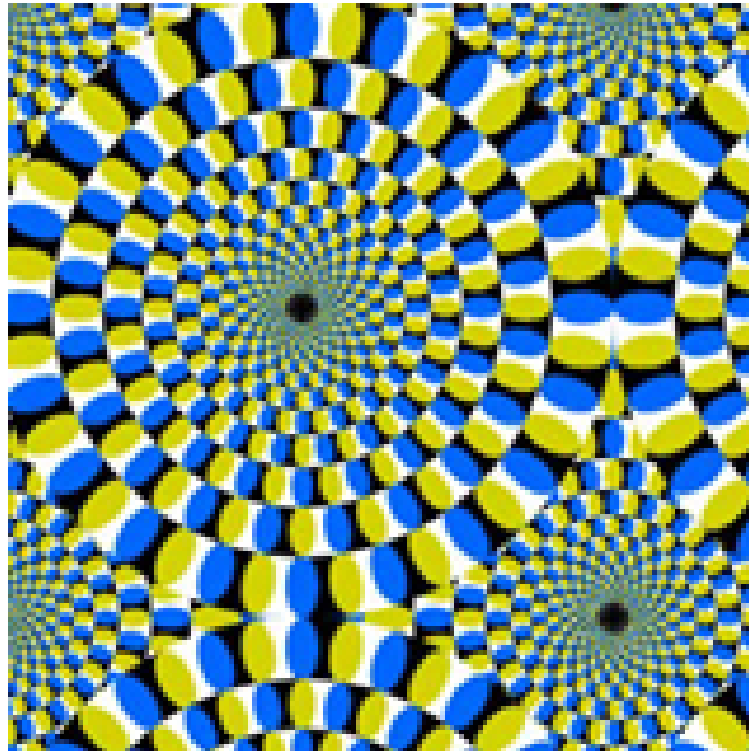


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Visual illusions, mirages that do not lie



In the figure of the left you will notice that the circles move. Well, what you see is not true. What happens is a visual illusion that is being produced right now in your head. A group of researchers at the Department of Basic, Evolutionary and Educational Psychology is studying our visual system and experimenting with various types of illusions.

The aim of this paper is to destroy an excessively widely held myth about visual illusions: the idea that they are errors of the visual system. Stanley Coren and Joan Stern Girgus, in 1978, entitled a book "Seeing is deceiving: The psychology of Visual Illusions", one of the works that has the greatest impact on scientific literature in recent decades. It is complicated to believe that anyone who is seriously involved with the study of vision would claim that this lies. If such a claim were true, nobody would be able to rely on what they read in the book, given that we read with our sight. Hence, we understand that it is no more than a strategy to make the work attractive.

Revising some visual illusions, we notice that these types of visual configurations are quite common in our everyday lives and that, despite them, we manage well in the world that surrounds us. Moreover, we can say that it is "thanks" to visual illusions that we manage adequately in the world that surrounds us. A good example of this is what happens in the famous chessboard proposed by E.H. Adelson in 1995 (Adelson, 2000), which consists of a well-known visual illusion (checkershadow illusion). The illusion may be seen in the image that appears below on the left. When you look at the image on the left it will be easy for you to state the square marked with an "A" is much darker than the central square marked with a "B". However, if we observe the figure on the right, we can see that both squares have very similar colours. In fact, if we measure (with a photometer) the luminance (the light which is given off by a surface) we see that in both squares it is exactly the same.

How do you explain this?

The visual system (VS) has to determine the colours of objects in the world. In this case, an important task of the VS is to identify the colours that appear on a chessboard. If, in order to carry out this task, the VS only relied on the measurement of the illumination of the squares, we would see squares A and B as identical. However, that would not allow us to interpret correctly the "real" situation of the chessboard: the central square is originally white and square B, black. Therefore, although it is true that both square A and square B have the same luminance from the point of view of physics, that is not relevant nor useful from a perceptive point of view as with this data we cannot identify the different colours which exist on the chess board.

The VS uses various "tricks" to compensate the effect of shadows, maintaining, at all times, colours constant (perceptively, a person does not stop seeing a specific colour when the environmental light diminishes although physically the colour of a surface changes according to the amount of light it receives). The VS is not a good measurer of "physical data" but that is not its objective. The most important mission of the VS is to decode the information carried by an image and therefore allow us to perceive the nature of objects.

Given this conception, perception should be understood as an information treatment process of the surrounding world rather than a reflex of elemental physics. In short, to perceive means carrying out a series of transformational operations, analysis and synthesis and activation of knowledge. Visual illusions generally come from these operations and therefore it does not seem fair to consider them to be "lies" of the system. In this sense we can assume that the VS, with this possibility of perceiving in a different way what physical measurements indicate, rather than lying, protects us.

We have attempted to show that, in general, visual illusions do not lie in our everyday interaction with the world, but rather to the contrary, they provide us with more adequate knowledge to guide our behaviour. In short, it seems more convenient and even necessary that we should "suffer" some of these visual illusions

Links:

- <http://psicol93.uab.es/ilusions>

- <http://psicol93.uab.es/visio>

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References

Alejandro Maiche, Anna Vilaró, Anna Renner, Enric Munar. "Las ilusiones visuales, espejismos que no engañan", Departament de Psicologia Bàsica, Evolutiva i de l'Educació, Universitat Autònoma de Barcelona. Bellaterra

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