

# A rather complex complex: Brain scans reveal internal conflict during Jung's word association test

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Over 100 years ago psychologist Carl Gustav Jung penned his theory of 'complexes' where he explained how unconscious psychological issues can be triggered by people, events, or Jung believed, through word association tests.

New research in the *Journal of Analytical Psychology* is the first to reveal how modern [brain function](#) technology allows us to see inside the mind as a 'hot button' word triggers a state of internal conflict between the left and right [parts of the brain](#).

The study revealed that some words trigger a subconscious internal conflict between our sense of selves and downloaded brain programs referring to "other" beings.

Analysis showed how this conflict takes place between the left and the right brain over three seconds, after which the left brain takes over to ensure 'hot buttons' will continue to be active.

"We found that when a complex is activated, [brain circuits](#) involved in how we sense ourselves, but also other people, get activated," said Dr. Leon Petchkovsky. "However, as there is no external person, the 'other' circuits really refer to internalized programs about how an 'other' person might respond. When a hot button gets pressed, 'internal self' and 'internal other' get into an argument."

"If we can manage to stay with the conflict rather than pseudo-resolve it prematurely, it may be possible to move beyond it," said Petchkovsky. "We can do this in psychotherapy, or by developing 'mindfulness' meditation skills. This makes for fewer 'hot-buttons' and a happier life."

Further research into this technology may help to develop an office-based test for conditions such as schizophrenia. Jung noticed that when schizophrenic patients responded to the word association test, their complexes tended to predominate for a much longer time and they would often get a burst of [auditory hallucinations](#) when they hit complexed responses.

In Dr Petchkovsky's research with two [schizophrenic patients](#) found that their right [brain activity](#) persists for much longer than other patients and they reported an increase in auditory hallucination activity when complexes are struck.

**More information:** Leon Petchkovsky, Michael Petchkovsky, Philip Morris, Paul Dickson, Danielle Montgomery, Jonathan Dwyer, Patrick Burnett, "fMRI responses to Jung's Word Association Test. Implications for Theory, Treatment, and Research", Journal of Analytical Psychology, [DOI: 10.1111/1468-5922.12021](#)

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