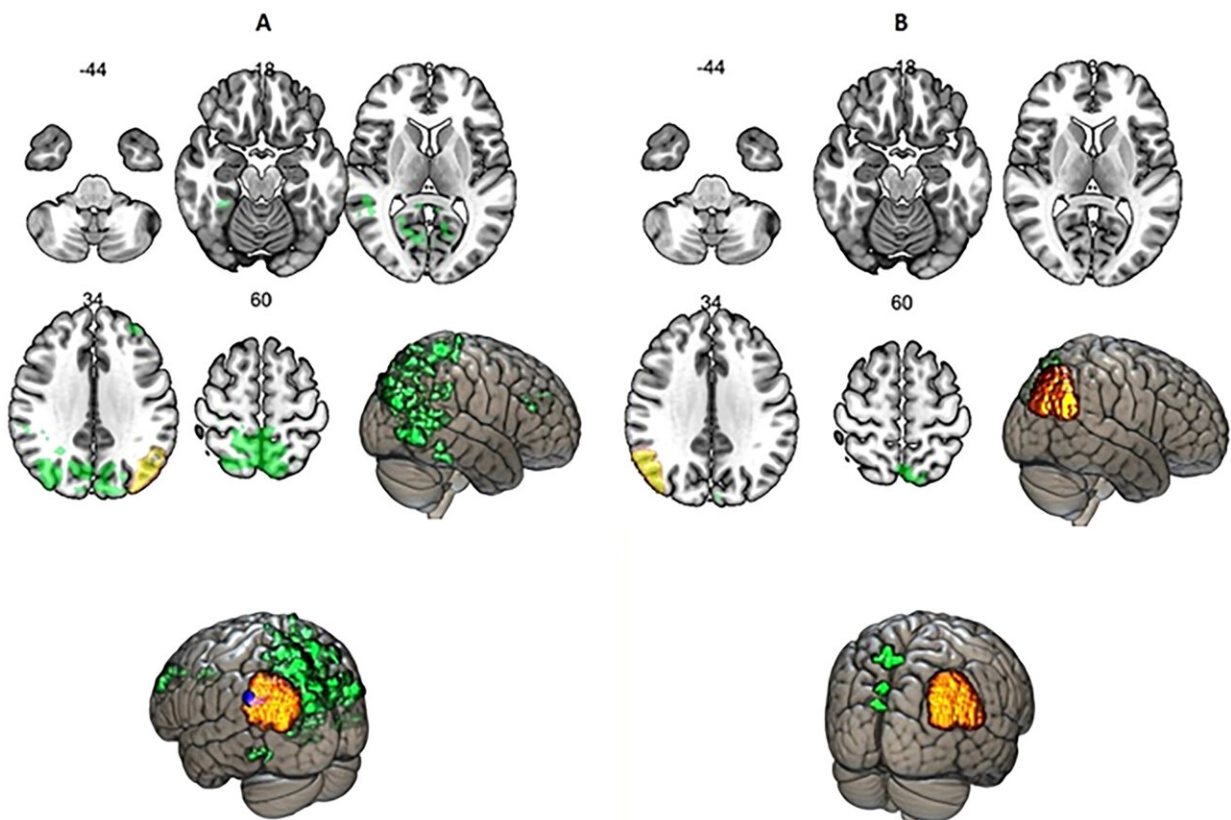


Neurolinguists report not two, but three options for brain functional categories

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The yellow-red color marks the seed region, the green color demonstrates negative functional interactions, and the blue color demonstrates positive functional interactions. Panel A demonstrates the left IPC caudal cluster functional connectivity when switching to L1 and panel B shows the right IPC caudal cluster functional association under the same condition. Credit: *NeuroImage* (2022). DOI: 10.1016/j.neuroimage.2022.119441

Based on the results of a language-switching experiment, Ph.D. candidate Fatemeh (Simeen) Tabassi Mofrad MA and Professor Niels Schiller have discovered that the traditional categorization of brain areas is not sufficient. They published their research findings in the scientific journal *NeuroImage*.

"The traditional picture of [brain](#) areas was that different parts of the cortex are either task-related or resting state-related," Tabassi Mofrad explains. By looking at the connectivity patterns of the caudal inferior parietal cortex (IPC), however, the neurolinguists found a new functional brain category that has modulating functions; this brain area displays no similarities to task-related cortical areas, nor to brain areas that are active when the brain is not processing [external stimuli](#).

More complete picture of the brain

The researchers' findings lead to a more complete picture of the brain. "The threefold function of the IPC was ignored for a long time in earlier studies, because this brain area was viewed as a single entity when describing functions of the IPC," says Tabassi Mofrad.

"However, the three sub-sections of this cortical area have different characteristics from each other, and what previous studies reported about how the IPC processes cognitive tasks is not representative of all three of its components. This led to inconsistencies in the existing literature about the functions of the IPC."

Ultimately, Tabassi Mofrad expects her research to have an impact on clinical neuroscience in the near future. She herself will first expand and continue her current research. "I have already mapped the connectivity patterns of the middle IPC and will continue to further investigate the modulating cortical areas."

More information: Fatemeh Tabassi Mofrad et al, Mapping caudal inferior parietal cortex supports the hypothesis about a modulating cortical area, *NeuroImage* (2022). [DOI: 10.1016/j.neuroimage.2022.119441](https://doi.org/10.1016/j.neuroimage.2022.119441)

Provided by Leiden University

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