Pushing people: the neural basis of social interaction perception

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Abstract

We commonly use the language of physics to describe social interactions, even those that do not involve physical contact at all (e.g., pushing, pressuring, blocking). Is there a common conceptual basis for perceiving causal interactions? This study asks whether there is a shared neural code for physical and social interactions. For instance, when a gust of wind knocks a sailboat off its trajectory, is that interaction processed similarly to when an employee is kept from going home by their boss? To investigate domain-invariant representations of causal interactions involving enabling vs. preventing, we presented fMRI participants with vignettes depicting physical interactions between objects or purely social interactions (agents interacting socially but not physically). Multivoxel pattern analyses revealed that brain regions classically associated with physical reasoning and social reasoning contained domain-invariant representations of enabling vs. preventing. These results suggest a shared conceptual structure for making sense of physical and social interactions.

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