

#TheDress Seen in a New Light

At this point, I'm sure most of you have seen the dress image that has taken the internet by storm. If you teach psychology, you've probably also received an onslaught of emails from fascinated students. What we have here is a teachable moment!

Here is the original image (or, at least, the image that was first introduced to me by cognitive scientist extraordinaire, Whitney Hansen):

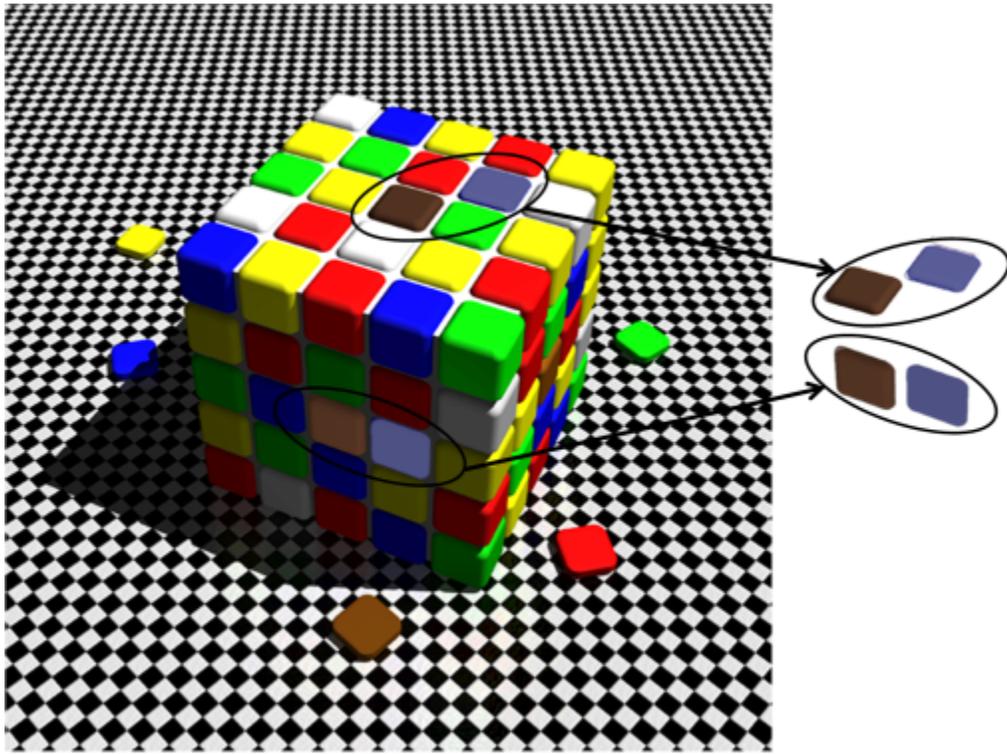


What do you see? Is that dress gold and white or black and blue? I saw gold and white. My wife disagreed. I think our marriage is over. The meme made the internet rounds so quickly that there is rampant speculation about the basis of the effect. However, a story over at Wired.com has it exactly right. The dress is legitimately black and blue. Those who see it as gold and white are inappropriately "adjusting" their perceptions of color to account for perceived changes in illumination.

Our perceptions of color aren't based solely upon activity in our photoreceptors. They can easily be influenced by context. We know that a blue object is blue regardless of whether we're seeing it in direct sunlight or in a dimly-lit room. The signal (the amount of reflected light) changes, but our interpretation does not. Our brains adjust to these differences in illumination so that our perceptions stay relatively constant. In this image, the lighting conditions are ambiguous. Is the dress brightly lit or in shadow?

It's unclear. It turns out, if you interpret the dress to be in shadow, you see gold and white. If you interpret it to be brightly lit, you see black and blue.

To make this unconscious adjustment more transparent, I've adapted a rather famous illusion (developed by Purves and Lotto, 2002) using colors sampled directly from the dress image above. The black cube at the top of the image is exactly the same color as the cube that is perceived to be gold at the bottom. Same goes for the blue cube on top and the one perceived to be white on the bottom. Your perceptions change due to assumptions about lighting, and these assumptions are non-conscious. I defy you to "turn off" the illusion below!



Adapted by Anthony Barnhart from Dale Purves & R. Beau Lotto (2002)

Thanks to Beau Lotto for permission to adapt his beautiful illusion.