

Facial Recognition and Hemispheric Asymmetry

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Facial recognition used to be known as primarily the right hemisphere's role. In the past, facial recognition has been primarily performed by the right hemisphere. However, new research suggests that left-hemisphere mechanisms are also involved in facial perception, and memory. As such, the relative contribution of each hemisphere to the process may vary among individuals.

There was a peculiar case in which a man known as A.D. saw that three years ago that the faces he saw on TV were distorted as if they were melting. He then discovered that when he looked in the mirror, and that his own face was affected as well as other faces he saw. However, it was only the right side of somebody's face which seemed to be distorted. He told researchers, "Everything on the right side is longer, tighter and fallen." This led to more studies on A.D.'s brain in which doctors found a lesion in the fibers connecting the brain's two hemispheres. Jorge Almeida at Coimbra University in Portugal said, "I'm not saying our brains are all the same, but we do share a universal architecture" to try to pinpoint how the right hemisphere is involved with typical neuro-processing.

The researchers conducted an experiment in which they showed A.D. 40 pictures where half were faces, and the other 20 were

objects. They discovered that distortions only occurred when looking at faces. They also found that regardless of any other factor such as depth and angle the faces were presented in, A.D. only ever saw the right half of the person's face as if it was melting. This was true even when the faces were presented upside down which is particularly fascinating. "These results suggest two new key aspects of typical face processing," says Brad Duchaine at Dartmouth College in New Hampshire, who worked on the study with Almeida. "We already knew that faces were processed differently to other objects, but now we know that we automatically fit new faces into a template, so that we can compare it to other faces stored in our memories," he said, which allows us to understand why A.D. always saw the right side of people's faces as distorted.

"It also suggests that the two halves of a face are processed in separate hemispheres at some point," says Duchaine. He speculates that this may increase visual processing speed, as usually, we look centrally at a person's face. So each eye takes in information from each side of the face at first glance. "Humans may have a capacity to process the two face halves independently, in part because faces are symmetrical and are therefore redundant in information processing terms in some

situations,” says John Towler at Swansea University, UK.

Due to the research done to understand A.D. it has allowed us to discover a new phenomenon in which we store a template of people’s faces that we have met and apply that template to new faces to try and recognize a human face. However, there are factors on hemispheric superiority among gender and race. The power of each hemisphere can vary depending on race and gender.

A.W young and P.J. Bion studied the nature of the sex difference in right hemisphere superiority for upright face recognition. In this study, they discovered that the ratio stimuli to trials in an experiment affect the right hemisphere superiority. A low ratio of stimuli to trials (Condition A) seemed to give right hemisphere superiorities for both genders. In contrast, a high ratio of stimuli to trials (Condition C) showed no difference in visual hemifield for both genders. The study shows between Condition A and Condition C resulted in a sex difference, only males seemed to show right hemisphere superiority in Condition B, which was a higher number of stimuli in a certain time frequency. However, it is argued that both males and females possess asymmetrically organised face processing mechanisms which is dependent on the difficulty and intricacy level of the face being examined in the face memory task being completed by both genders. Opposing the idea that there is a range in which the mechanisms can operate due to sex differences.

Another factor is cross-race facial recognition. There was a study conducted by Joshua Correll and Caroline Lemoine about two phenomena related to face

perception. Perceivers have hemispheric asymmetry as the right hemisphere is more efficient at processing faces. This poses the question whether the recognition accuracy is greater for one’s racial ingroup ,Their study suggested “Black and White participants viewed Black and White faces presented to either the left or right visual field. As predicted, participants showed a more pronounced asymmetry for ingroup (rather than outgroup) faces, and cross-race recognition deficits were more pronounced for stimuli presented to the left (rather than the right) visual field.”

Both these studies develop our understanding of factors that contribute to hemispheric asymmetry. I find it particularly interesting how you would think that these templates should be applied easily to each person. Still, for races, it seems to hinder slightly. This may just be due to society in which we surround ourselves with people similar to us with similar traits, hence why the templates we store are easier to place on people of the same race.

For references, footnotes and endnotes, click [here](#).