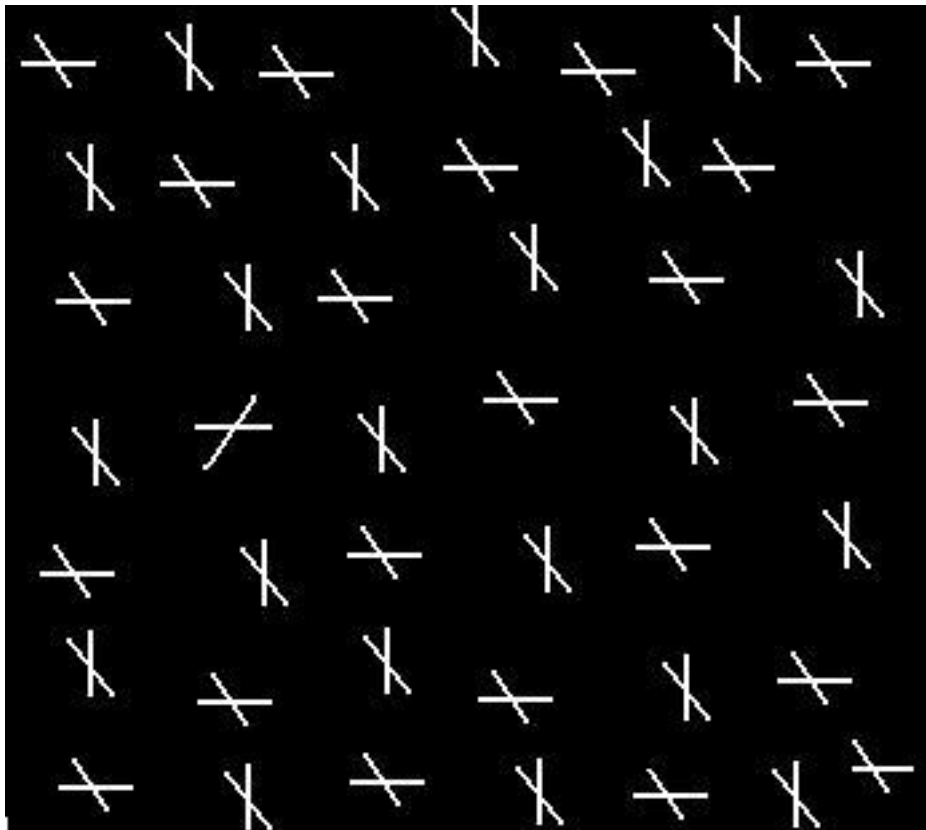


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Your snap judgments are spot on



Can you spot the misaligned cross? Answer at the end of the article

People have eagle eyes when they have just enough time to make a snap decision, a new study suggests. Subjects asked to pick out a single reversed cross on a screen of nearly 660 such symbols did better when they had only a fraction of a second to make a decision.

The study supports the idea that we should trust our initial instincts in certain circumstances, say the researchers. They add that the findings demonstrate how higher-level thinking can sometimes steer us away from the right answer.

Li Zhaoping and Nathalie Guyader at University College London, UK, recruited 14 subjects, and asked each of them to focus on a large computer screen. A set of

nearly 660 identical crosses, spaced about 2 centimetres apart, would then flash on the screen.

Out of these 660 symbols, one had a subtly different orientation from the others. Zhaoping asked participants to indicate whether the skewed symbol was in the left or right half of the screen.

A video camera monitored the movement of participants' eyes as they looked for the aberrant symbol. The camera was able to track where the subjects were looking by analysing the orientation of their pupils. Once their eyes had pointed at the misfit symbol, they were given different lengths of time to choose left or right.

When subjects were given half a second, they picked the correct half of the screen 95% of the time. With a second to contemplate an answer, this accuracy dropped to about 80%.

However, when participants had 2 seconds from when the computer registered that their eyes landed on the target they regained their initial accuracy levels.

Subconscious re-orientation

The researchers say there is a biological basis for these findings. An image picked up by the eyes first gets processed by a region at the back of the brain known as the primary visual cortex.

This area of the brain is thought to be involved in subconscious processing. The information then travels from this visual processing area to both the parietal region – which recognises shapes – and the decision-making frontal cortex.

Zhaoping believes that the higher-level mental processing that takes place in the parietal region and frontal cortex can initially make us mentally reorient an object to help decide what it is. This is useful when it allows us to recognise familiar objects in unfamiliar orientations. For example, recognising upside-down writing indicates we are holding the book the wrong way.

In this case, Zhaoping says this re-orienting may cause our minds to classify the oddly oriented symbol as the same as all the others, making it temporarily harder to pick out.

That would explain why people perform worse when given an intermediate amount of time to do so. When given a short time, they only have their subconscious as a guide; when given enough time they can override the re-orientation.

Zhaoping speculates that the findings could potentially be useful in diagnosing patients with Alzheimer's disease. The illness is often associated with a decline in higher-level brain function. People with Alzheimer's might not show a dip in accuracy in a visual test based on Zhaoping's experiment, she says.

Answer to caption question: The misaligned cross is in the second column from the left and four down.

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