the rib of the small figure. Also, in V, VI, VII illusion occurs due to the regularities of the **dispositional perceptual sets** governing the formation of multidimensional images from flat figures (i.e. errors are caused by experience). As for VIII, the mirage is caused by the phenomena of physical optics and also people's **situational set** in which a strong desire,

need is the main component (in general, in vague, unclear situations the subject's need becomes dominant – see e.g. **Rorschach test**). However, the ultimate cause of I-VII illusions is the operation of set, since **Gestaltization** itself is triggered and directed by the corresponding set.

IX is explained directly and solely by Uznadze set regularities. It has been experimentally proved that the cause of illusion is not 'unmet **expectation'** or any other conscious phenomenon (see the **theory of unmet expectations.**) Also, after a heavy burden a bag of moderate weight seems to be unusually light, but after light objects it seems unusually heavy. After entering a room in the freezing weather, the room seems to be warm, but after the heat the warm room seems to be cold (contrast effect).

Investigation of illusions is very important for **the theory of set**. Both inborn and learned sets forming perception are always more or less accurate and correspond to the situation. But exceptions (illusions) are very important in this respect because they prove the psychological character of perception, its relativity, subjective character and dependence on the individual's inner forming sets. Sometimes, the **categorization** of a perceived object or the identity of the perceptual image fully depends on set. Example: An individual is exposed to the pictures of animals twenty times and at the twenty first exposure is given a picture of a belt lying on the ground. The research participant's task is to identify the seen object. The result is that the individual perceives the belt as a snake. If the individual is exposed twenty times to the picture of clothes and at the twenty first exposure is shown a picture of snake, the snake will be perceived as a belt (N. Eliava; E. Gersamia].

Already in the ancient Greece the people noted that a stick put in the water looked bent in the middle, which is a purely physical-optical phenomenon. After finding out that perception is not reliable, the Greek scientists started looking for the laws that reflect reality. This was one of the reasons for the development of logic and philosophy.

In general, thinking prevails over perception which is one of the most important regularities in phylogenetic, ontogenetic and cultural development [see **the basic regularity of the development of thinking**].

The main regularity of the operation of set in the field of perception is related to the **assimilation effect** or Gestaltization in the direction of those patterns that already exist in experience and/or

memory or inborn instinctual storage. Therefore, the perceived object automatically becomes more 'perfect' and its negative points and gaps are fixed.

In one of the experiments [I. Bzhalava] a triangle without vertex flashed in the dark in front of the research participants. Due to the physiology of the eye, after turning on the light a visual trace lasting for 1-2 minutes always occurs. In this experiment the first trace was identical to what had been seen (triangle without vertex), but the image was immediately completed. The sides of the triangle moved, met at the top and created a regular Gestalt of the triangle. This happens without the research participant's active intervention and solely on the set level. The research participant clearly sees how the trace is becoming complete.

Gestaltization also causes auditory (acoustic – phonetic) illusions.

X. When listening to natural Georgian speech the person who does not understand Georgian often separates the words in the wrong way. The most important thing is that he/she is right in terms of physics and physiology: The recorder separates the words at the same places, because the natural pauses and stresses do not, sometimes, coincide with the boundaries between the words. The person who knows Georgian makes breaks where needed. She/he is under 'illusion': Despite what has been received through sensations, their hearing singles out Gestalts which are meaningful words. When listening to Georgian speech the person who knows Georgian also has other auditory illusions: Differently from non-Georgians, whose perception coincides with the breaks made by the voice recorder, he/she hears meaningful stresses in different places [A. Alkhazishvili]. This means that people who do not know the language automatically use Gestaltization in the same way as the recording device, whereas someone who knows the language perceives the complete units not coinciding with those automatically singled out by the recorder. Also, some people suffering from mental disorders do not have the visual illusions we normally have (I. Bzhalava). The patient sees accurately or automatically, which is a result of the distortion of normal Gestaltization.

Cross-cultural studies show the same regularities. It turned out [Rivers, Stewart, Campbell] that people living in the modern city have stronger illusions related to rectangular shapes than to round shapes. At the same time, those living in African valleys and oval cottages, and have not even seen rectangular furniture, walls, paper or other like objects, demonstrate stronger illusions when perceiving round shapes. Furthermore, illusions related to the perception of perspective

are stronger in the people living in open valleys rather than those living in the woods. All this could mean that experience interferes with human perception, but this is not what really happens. An African person who lives in the wood has fewer illusions when being in town, but because of having very little experience it will be very difficult for him/her to appropriately perceive rectangular shapes, distances, etc. The same is true for the people from urban areas, who try it difficult to assess distances and perspective when being in the open valley. Rich experience results in fast and easy Gestaltization and causes illusions only in rare cases [see **Set – assimilation effect of set**; **illusion of thinking**; **illusion of ethical** or **aesthetical evaluations**].