Contrast Effect

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A contrast effect is the enhancement or diminishment, relative to normal, of perception, cognition or related performance as a result of successive (immediately previous) or simultaneous exposure to a stimulus of lesser or greater value in the same dimension. (Here, normal perception, cognition or performance is that which would be obtained in the absence of the comparison stimulus--i.e., one based on all previous experience.)

Perception example: A neutral gray target will appear lighter or darker than it does in isolation when immediately preceded by, or simultaneously compared to, respectively, a dark gray or light gray target. Cognition example: A person will appear more or less attractive than that person does in isolation when immediately preceded by, or simultaneously compared to, respectively, a less or more attractive person. Performance example: A laboratory rat will work faster, or slower, during a stimulus predicting a given amount of reward when that stimulus and reward are immediately preceded by, or alternated with, respectively, different stimuli associated with either a lesser or greater amount of reward.

Types

Simultaneous contrast.

Simultaneous contrast identified by Michel Eugène Chevreul refers to the manner in which the colors of two different objects affect each other. The effect is more noticeable when shared between objects of complementary color.

In the image here, the two inner rectangles are exactly the same shade of grey, but the upper one appears to be a lighter grey than the lower one due to the background provided by the outer rectangles.

This is a different concept from contrast, which by itself refers to one object's difference in color and luminance compared to its surroundings or background.

Successive contrast.

Successive contrast occurs when the perception of currently viewed stimuli is modulated by previously viewed stimuli.

For example, staring at the dot in the center of one of the two colored disks on the top row for a few seconds and then looking at the dot in the center of the disk on the same side in the bottom row, makes the two lower disks appear to have different colors for a few moments, though they are the same color.

One type of contrast that involves both time and space is metacontrast and paracontrast. When one half of a circle is lit for 10 milliseconds, it is at its maximum intensity. If the other half is displayed at the same time (but 20-50 ms later), there is a mutual inhibition: the left side is darkened by the right half (metacontrast), and the center may be completely obliterated. At the same time, there is a slight darkening of the right side due to the first stimulus; this is paracontrast.

Metacontrast and paracontrast

Domains

The contrast effect was noted by the seventeenth century philosopher John Locke, who observed that lukewarm water can feel hot or cold, depending on whether the hand touching it was previously in hot or cold water. In the early twentieth century, Wilhelm Wundt identified contrast as a fundamental principle of perception, and since then the effect has been confirmed in many different areas. Contrast effects can shape not only visual qualities like color and brightness, but other kinds of perception, including the perception of weight. One experiment found that thinking of the name "Hitler" led to subjects rating a person as more friendly. Whether a piece of music is perceived as good or bad can depend on whether the music heard before it was unpleasant or pleasant. For the effect to work, the objects being compared need to be similar to each other: a television reporter can seem to shrink when interviewing a tall basketball player, but not when standing next to a tall building. Furthermore, the contrast effect has been argued to apply to foreign policies of states. For example, African countries have increasingly looked to China and India as opposed to the US, the EU and the World Bank because these Asian states have highlighted their lack of "interference" and "conditionality" in exchange for foreign aid and FDI.