

Formal Brain Science and Real People: Husserl's Critique of Psychologism

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My paper is an attempt to reflect upon the claim that the brain can think. Neuroimaging technology has led to an increased acceptance of the claim that the brain thinks because we can supposedly “observe” the “brain in action”. Although the more outrageous claims made by neuroscientists are critiqued by colleagues in the field, what is not addressed is the problematic reduction of human thinking to the material brain. Drawing upon Husserl's discussion of categorial intuition and his critique of psychologism, I will argue that thinking requires far more than an individual material brain. I will conclude by suggesting that taking responsibility for one's claims requires more than a critical interpretation of results: it requires one to question the presuppositions upon which research is based.

Introduction

These days, popular “wisdom” suggests that thinking can be explained through the physical mechanisms of the brain. As Raymond Tallis, who critiques the notion that the brain thinks, states, “it seems downright eccentric to profess” that we are something other than our brains.¹ Our understanding that our thinking can be explained through the processes of the brain has gained increased popularity with the invention of new technologies that seemingly present us with pictures of the brain in action. These technologies, such as functional magnetic resonance imaging (fMRI), are designed to study the functions of the brain, not just the physical structure of the brain. New techniques for studying the brain have led to astonishing claims about our ability to explain our thinking through the physical mechanism of the brain. For example, Alan Snyder, from the *Brain Mind Research Institute* from the *University of Sydney*, claims the aim of researching the brain is nothing less than “to understand the architecture of thought”.² It is true that these claims of brain scientists are not without criticism, but the problem is that the current critics generally focus on the misleading and irresponsible interpretations of neuroimages, leaving the basic notion that the brain can think unquestioned.

I will take up these current critiques of neuroimaging and point out that they do not go far enough in questioning the claims made by some neuroscientists. In addition to questioning the motives of individual neuroscientist's, sometimes, extraordinary interpretations of neuroimages, it is necessary to question the basic assumption that the brain can think. I want to stress here something that is overlooked in all these critiques: our ability to think requires far more than the brain. Given this fact, our primary responsibility lies in understanding the presuppositions of our tradition of thinking. Only then can we address our responsibility about ensuring that our claims are well grounded.

Current Critics of Neuroimaging

Currently, there are two predominant critiques of the claims made by neuroscientists on the basis of neuroimaging, but they do not bring into question the basic assumption that the brain can think. The first style of critique aims to show that there is not a one to one map between brain regions and mental states because each region of the brain has many functions. I will discuss this type of critique in reference to a response from neuroscientists to an article published in the *New York Times* called “This is Your Brain on Politics”. The second style of critique aims to show that the

¹ Raymond Tallis, *Aping Mankind: Neuromania, Darwinitis and the Misrepresentation of Humanity* (Durham: Acumen Publishing, 2011), 29, italics in original.

² “Research Supervisor Profile for Professor Allan Snyder”, The University of Sydney:
<http://sydney.edu.au/research/opportunities/supervisors/822>

statistics which underpin neuroimaging are complicated and can easily lead to false results. I will discuss this type of critique in reference to an article which presents a brain scan of a *dead* Atlantic salmon which shows “brain activity”. These two types of critique bring into question the validity of claims made on the basis of neuroimaging, but again they do not question the general project of explaining thinking through the physical mechanisms of the brain.

The article called “This Is Your Brain on Politics” was published in *The New York Times* on the 11 November 2007.³ In this article, Iacoboni and colleagues published the results from an experiment in which they used neuroimaging to “read” the research participants “thoughts” about presidential candidates who were running for the 2008 American presidential elections. The authors of this article claim to use fMRI to “reveal some voter impressions on which [the 2008] election may well turn”. The researchers claimed to “reveal” from the functional magnetic resonance image that “Mitt Romney shows potential” because “Mr Romney’s” speech “sparked the greatest amount of brain activity” in the swinging voters they tested. The publication of this article was followed by a letter of protest published in *The New York Times* on the 14 November 2007 written by 15 well-known neuroscientists.⁴ In the protest letter, the key criticism made by the critics is that “brain regions are typically engaged by many mental states, and thus one-to-one mapping between a brain region and a mental state is not possible”. Although the authors of the protest letter point out the problem with inferring thoughts directly from the results of neuroimages, they do not deny the possibility of doing so in the future. In fact, the critics conclude the letter of protest by stating that they “are very excited about the potential use of brain imaging techniques to better understand the psychology of political decisions”. In this claim, the authors of the protest letter not only reaffirm the basic project of investigating thinking through the brain, they also assume that psychology can be collapsed into brain science. The authors of the protest letter *do* bring into question the specific relationship made between the “brain activity” and Mitt Romney, but they do not bring into question the problematic nature of the relationship between the physical mechanism of the brain and thinking *per se*.

The second type of critique does not question the relationship between the physical mechanism of the brain and thinking, but instead critiques the statistical calculations used to make claims about the location of “brain activity”. Craig Bennett, Abigail Baird, Michael Miller and George Wolford demonstrate the problem with the statistics by showing that even a *dead* Atlantic salmon can show “brain activity”.⁵

Bennett, in an effort to test the reliability of the statistics he was preparing to use to investigate the location of people’s recognition of emotion, placed a dead salmon into an fMRI machine. The experiment that Bennett had prepared was to show a person a picture of people’s faces exhibiting different emotions while in the fMRI machine and compare the results of these scans to when the person was scanned without looking at pictures of people’s faces showing emotion. According to Bennett, if there is a statistically significant difference between when a person is shown a picture of faces showing emotion and when they are not, then this difference would show the location of emotional recognition in the brain. When Bennett scanned the dead fish in these two conditions, he found that the dead fish showed significantly different brain activity when pictures were displayed in the fMRI machine to when they were not displayed. Hence, Bennett and his fellow authors humorously conclude from this that the *dead* Atlantic salmon could process human emotions.⁶

³ Marco Iacoboni et al., “This Is Your Brain on Politics”, *The New York Times* November 11 (2007): <http://www.nytimes.com/2007/11/11/opinion/11freedman.html?pagewanted=all>

⁴ Adam Aron et al., “Letter; Politics and the Brain”, *The New York Times* November 14 (2007): <http://query.nytimes.com/gst/fullpage.html?res=9907E1D91E3CF937A25752C1A9619C8B63&ref=letters>

⁵ Craig Bennett et al., “Neural Correlates of Interspecies Perspective Taking in the Post-Mortem Atlantic Salmon: An Argument for Proper Multiple Comparisons Correction”, in *15th Annual Meeting of the Organization for Human Brain Mapping* (San Francisco: 2009).

⁶ *Ibid.*

Bennett, Baird, Miller and Wolford use the picture of the *dead* salmon exhibiting “brain activity”, produced from the scans done by Bennett, to show a problem with the statistical procedures which are generally used in fMRI experiments. The authors claim that the normal protocols used in these experiments are not enough to stop the high rate of false results produced from fMRI. To demonstrate this further, they show that, if an additional statistical technique to control for the false results of fMRI is used, the dead fish no longer shows “brain activity”.⁷ However, what is overlooked by Bennett and colleagues is that, on the model that thinking is explained through the motion of oxygenated blood in the brain, which can be mapped via functional magnetic imaging, even a dead fish can be said to think.

The problem with both these critiques is that they continue to collapse thinking into the physical mechanism of the brain. In the first example, the “psychology of political decisions” is simply assumed to be located in the brain. We may not be able to accurately locate the “psychology of political decisions” in the brain yet, but we will be able to in the future. In the second example, it is simply assumed that thinking can be reduced to the motion of oxygenated blood in the brain that can be mapped through fMRI. Our techniques for tracking the motion of oxygenated blood in the brain may be sloppy at times, but, with the correct protocols in place, there is no problem. Hence, in both these critiques the notion that the brain thinks is not questioned, it is only the results of individual experiments that are queried.

As I noted, although there are a number of criticisms of the notion that we can “map” thinking through fMRI, these critiques do not question whether it is possible to explain thinking through the brain. To make my point clear, I will argue that we should question the basic assumption that the brain can think by understanding the historical trajectory of ideas that leads to this claim.

Modern Science and Psychology

The brain as the location of thinking is not a “fact” revealed by modern science, it is a taken for granted assumption that underpins the project of explaining thinking through the brain. According to Husserl, while Descartes splits *res cogitans* from *res extensa*, it is Locke who establishes *res cogitans* as a separate and self-enclosed realm.⁸ By establishing *res cogitans* as a separate and self-enclosed realm, Locke establishes the ground for *res cogitans* to become a separate domain of inquiry. It is for this reason that Husserl claims that modern psychology is underpinned by a Lockean understanding of the world. My claim in this section of the paper is that neuroscience continues to be underpinned by a Lockean understanding of the world because neuroscientists take the brain, which is seamlessly collapsed with the mind, as a separate domain of inquiry.

According to Husserl, modern psychology stems from Locke’s empiricism.⁹ For Locke all knowledge stems from experience alone. Experience, for Locke, is sense-data which announces the “external” world in the mind of the subject. Simple ideas arise from sense-impressions alone, while complex ideas are put together through laws of habit.¹⁰ The relationship between the external world, which is said to be represented, and the mental states, that are understood to be representations, is not explained, rather it is taken for granted in Locke.¹¹ Moreover, as later empiricists show, we do not need the world at all. All we need to do is to pay attention to how representational ideas are combined in the mind. Likewise, in contemporary cognitive neuroscience there is no explanation

⁷ *Ibid.* For a descriptions of the methods that Bennett and colleagues propose see: Craig M. Bennett, George L. Wolford, and Michael B. Miller, “The Principled Control of False Positives in Neuroimaging”, *Social Cognitive and Affective Neuroscience* 4, no. 4 (2009).

⁸ Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*, trans. David Carr (Evanston, IL: Northwest University Press, 1970), 84-86.

⁹ *Ibid.*

¹⁰ For a similar claim see: Jan Patočka, “Third Lecture: Body and Person-Modern Philosophy”, in *Body, Community, Language, World* (Chicago and La Salle, Illinois: Open Court, 1998), 22.

¹¹ For a similar claims see: Husserl, *Crisis*, 85.

given of how concepts and thoughts come to be located in the mind which is taken as synonymous with the brain. There is no explanation of the relationship between the brain as *res extensa* and the mind as *res cogitans*. As Patočka states, the Cartesian split between *res extensa* and *res cogitans* leads to a situation where it is impossible to find a substantive relationship between the two domains.¹² Hence, cognitive neuroscientists simply collapse the mind into the brain, but the relationship between our thinking and the world continues to be a problem.

It is the split between *res cogitans* and *res extensa* that Husserl takes up in *The Idea of Phenomenology*.¹³ Husserl argues that once we question the link between *res cogitans* and *res extensa*, interminable difficulties for epistemology open up.¹⁴ Husserl explains the difficulty as the relationship between the immanent and transcendent. In his words, the problem is the assumption that “the immanent is in me...and the transcendent is outside of me”.¹⁵ As Husserl points out, if we understand the “immanent” as “in me”, how can we ever hope of reaching the “transcendent” which is supposed to be “outside of me”?¹⁶ In *The Idea of Phenomenology*, Husserl questions this understanding of transcendence and immanence and argues that the transcendent is always concealed in the immanent: that we always see more than we actually see, because it is through thinking that the world is rendered meaningful.

For Husserl, the psychic realm cannot be a separate domain because our thinking is always thinking *about* something.¹⁷ I am thinking *about* the tree that appears before me. As I move closer to the tree or further away from the tree I am directed towards one and the same tree. Each aspect of the tree not only indicates the tree which is before me, but the idea of “treeness” as well. For Husserl, I am not met with a stream of sense(less) data which I put together according to “concepts” and “habits” which economize thought.¹⁸ Instead, I am met with meaningful things that I actively constitute through seeing something *as* the thing that it is. According to Husserl, making sense of our experience is actively preformed by us through “adequate, categorially informed intuitions”, not a simple matter of economizing thought through making haphazard generalisations from the available sense-data. In other words, Husserl points out that thinking is already a part of our seeing.

To further clarify the claim that thinking is already a part of our seeing, I will discuss Husserl’s notion of categorial intuition. For Husserl, categorial statements, like “all swans are black”, are not facts, but are judgements about what we see. To explicate this claim, a discussion of both ideating abstractions and categorial intuition is important.¹⁹ However, I will only address categorial intuition here.

According to Husserl, our ability to make categorial judgements, such as “all swans are black”, is grounded upon categorial intuition: to see something *as* something. We do not have an idea of a swan and an idea of black that we use to categorise sense data, and then combine these ideas according to the laws of habit, to posit that “all swans are black”. Instead we see a black swan; we see the thing before us *as* a black swan. Categorial judgements rely upon my acts of thinking that constitute a black swan as such. Our thinking is already a part of our seeing because what we

¹² Jan Patočka, “Twentieth Lecture: Personal Spatiality, Husserl, Heidegger”, in *Body, Community, Language, World* (Chicago and La Salle, Illinois: Open Court, 1998), 174.

¹³ Edmund Husserl, *The Idea of Phenomenology: A Translation of Die Idee der Phänomenologie. Husserliana II*, trans. Lee Hardy, Edmund Husserl: Collected Works. Volume VIII (Dordrecht, Boston, London: Kluwer Academic Publishers, 1999)

¹⁴ *Ibid.*, 16.

¹⁵ *Ibid.*

¹⁶ *Ibid.*, 63.

¹⁷ Husserl, *Crisis*, 85.

¹⁸ Edmund Husserl, *Logical Investigations*, ed. Dermot Moran, trans. J. N. Findlay, 2nd ed., vol. 1 (London: Routledge, 2001 (1913)), 277.

¹⁹ According to Husserl, ideating abstractions underpins our ability to generalise (see: Husserl, *The Idea of Phenomenology*, 65.).

perceive is not sense data, but meaningful things. Furthermore, for Husserl, categorical judgements cannot *solely* rely upon my individual acts of thinking.

For Husserl, while I perform individual acts of judgement, my ability to do so always relies upon something outside of my individual acts of judgement. Hence, while I may judge that “all swans are black” the content of this statement cannot be reduced to my act of judging that “all swans are black”. One example Husserl uses to illustrate the difference between the ideal content of judgement and real acts of judgement is the mathematical proposition $2+2=4$.²⁰ The content of the judgement that $2+2=4$ remains identical no matter who states it or where it is stated: the act of judging that $2+2=4$ is distinct from the adjudged content. The ability to judge the truth of $2+2=4$ relies upon the ideal content of the judgement and not *solely* the individual act of judging because the individual can be wrong. An individual may hold that $2+2=5$, but this does not change the truth of the claim that $2+2=4$.

Husserl’s analysis of categorial intuition and his distinction between the ideal content of judgement and the real acts of judgement are important aspects of his critique of psychologism. Drawing upon Heidegger’s summary of Husserl’s critique of psychologism, “‘truths of reason’ cannot be ‘shored up’ by ‘truths of fact’ because ‘truths of reason’ are ‘the conditions of possibility of a rational justification’ in the first place”.²¹ Neuroscientists cannot hope to explain the “architecture of thought” through observations of individual brains because the laws of thinking provide “the conditions of possibility of rational justification” in the first instance. Neuroscience contains the same basic contradiction that Husserl points out in psychologism: by stating that the physical mechanisms of the brain are the ground of laws of thinking neuroscientists overlook the very ground that makes any science possible in the first place.

Cognitive Neuroscience and Responsibility

The isolated material brain cannot think because thinking is always about something meaningful. Thinking is already a part of our seeing because we see meaningful things. In addition, our thinking requires ideal content that extends past the thinking of any one individual. Hence, while we may be able to study the physical structure of the brain with neuroimaging technology, we cannot unlock the mystery of thinking through colourful images of the brain.

While the current critics of neuroimaging rightly point out problems with the interpretation of the findings of neuroscience, they do not go far enough. The problem with neuroimaging is not simply a matter of irresponsible interpretations; there is a problem at the very heart of the project. The basic problem is that we cannot reduce thinking to brain states. Although a seductive project, investigating the brain will not unlock the secrets of our mysterious and inexplicable ability to think about, not just exist within, the world of our living. To take responsibility for our knowledge is not simply a matter of ensuring that our claims are well grounded in the data. To be responsible for our thinking as well as our knowledge is to take the more radical step of inquiring into the presuppositions of our tradition.

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²⁰ Edmund Husserl, “Part I. The Idea of Pure Logic as a Formal Theory of Science”, in *Introduction to Logic and Theory of Knowledge: Lectures 1906/7, Edmund Husserl: Collected Works* (Dordrecht: Springer, 2008 (1906/07)), 44-46.

²¹ Martin Heidegger, *Logic: The Question of Truth*, trans. Thomas Sheehan (Bloomington and Indianapolis: Indiana University Press, 2010), 38.