

WHO DO WE THINK WE ARE?

by Tony Martins

What constitutes our ego? How does brain activity translate into subjective ideas of our selves and our environments? **Georg Northoff** seeks answers using multiple modes of inquiry and a research team that spans the globe.

Georg Northoff has adopted an age-old strategy when grappling with the complex idea of “self”: he’s got it surrounded. With doctoral degrees in neuroscience, psychiatry and philosophy, and a transdisciplinary research group with global reach, Northoff peers into the mystery of consciousness from almost every conceivable angle.

“We are sure that such a transdisciplinary approach will open the door to a world of exciting findings that will shed new light on our very human self, and our very human brain,” Northoff has written.

A world of findings, indeed. While most Northoff-led investigation takes place at the University of Ottawa Institute of Mental Health Research and McGill’s Montreal Neurological Institute, Northoff also collaborates with other scientists in Berlin, Bologna, Vienna, Beijing, Hong Kong, Shanghai, Zürich, and other cities.

At the root of it all is the following question: How do our brains constitute subjective experience of our selves and environments? Through what mechanisms do we fashion what Northoff calls “the basic sense of subjectivity”?

As an example, Northoff points to the personal significance individuals might attach to their iPhone. “How is it possible that this little thing acquires such a personal meaning for you, and not for me?” he asks.

Northoff holds the Canada Research Chair for Mind, Brain Imaging and Neuroethics, as well as the EILB-CIHR Michael Smith Chair in Neurosciences and Mental Health. Despite his titles and distinctions, he’s genuinely humbled by the complexity of his research.



That said, however, Northoff dismisses as irrelevant such tangential questions as the perennial debate on whether there’s a distinction between mind and brain/body.

“Consciousness and self are deeply ingrained in how the brain functions,” Northoff contends. “It is not something that comes on top. It is something that is always already there.”

Northoff and colleagues use a range of functional imaging techniques to investigate drug-induced changes in the prefrontal neural activity of depressive and schizophrenic patients. One breakthrough on the subject of depression in recent years stems directly from how we experience the self.

“In depression you completely focus on your own self, and you are completely detached from your environment,” Northoff notes, “something that corresponds with abnormally high activity in the midline region of the brain.” One application he sees for such knowledge: better drugs, and more targeted therapeutic approaches.

In his latest book, released in the fall of 2011, Northoff offers another innovative blend of disciplines: neuroscience and psychoanalysis. *Neuropsychanalysis in Practice* grapples with the essence of the Ego, and explores how the brain makes distinctions between states that are neuronal (of the brain) and psychodynamic (of the psyche).

Northoff is at work on two further volumes exploring consciousness and the brain. Far from ascribing to a quest for some kind of post-human Utopia, he’s much more interested in human imperfection—particularly “how that must be somehow based on how the brain functions.” “We can learn much more about the opportunities when we know about the limitations,” Northoff reasons.

A rare kind of curiosity that spans disciplines began when an inspiring high-school teacher engaged him in philosophy. “I wanted to study philosophy in conjunction with a particular science, something more concrete,” Northoff says. “At the time you couldn’t really study neuroscience, so if you wanted to know something about the brain, you had to go into medicine.”

Medical school led to psychiatry, but neuroscience beckoned. Philosophy was always firmly in the picture, along with Northoff’s willingness to blend disciplines and genres. His 2009 book, *The Search for the Ego*, was billed as a “neuro-philosophical mystery novel” that crosses academic boundaries to address a wider audience.

With neurophilosophy, as with the rest of his work, Northoff is not afraid to innovate. The central question that keeps

arising in his research is this: Which definition of self should be used? “There are as many definitions as there are philosophers,” Northoff points out with a laugh.

He believes, however, that a research methodology must be rooted in hard science. “Which of the logical definitions of self match with the actual empirical data?” Northoff asks. “Which is in line with the brain?”

“And then, after considering the data,” he concludes, “maybe we should change the definition.” *RP*