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Cognitive stuff from a cognitive person. If you've got any requests, drop me an email. If it takes me a while to get to it, drop me another one.

The lovely banners were created by Anton Oetli and Todd Hartman.

April is the cruelest month, breeding lilacs out of the dead land, mixing memory and desire, stirring dull roots with spring rain.



Reading Group

The Mixing Memory Reading Group is a place for experts and non-experts alike to discuss books and papers in cognitive science.



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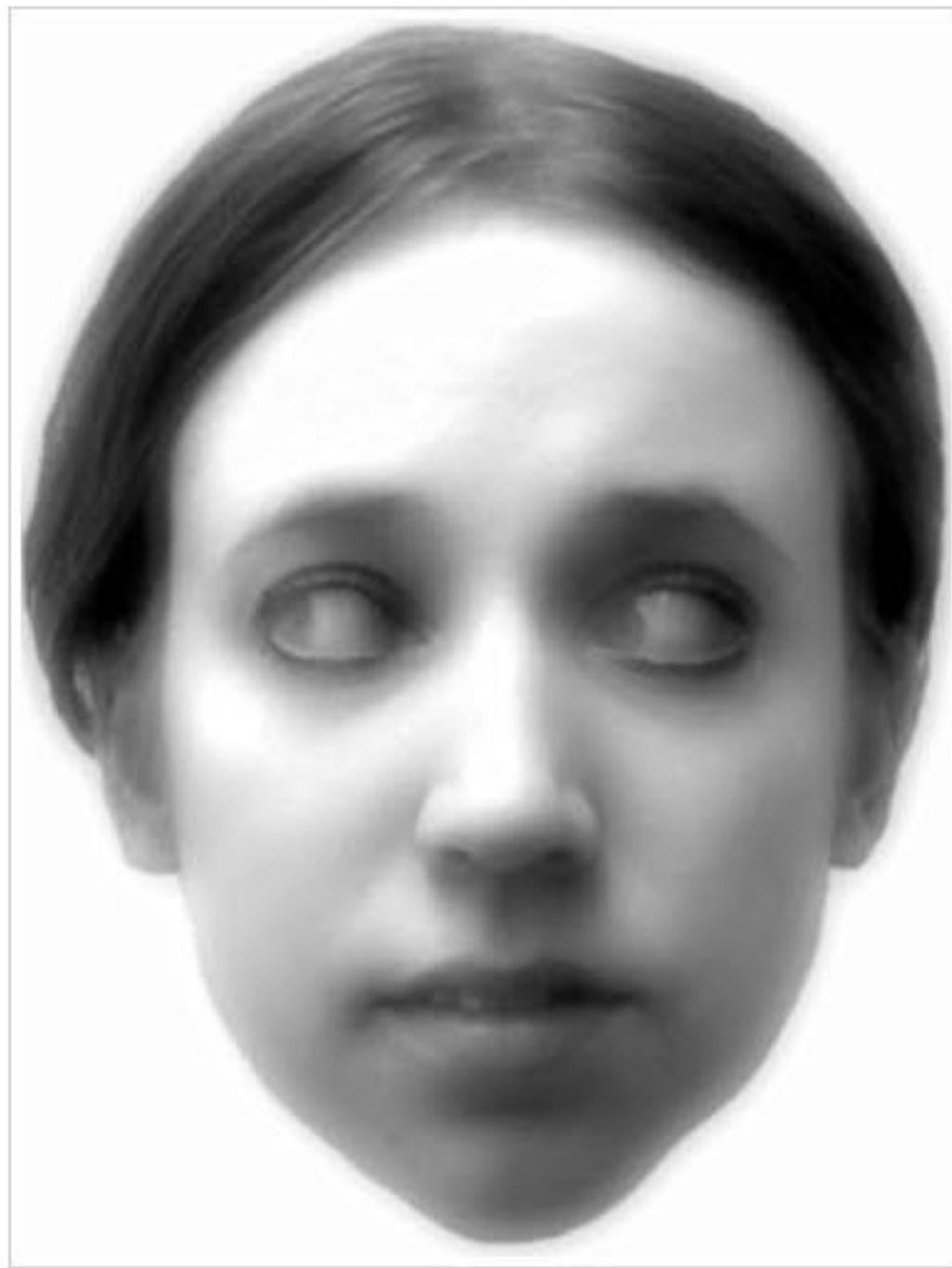
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Cool Visual Illusions: The "Ghostly Gaze" Illusion

Category: Visual Illusions
Posted on: June 23, 2008 6:35 PM, by Chris

UPDATE: I've messed with some of the images below the fold, which will hopefully make it easier for people to see the illusion without having to move all round the room.

Last year, Rob Jenkins published a seriously spooky-looking illusion (it freaks my son out) in the journal Perception (1). Take a look at this face (from Jenkins' paper, Figure 1, p. 1266):



Spooky, right? Hopefully you all see a spooky looking woman (it's actually a combination of two female faces, which is why it looks so creepy) who is looking to your left (her right). Now take a look at the face again, only this time, much smaller:



Now she's looking to your right! What the hell, right? Try the animated version:



If you doubt these are all the same image, then you can test it for yourself. Look at the big face again, and then take a few steps backwards. You should get the same effect: she starts out looking to your left, and ends up looking to your right.

What's going on? Well, researchers studying gaze perception had hypothesized that we determined the direction of a person's gaze using a very simple cue: darkness. The pupil is dark, and in most cases, the iris is dark relative to the sclera (the white part of the eye), so it's a good bet that whichever side the dark is on, that's the direction a person is looking. However, Jenkins created the above face by superimposing two faces, one looking to the left (your right), and one looking to the right (your left). He filtered the two differently, so that one's iris would be dark, and the other light (the dark one is, obviously, on your right).

When he did this, Jenkins had immediately created a problem for the darkness = gaze direction hypothesis, because when you view the face up close, it appears to be looking to the left, despite the fact that the right side is much darker. Why? Because, Jenkins believes, up close, you're able to barely see the pupil, and see the iris fairly well, which overrides the darkness cue and tells you that the woman is looking to the left. When you get further away, however, the iris' edges become blurry and blend in with the sclera, and the pupil is very difficult to see, so the darkness cue kicks in again (you get the same effect when you blur the image, again suggesting that it's the availability of other cues that determines whether the darkness dominates).

This discovery led Jenkins to produce an even more striking version of the illusion, which he calls the "Ghostly Gaze Illusion," and which won him second prize in this year's Best Visual Illusion of the Year contest. In this version, close up, two faces appear to be staring at you, while far away, they appear to be looking at each other. You can see this version here. The explanation for this is the same: when the image is big (up close), you can see the outlines of the irises and, in this version, the pupils are very clear. From far away, though, the dark in the corners of the eyes is more salient, causing the faces to appear to be looking at each other.

Jenkins, R. (2007). The lighter side of gaze perception. Perception, 36(8), 1266-1268.

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