

Social groups and emotions

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Credit: Sascha Uding

The semantic representation of social groups involves areas of the brain associated with processing emotions. So says a study at SISSA in collaboration with the University of Trieste and the University Hospital of Udine which was published in the journal *Cortex*.

Politicians, children, teachers, Europeans... what do they have in common? As discovered in a study led by Luca Piretti and his colleagues from SISSA (International School for Advanced Studies) of Trieste, they are all social groups, a special semantic category for the [human brain](#) that is closely linked with emotions.

Until recently, most neuroscientists believed that the representation of knowledge in the brain was based on two distinct systems: one involved in representing animate objects (or, generally, anything organic), and the other for representing inanimate objects (artifacts). In recent years, however, a third category has been proposed: social groups. "For humans, knowledge of conspecifics is vital," explains Piretti. "It is not unusual to think that a part of our brain could be dedicated to this type of stimuli."

Piretti and colleagues worked with patients with [brain lesions](#) (caused by tumors), who responded to a series of tests to identify specific cognitive deficits. The precise location of the lesion in each patient was determined by [brain](#) imaging. Using the Voxel-Based Lesion-Symptom Mapping technique, the researchers were able to associate the cognitive deficits to specific cerebral areas.

"The hypothesis of a third category was proposed some time ago and studies support it," continues Piretti. "The real news that we observed was that the deficit in naming social groups is associated with lesions in the area that is normally involved in processing emotions, unlike the other categories." Emotions and social relations in the human are closely linked, for example the amygdala (one of the areas identified in Piretti and colleagues' study) is linked to social evaluation and perception, and is also linked to racial prejudice, while the insula (which is also involved in representing [social groups](#)) is associated with empathy.

More information: "The neural network associated with lexical-

semantic knowledge about social groups" *Cortex* [DOI:
10.1016/j.cortex.2015.06.024](https://doi.org/10.1016/j.cortex.2015.06.024)

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