How prior preferences determine decision-making frames and biases in the human brain

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Abstract

Understanding how option values are compared when making a choice is a key objective for decision neuroscience. In natural situations, agents may have a priori on their preferences that create default policies and shape the neural comparison process. We asked participants to make choices between items belonging to different categories (e.g., jazz vs. rock music). Behavioral data confirmed that items taken from the preferred category were chosen more often and more rapidly, which qualified them as default options. FMRI data showed that baseline activity in classical brain valuation regions, such as the ventromedial Prefrontal Cortex (vmPFC), reflected the strength of prior preferences. In addition, evoked activity in the same regions scaled with the default option value, irrespective of the eventual choice. We therefore suggest that in the brain valuation system, choices are framed as comparisons between default and alternative options, which might save some resource but induce a decision bias.

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References

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