

A sixth sense? How we can tell that eyes are watching us

September 20 2016, by Harriet Dempsey-Jones



It's easy to tell the direction of the human gaze. Credit: Laurinemily at English Wikipedia

We've all had that feeling that somebody is watching us – even if we're not looking directly at their eyes. Sometimes we even experience a feeling of being watched by someone completely outside our field of vision. But how can we explain this phenomenon without resorting to pseudoscientific explanations like extrasensory perception (or a "sixth sense")?

The human fascination with eyes lies at the heart of the issue. Eyes are

the window into the soul, goes the saying. And it's no wonder we're so interested in them – the human brain is highly tuned to lock onto the gaze of others. It's [been suggested](#) that there's a widespread neural network in the brain just dedicated to the processing of gaze. Scientists have already identified a specialised group of neurons in the macaque brain that fire specifically when a monkey is [under the direct gaze](#) of another.

We also appear to be wired for gaze perception. The mechanism that detects eyes and shifts our attention towards them may be innate – newborns just two to five days old [prefer staring at faces with direct gaze](#), for example, (over averted gaze).

It's not just our brains that are specialised to draw us to the gaze of others – our eyes are also exceptionally formed to catch attention and easily reveal the direction of gaze. Indeed, our [eye](#) structure is [distinct from almost all other species](#). The area of our eye surrounding our pupil (the sclera) is very large and completely white. This makes it very easy to discern the direction of someone's gaze. In many animals, by contrast, the pupil takes up a lot of the eye, or the sclera is darker. This is thought to be an adaptation to camouflage the eye in predators – cleverly hiding the direction of gaze from potential prey.

But why is gaze so important that it needs all this specialised processing? Basically, eyes provide us with insights into when something meaningful is happening. Shifts in attention from another person are able to, almost reflexively [redirect our attention](#) in line with their gaze. Our heightened attention to gaze is thought to have evolved to support cooperative interactions between humans, and is argued to form the foundation for many of our more complex social skills.

Disturbances of normal gaze processing are seen across a wide range of conditions. For example, people on the autistic spectrum spend less time

in general [fixating on the eyes of others](#). They also have more trouble extracting information from eyes, such as emotion or intentions, and are less able to tell when someone is looking directly at them. On the other extreme, highly socially anxious people tend to [fixate on eyes more](#) than those with low anxiety, even though they show increased physiological fear reactions when under the direct gaze of another.

You may not realise it, but [eye gaze](#) affects something so primitive as our psychological reactions to other people. It is a large cue in establishing social dominance. Also, here's a tip: direct gaze makes people appear [more trustworthy and attractive](#) (you're welcome). This also seems to apply to animals. One study suggested that dogs [may have evolved](#) to adaptively react to our gaze preferences. It found that dogs in a shelter that gaze at humans while furrowing their inner brows (momentarily making their eyes look larger) get adopted significantly faster than dogs that didn't.



It can be hard to tell exactly where a cat is looking. Credit: Pixabay

Gaze also helps unconsciously regulate turn-taking in our conversations – people more often than not [look away while talking](#) (as compared to when listening), and we typically exchange a mutual gaze with our partner to indicate a changeover between talking and listening. Try messing with this natural gaze flux – you will probably weird out your conversational partner.

The truth about gaze detection

Because the human eye gaze is optimised for easy detection, it is often easy for us to work out whether someone is looking at us. For example,

if someone sitting right opposite you on the train is looking at you, you can register the direction of their gaze without looking directly at them. However, it turns out we can only reliably detect such gaze [within four degrees of our central fixation point](#).

However, we can use other cues to tell when someone is looking at us in our peripheral vision. Typically we also rely on the position or movement of their head (such as a turn towards you). We also rely on head or body cues when the potential watcher is in the dark or is wearing sunglasses. But, interestingly, you may not be right about being watched as often as you think. It turns out that in uncertain situations, [people systematically overestimate](#) the likelihood that the other person is looking at them. This may be an adaptation to prepare us for interactions that are about to occur, particularly if the interaction may be threatening.

But what about the feeling that someone outside your field of vision, such as behind you, is watching? Is it really possible to "sense" that? This has long been [a source of scientific investigation](#) (the first study on this was published in 1898) – probably because this idea is very popular. Some studies have found that [up to 94% of people](#) report that they have experienced the feeling of eyes upon them and turned around to find out they were indeed being watched.

Sadly for those who wish we were X-men, it appears much of the body of research supporting the "psychic staring effect" appears to be suffering from [methodological issues](#), or [unexplained experimenter effects](#). For example, when certain experimenters act as the *watcher* in these experiments, they seem to be more "successful" at getting people to detect their stares than other experimenters. It is almost certainly an unconscious bias, perhaps due to initial interactions with the experimenter.

Memory biases may also come into play. If you feel like you are

being watched, and turn around to check – another person in your field of view might notice you looking around and shift their [gaze](#) to you. When your eyes meet, you assume this individual has been looking all along. Situations where this happens are more memorable than when you look around to find no one looking at you.

So remember – the next time you think someone you can't see is watching you, it could be your mind playing tricks on you, no matter how real it feels.

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