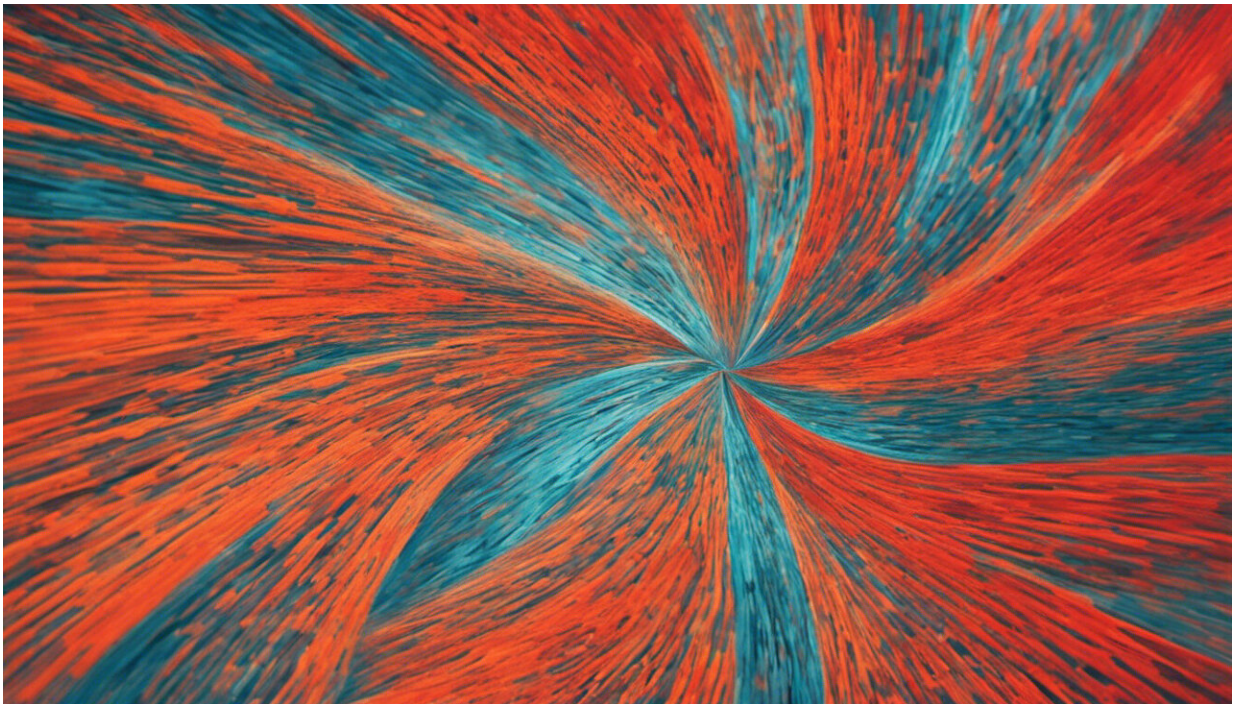


Do we perceive colors differently depending on the language we speak?

October 13 2022, by Pedro Raúl Montoro Martínez



Credit: AI-generated image ([disclaimer](#))

When we open our eyes, a myriad of colors immediately appears before us. But they are not merely a decoration of our visual world: they enable us to identify objects, materials and substances in our environment. They also facilitate communication with other people. Thanks to them, we can tell the difference between a ripe banana and one that is still "green." Or

ask in a shop for the size of the "red" shoes we saw in the window.

Although the number of chromatic nuances that we can perceive is enormous, the communicative function of colors means that only a limited number of words are used to refer to them. This phenomenon is known as color categorization, that is, the grouping of shades in the same category associated with a word such as green, red, blue, or pink.

It shows that the world of colors, like many other aspects of perception, can be affected by [cultural influences](#) and by our learning experiences.

How many words for snow?

You may have read that Inuit people are able to discriminate between many different types of snow because they have dozens of terms in their language to refer to it. However, this is a pseudo-scientific myth popularized in the first half of the 20th century by the linguist [Benjamin Whorf](#). Whorf was a strong advocate of the theory that the language we learn drastically affects the way we perceive, remember and think about the world, a hypothesis called [linguistic relativity](#).

In fact, the Inuit language has only four basic words for snow, from the combination of which a few more are derived. In English, for example, there is only one term for snow, but by linking with other words it is also possible to discriminate between different states of snow, such as powder snow, crud snow or sticky snow. In this way, English-speaking skiers do not need to learn the Inuit language to be able to perceive and communicate all these gradations of snow.

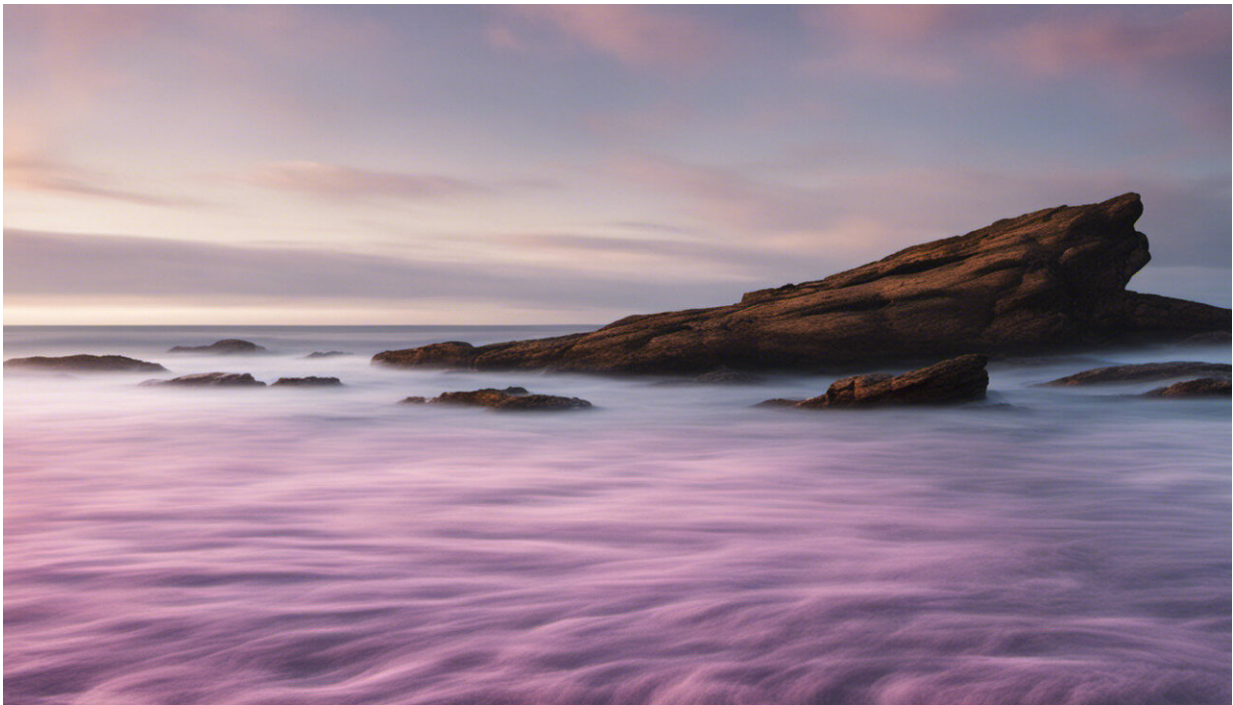
The way we group colors

Can we then rule out that our mother tongue influences how we perceive

colors? The way we group them into categories has been a very active testing ground for the linguistic relativity hypothesis.

The classic study by anthropologists [Brent Berlin and Paul Kay \(1969\)](#) made a very important contribution to this field. They investigated the color vocabulary in 100 languages and found that color terms were not arbitrarily distributed among languages, but followed a predictable hierarchy. If a language has only two color words, then they are black and white. If it has three, they are white, black and red. With five terms, green and yellow are added to the previous ones. And so on.

In short, contrary to the hypothesis of linguistic relativity, what we find is a universal pattern that pivots around the six basic colors proposed by the theories of chromatic perception: white, black, blue, yellow, green and red.



Credit: AI-generated image ([disclaimer](#))

How blue is sky blue?

In English and Spanish, there is one basic term to refer to bluish colors. However, in languages such as Russian, Greek and Turkish, there are different terms for light blue and dark blue. For example, in Greek, the terms are "ghalazio" (light blue) and "ble" (dark blue).

[Several studies](#) have shown that speakers of these languages are quicker and more confident when it comes to differentiating between light and dark blues. Moreover, they exaggerate the perceptual differences between intermediate shades compared to speakers of English or Spanish, as if they were different colors for them.

Other similar results with various color categories lead to the conclusion that the grouping that each language uses to name colors influences the way in which they are perceived and remembered by their speakers.

Do we see as we speak?

[Recent research](#) shows that there is indeed some impact of mother tongue on color processing. However, this relativism is a far cry from Whorf's resounding theory.

In fact, with rapid training, anyone can expand their color vocabulary and easily learn to discriminate between different shades of blue or any other color, as [several studies](#) have shown. Similarly, even people who are not familiar with [snow](#) subtypes can learn to discriminate and name them, as Inuit or skiers do.

Interestingly, in a [paper](#) with Greek speakers who had lived for a long time in the United Kingdom, it was found that they were more likely to

resemble "ghalazio" and "ble" because of the influence of the English [language](#). The flexibility of our perceptual system allows us to adjust to our environment in order to continue to enjoy the mixture of light and [color](#).

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