

See half a world and you can't reason about the past

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New Scientist:

DRAW a line across a page, then write on it what you had for dinner yesterday and what you plan to eat tomorrow. If you are a native English speaker, or hail from pretty much any European country, you no doubt wrote last night's meal to the left of tomorrow night's. That's because we construct mental timelines to represent and reason about time, and most people in the West think of the past as on the left, and the future as on the right.

Arnaud Saj at the University of Geneva, Switzerland, and his colleagues wondered whether the ability to conjure up a mental timeline is a necessary part of reasoning about events in time.

To investigate, they recruited seven Europeans with what's called left hemispatial neglect. That means they have damage to parts of the right side of their brain, limiting their ability to detect, identify and interact with objects in the left-hand side of space. They may eat from only the right side of a plate, shave just the right side of their face, and ignore numbers on the left side of a clock.

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People with hemispatial neglect could remember just as many items as the other two groups of volunteers. However, of these items, significantly fewer were from David's past than his future. They were also more likely to make mistakes about items when they were from the past. In other words, people with hemispatial neglect have trouble imagining the left side of their timeline, and consequently assign past events to the future (*Psychological Science*, [doi.org/qgd](https://doi.org/10.1177/0956797613508888)).

Together these results suggest that concepts of time and space share neural underpinnings in the brain, and that the ability to represent space in the mind's eye is vital to our ability to remember and reason about events that occur along that timeline.

It would be interesting to see whether people with neglect of the right space have trouble with events that are supposed to happen in the future, says Saj, but these kinds of symptoms are rare since the brain areas that represent space are predominantly in the right hemisphere.

"This adds nicely to the growing body of research on spatial representations of time," says Rafael Nunez, who studies embodiment of time at the University of California in San Diego.

Read the whole story: [New Scientist](https://www.newscientist.com/article/dn25812-see-half-a-world-and-you-cant-reason-about-the-past)