

Shaun Gallagher  
Daniel Schmicking  
*Editors*

# Handbook of Phenomenology and Cognitive Science

 Springer

*Editors*

*Shaun Gallagher and Daniel Schmicking*

# **Handbook of Phenomenology and Cognitive Science**



*Editors*

---

Shaun Gallagher  
University of Central Florida, Orlando, FL, USA  
gallaghr@mail.ucf.edu

Daniel Schmicking  
Johannes-Gutenberg-Universität Mainz, Mainz, Germany  
schmicki@uni-mainz.de

ISBN 978-90-481-2645-3 e-ISBN 978-90-481-2646-0

Springer Dordrecht New York Heidelberg London

Library of Congress Control Number: 2009942087

© Springer Science+Business Media B.V. 2010

No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission from the Publisher, with the exception of any material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work.

Printed on acid-free paper

Springer is part of Springer Science+Business Media ([www.springer.com](http://www.springer.com))

---

# Preface

---

This volume explores the essential issues involved in bringing phenomenology together with the cognitive sciences, and provides some examples of research located at the intersection of these disciplines. The topics addressed here cover a lot of ground, including questions about naturalizing phenomenology, the precise methods of phenomenology and how they can be used in the empirical cognitive sciences, specific analyses of perception, attention, emotion, imagination, embodied movement, action and agency, representation and cognition, intersubjectivity, language and metaphor. In addition there are chapters that focus on empirical experiments involving psychophysics, perception, and neuro- and psychopathologies.

The idea that phenomenology, understood as a philosophical approach taken by thinkers like Husserl, Heidegger, Sartre, Merleau-Ponty, and others, can offer a positive contribution to the cognitive sciences is a relatively recent idea. Prior to the 1990s, phenomenology was employed in a critique of the first wave of cognitivist and computational approaches to the mind (see Dreyfus 1972). What some consider a second wave in cognitive science, with emphasis on connectionism and neuroscience, opened up possibilities for phenomenological intervention in a more positive way, resulting in proposals like neurophenomenology (Varela 1996). Thus, brainimaging technologies can turn to phenomenological insights to guide experimentation (see, e.g., Jack and Roepstorff 2003; Gallagher and Zahavi 2008). But even more important, phenomenology has played a significant role initiating a third wave that considers the cognitive system to include not just the brain, but the body as a whole, situated in physical and social environments. This involves a shift that now emphasizes embodied cognition, enactive perception, and dynamical systems, and integrates the work of phenomenologists (see Gallagher and Varela 2003; Varela et al. 1991; Thompson 2007). It was this shift that motivated the founding of the journal *Phenomenology and the Cognitive Sciences*, and that spawned a significant number of academic conferences in both Europe and the United States.<sup>1</sup> This volume does not try to trace this history. It is more properly concerned with laying out the current state of affairs with respect to the various topics that fall into this area of research. We think the papers collected here speak for themselves, and speak clearly about issues important for both philosophers and scientists who study human experience and cognition.

We thank the Siemens Corporation for funding a Visiting Scholar position in German Philosophy at the University of Central Florida in Fall 2007, and for supporting a conference on *Phenomenology and the Science of Consciousness* in March 2008. The first allowed a research visit by Dan Schmicking; the second supported a conference that brought several of this volume's contributors together to share their work. Thanks also to Leslie Gale and Jaci Schock at UCF's Philosophy Department for their continuing administrative support.

## References

- Dreyfus H (1972) What computers can't do: a critique of artificial reason. MIT Press, Cambridge, MA
- Gallagher S, Varela F (2003) Redrawing the map and resetting the time: phenomenology and the cognitive sciences. *Can J Philos Suppl* 29:93–132
- Gallagher S, Zahavi D (2008) The phenomenological mind. Routledge, London
- Jack A, Roepstorff A (2003) Trusting the subject, vol 1. Imprint Academic, Exeter
- Thompson E (2007) Mind in life: biology, phenomenology, and the sciences of mind. Harvard University Press, Cambridge, MA
- Varela F, Thompson E, Rosch E (1991) The embodied mind: cognitive science and human

experience. MIT Press, Cambridge, MA

Varela F (1996) Neurophenomeology. *J Conscious Stud* 3:330–349<sup>1</sup>

---

**Dan Schmicki**  
**Shaun Gallagher**

---

# Contents

---

## Part I Phenomenology and Experimental Cognitive Science

### **Naturalized Phenomenology**

Dan Zahavi

### **Phenomenology and Non-reductionist Cognitive Science**

Shaun Gallagher

### **A Toolbox of Phenomenological Methods**

Daniel Schmicking

### **Towards a Formalism for Expressing Structures of Consciousness**

Eduard Marbach

## Part II Consciousness, Attention, and Emotion

### **Consciousness**

Mark Rowlands

### **Attention in Context**

P. Sven Arvidson

### **The Phenomenology and Neurobiology of Moods and Emotions**

Matthew Ratcliffe

### **Phenomenology, Imagination and Interdisciplinary Research**

Julia Jansen

### **The Function of Weak Phantasy in Perception and Thinking**

Dieter Lohmar

## Part III Embodiment

### **Myself with No Body? Body, Bodily-Consciousness and Self-consciousness**

Dorothee Legrand

### **A Husserlian, Neurophenomenologic Approach to Embodiment**

Jean-Luc Petit

### **Body and Movement: Basic Dynamic Principles**

Maxine Sheets-Johnstone

### **Empirical and Phenomenological Studies of Embodied Cognition**

David Morris

## **Part IV Intersubjectivity**

---

### **The Problem of Other Minds**

Søren Overgaard

### **Mutual Gaze and Intersubjectivity**

Beata Stawarska

### **Knowing Other People's Mental States as if They Were One's Own**

Frédérique de Vignemont

### **Intersubjectivity, Cognition, and Language**

N. Praetorius

## **Part V Perception, Action and Enactive Phenomenology**

### **The Problem of Representation**

Michael Wheeler

### **Action and Agency**

Thor Grünbaum

### **Meaning, World and the Second Person**

Juan J. Botero

## **Part VI Language and Meaning**

### **Husserl and Language**

Peer F. Bundgaard

### **Metaphor and Cognition**

Mark Johnson

### **Phenomenology and Cognitive Linguistics**

Jordan Zlatev

## **Part VII Applications and Experiments**

### **The Role of Phenomenology in Psychophysics**

Steven Horst

### **A Neurophenomenological Study of Epileptic Seizure Anticipation**

Claire Petitmengin

### **How Unconscious is Subliminal Perception?**

Morten Overgaard and Bert Timmermans

### **IW - "The Man Who Lost His Body"**

David McNeill, Liesbet Quaeghebeur and Susan Duncan

## **Part VIII Pathologies**

---

### **Phenomenology and Psychopathology**

Thomas Fuchs

### **Delusional Atmosphere and Delusional Belief**

Matthew Ratcliffe

### **Autoscopy: Disrupted Self in Neuropsychiatric Disorders and Anomalous Conscious States**

Aaron L. Mishara

### **Phenomenology as Description and as Explanation: The Case of Schizophrenia**

Louis A. Sass

### **Agency with Impairments of Movement**

Jonathan Cole

### **Index**

---



# Footnotes

---

- 1 For example, *Cognition: Embodied, Embedded, En active, Extended*, University of Central Florida (October 2007); *Situated Cognition: Perspectives from Phenomenology and Science*, Durham University, UK (August 2006); *Phenomenology, Intersubjectivity, and Theory of Mind*. University of Central Florida, Orlando (January 2005); *The Embodied Mind*. Copenhagen (June 2004); *Intersubjectivity and Embodiment. Perspectives from Phenomenology and the Cognitive Sciences*. Louvain (September 2003); *The Imagination in Phenomenology and Cognitive Science*. London (July 2002); *Intentionality and Experience*. Copenhagen (June 2001); *Beyond the Hard Problem: Consequences of Neurophenomenology*. Boulder, Colorado (May 25–26, 2001); *Phenomenological and Experimental Approaches to Cognition*. CREA, Paris (June, 2000).

# Naturalized Phenomenology

Dan Zahavi<sup>1</sup>✉

(1) Department of Media, Cognition and Communication & Center for Subjectivity Research, University of Copenhagen, Copenhagen, Denmark

## Abstract

It is always risky to make sweeping statements about the development of philosophy, but if one were nevertheless asked to describe twentieth century philosophy in broad strokes, one noteworthy feature might be the following: Whereas important figures at the beginning of the century, figures such as Frege and Husserl, were very explicit in their rejection of naturalism (both are known for their rejection of the attempt to naturalize the laws of logic, that is, for their criticism of psychologism), the situation has changed considerably. Today many philosophers - not the least within analytical philosophy - would subscribe to some form of naturalism. In fact, naturalism is seen by many as the default metaphysical position. If you don't subscribe to naturalism you must be subscribing to some form of Cartesian substance dualism. Thus, whereas 20 or 30 years ago one might have been inclined to characterize the development of twentieth century philosophy in terms of a linguistic turn, a turn from a philosophy of subjectivity to a philosophy of language, it might today be more apt to describe the development in terms of a turn from anti-naturalism to naturalism.

It is always risky to make sweeping statements about the development of philosophy, but if one were nevertheless asked to describe twentieth century philosophy in broad strokes, one noteworthy feature might be the following: Whereas important figures at the beginning of the century, figures such as Frege and Husserl, were very explicit in their rejection of naturalism (both are known for their rejection of the attempt to naturalize the laws of logic, that is, for their criticism of psychologism), the situation has changed considerably. Today many philosophers - not the least within analytical philosophy - would subscribe to some form of naturalism. In fact, naturalism is seen by many as the default metaphysical position. If you don't subscribe to naturalism you must be subscribing to some form of Cartesian substance dualism. Thus, whereas 20 or 30 years ago one might have been inclined to characterize the development of twentieth century philosophy in terms of a linguistic turn, a turn from a philosophy of subjectivity to a philosophy of language, it might today be more apt to describe the development in terms of a turn from anti-naturalism to naturalism.

What are the implications of this turn? It has some rather decisive metaphilosophical implications that is, it has implications for the way we view the relation between philosophy and positive science. According to some readings, a commitment to naturalism simply amounts to taking one's departure in what is natural (rather than supernatural), but I think it is fair to say that the use of the term in the current discourse mainly signals an orientation towards natural science. As Sellars famously put it, "the dimension of describing and explaining the world, science is the measure of all things, of what is that it is and of what is not that it is not" (Sellars 1963, 173). However, insofar as naturalists would consider the scientific account of reality authoritative, a commitment to naturalism is bound to put

pressure on the idea that philosophy (including phenomenology) can make a distinct and autonomous contribution to the study of reality.

---

A vivid illustration of this tension can be found in the field of consciousness studies. As Francis Crick insists “it is hopeless to try to solve the problems of consciousness by general philosophical arguments; what is needed are suggestions for new experiments that might throw light on these problems.” (Crick 1995, 19). Indeed, on Crick’s view, “the study of consciousness is a scientific problem. [...] There is no justification for the view that only philosophers can deal with it.” (Crick 1995, 258). Quite on the contrary in fact, since philosophers “have had such a poor record over the last 2,000 years that they would do better to show a certain modesty rather than the lofty superiority that they usually display.” (Crick 1995, 258). This is not to say that philosophers cannot make some kind of contribution, but they must “learn how to abandon their pet theories when the scientific evidence goes against them or they will only expose themselves to ridicule.” (Crick 1995, 258). In short, philosophers are welcome to join the common enterprise, but only as junior partners. Indeed, one suspects that philosophy (of mind) on Crick’s view will ultimately turn out to be dispensable. Whatever contribution it can make is propaedeutical and will eventually be replaced by a proper scientific account.

It is doubtful whether all philosophers committed to naturalism would accept this line of thought but there is no question that naturalism does pose a challenge to philosophy. In the following, my focus will be on phenomenology. How should phenomenology respond to this challenge? What sense can we make of recent proposals to naturalize phenomenology? A correct appraisal is, however, complicated by the fact that naturalism is far from being a univocal position. I will take my point of departure in a rather classical reductionist conception of naturalism, not only because this was the kind of position that Husserl was originally reacting against, but also because it still remains a widespread and influential view. Whether this ultimately amounts to a satisfying conception of naturalism is a question I will return to later.

---

## Husserl’s Anti-naturalism

To start with, let us briefly recapitulate the character and motivation for Husserl’s anti-naturalism. In the long essay *Philosophy as Rigorous Science*, Husserl describes naturalism as a fundamentally flawed philosophy (Husserl 1987, 41) and argues that it has typically had two different aims: the naturalization of ideality and normativity, and the naturalization of consciousness (Husserl 1987, 9). In his view, however, both attempts fail and both are misguided. The naturalistic reduction of ideality leads to scepticism (Husserl 1987, 7; 1984, 47). This, in fact, was one of Husserl’s main arguments in his famous fight against psychologism in the *Logical Investigations*. As for Husserl’s criticism of the attempt to naturalize consciousness, he explicitly contrasts his own phenomenology of consciousness with a natural scientific account of consciousness (Husserl 1987, 17). Both disciplines investigate consciousness, but according to Husserl they do so in utterly different manners. And to suggest that the phenomenological account could be absorbed, or reduced, or replaced by a naturalistic account is for Husserl sheer nonsense. This is not to say that Husserl doesn’t respect natural science, but as he famously put it in *Ideas I*, “When it is actually natural science that speaks, we listen gladly and as disciples. But it is not always natural science that speaks when natural scientists are speaking; and it is assuredly *not* when they are talking about ‘philosophy of Nature’ and ‘epistemology as a natural science’” (Husserl 1982, 39).

But why does Husserl oppose the attempt to implement a thorough naturalistic account of consciousness? Because naturalism in his view is incapable of doing full justice to consciousness. Not only has it - in the shape of experimental psychology - lost sight of (subjective) consciousness

(Husserl 1987, 104), but even more importantly, naturalism treats consciousness as a real occurring entity in the world, that is, it conceives of consciousness as an object in the world, on a par with - though possibly more complex than - volcanoes, waterfalls, ice crystals, gold nuggets, rhododendron or black holes. But on Husserl's view this is unacceptable since consciousness rather than merely being an object in the world, is also a subject for the world, that is, a necessary condition of possibility for any entity to appear as an object in the way it does and with the meaning it has. To put it differently, according to Husserl, the decisive limitation of naturalism is that it is incapable of recognizing the *transcendental* dimension of consciousness.

One way to interpret Kant's revolutionary *Copernican turn* is by seeing it as amounting to the realization that our cognitive apprehension of reality is more than a mere mirroring of a preexisting world. Moreover, Kant transformed the pre-critical search for the most fundamental building blocks of reality into a reflection on what conditions something must satisfy in order to count as "real"; what is the condition of possibility for the appearance of objects? With various modifications this idea was picked up by Husserl and subsequent phenomenologists. Indeed, the reason why phenomenologists have emphasized the importance of the first-person perspective and investigated the fundamental structures of consciousness and selfhood in great detail has not been because they considered such an investigation a goal in itself - if so, phenomenology would have remained a form of philosophical psychology or philosophical anthropology - rather the analysis was motivated by transcendental philosophical considerations.

Naturalism is typically distinguished by methodological as well as metaphysical commitments. The methodological commitment amounts to the idea that the right criteria for justification are those found in and employed by the natural sciences. The metaphysical commitment amounts to the monistic view that there is only one kind of thing, namely things with natural properties, so that everything existing is natural. Jointly, the two commitments amount to the view that everything (including everything pertaining to human life, such as consciousness, culture and history) has to be studied by the methods of natural science (cf. Aikin 2006, 318). Moreover, this outlook is frequently tied to an explicit endorsement of metaphysical realism. One way to define metaphysical realism is to see it as being guided by a certain conception of knowledge. Knowledge is taken to consist in a faithful mirroring of a mind-independent reality. It is taken to be knowledge of a reality which exists independently of that knowledge, and indeed independently of any thought and experience (Williams 2005, 48). If we want to know true reality, we should aim at describing the way the world is, independently of all the ways in which it happens to present itself to us human beings, that is, we should aim for a description where all traces of ourselves have been removed. Metaphysical realism assumes that everyday experience combines subjective and objective features and that we can reach an objective picture of what the world is really like by stripping away the subjective. It consequently argues that there is a clear distinction to be drawn between the properties things have 'in themselves' and the properties which are 'projected by us'. Whereas the world of appearance, the world as it is for us in daily life, combines subjective and objective features, science captures the objective world, the world as it is in itself.

This assumption has been questioned by phenomenologists. They have criticized the suggestion that science can provide us with a description from a view from nowhere as if science simply mirrors the way in which pre-existing and mind-independent nature classifies itself. They have argued that a view from nowhere is unattainable, just as they would deny that it is possible to look at our experiences sideways on to see whether they match with reality. This is so, not because such views are incredibly hard to reach, but because the very idea of such views is nonsensical.

For phenomenology, science is not simply a collection of systematically interrelated justified propositions. Science is performed by somebody; it is a specific theoretical stance towards the world

This stance did not fall down from the sky; it has its own presuppositions and origins. Scientific objectivity is something to strive for, but it rests on the observations and experiences of individuals; is knowledge shared by a community of experiencing subjects and presupposes a triangulation of points of view or perspectives. Thus, according to this view, rather than being as such a hindrance or obstacle, consciousness turns out to be a far more important requisite for objectivity and the pursuit of scientific knowledge than, say, microscopes and scanners.

For Husserl, naturalism takes its subject matter, nature, for granted. Reality is assumed to be out there, waiting to be discovered and investigated. And the aim is then to acquire a strict and objective valid knowledge about this given realm. But for Husserl this attitude must be contrasted with the properly philosophical attitude, which critically questions the very foundation of experience and scientific thought (Husserl 1987, 13-14). Philosophy is a discipline which doesn't simply contribute to or extend the scope of our scientific knowledge, but which instead investigates the basis of this knowledge and asks how it is possible. Naturalism has denied the existence of a particular philosophical method, and has claimed that philosophy should employ the same method that all strict sciences are using, the natural scientific method. But for Husserl this line of reasoning merely displays that one has failed to understand what philosophy is all about. Philosophy has its own aims and methodological requirements; requirements that for Husserl are epitomized in his notion of *phenomenological reduction* (Husserl 1984, 238-239). For Husserl, the reduction is meant to make us maintain the radical difference between philosophical reflection and all other modes of thought. As he wrote in 1907: "Thus, the 'phenomenological reduction' is simply the requirement always to abide by the sense of the proper investigation, and not to confuse epistemology with a natural scientific (objectivistic) investigation" (Husserl 1984, 410). Every positive science rests upon a field of givenness or evidence that is presupposed but not investigated by the sciences themselves. In order to make this dimension accessible, a new type of inquiry is called for, a type of inquiry which "precedes all natural knowledge and science and points in a quite different direction than natural science" (Husserl 1984, 176). This, of course, is one reason why the phenomenological attitude has frequently been described as an unnatural direction of thought (Husserl 2001, I. 170). But to describe phenomenology as unnatural is of course also to deny any straightforward continuity between philosophy and natural science.

Husserl's view on this issue seems pretty much to have been shared by Heidegger. In a famous talk entitled *Phänomenologie und Theologie* written in 1927 Heidegger argued that within the different positive sciences we can speak of relative differences. One science, say anthropology, investigates one specific realm, another science, say biology, investigates another realm. Between the positive sciences and phenomenological philosophy there is also a difference, but this difference is not a relative, but an absolute one. For whereas the positive sciences are ontical sciences which are interested in beings (*das Seiende*), phenomenology is an ontological science which is concerned with Being (*Sein*). It is in this context that Heidegger famously remarks that there are more similarities between theology and chemistry (both of which are concerned with beings) than between theology and philosophy (Heidegger 1978, 49). Given this outlook we can at most expect a kind of one-way communication between philosophy and science, where the former constrains the latter.

---

## Transcendental Philosophy and Philosophical Psychology

So far, phenomenology's response to naturalism is rather unequivocal. Contrary to some proposals, it is not naturalism's classical endorsement of some form of reductive materialism that constitutes the main obstacle to a reconciliation. It is not as if matters would improve if naturalism opted for some version of emergentism or property dualism. The real problem has to do with naturalism's

commitment to scientism and metaphysical realism. Indeed given such commitments, the attempt to naturalize phenomenology seems fundamentally misguided. As Husserl explained to the Neo-Kantian Rickert in a letter from 1915, he considered the fight against naturalism - a fight he had devoted his life to - indispensable for the progress of philosophy (Husserl 1994, V. 178). Indeed, for Husserl a phenomenologist who embraced naturalism would in effect have ceased being a philosopher.

To naturalize phenomenology might indeed - to use a formulation employed by the editors of the volume *Naturalizing Phenomenology* - be a question of integrating phenomenology into an explanatory framework where every acceptable property is made continuous with the properties admitted by natural science (Roy et al. 1999, 1-2). However, let us at this point reassess this initial definition of naturalization, and consider a rather different (and more modest) proposal. To naturalize phenomenology might simply be a question of letting phenomenology engage in a fruitful exchange and collaboration with empirical science. Phenomenology does study phenomena that are part of nature and therefore also open to empirical investigation, and insofar as phenomenology concerns itself with such phenomena it should be informed by the best available scientific knowledge. The phenomenological credo 'To the things themselves' calls for us to let our experience guide our theories. We should pay attention to the way in which we experience reality. Empirical scientists might not pay much attention to the formal structure of phenomenality, but as empirical researchers they do in fact pay quite a lot of attention to concrete phenomena, and might consequently be less apt to underestimate the richness, complexity and variety of phenomena than the average philosopher. As Merleau-Ponty puts it in *La Nature*:

"How thus not to be interested in science in order to know what Nature is? If Nature is something all-encompassing, we cannot think it starting from concepts, let alone deductions, rather we must think it starting from experience, and in particular, experience in its most regulated form - that is, science." (Merleau-Ponty 2000, 87 [transl. modified])

To put it differently, the ultimate aim of phenomenology is to provide a transcendental philosophical clarification, and as such its aim differs from that of empirical science. However, there is more to phenomenology than this ultimate goal. Phenomenology also offers detailed analyses of various aspects of consciousness, including perception, imagination, embodiment, memory, self-experience, temporality, etc. In offering such analyses, phenomenology addresses issues that are crucial for an understanding of the true complexity of consciousness and might even offer a conceptual framework for understanding the mind that is of considerably more value than some of the models currently in vogue in cognitive science. But for the very same reason, it should also be clear that phenomenology deals with topics that it shares with other disciplines, and it would be wrong to insist that it should simply ignore empirical findings pertaining to these very topics. Does this entail that a phenomenological account of perception or action should necessarily be informed and constrained by, say, investigations of the neuronal mechanisms and processes involved in action and perception? As I will argue in a moment, in some cases discoveries of the latter kind could motivate us to take another look at the phenomenology, in order to ascertain whether we got it right the first time, but generally speaking a phenomenological account of perception and action is an attempt to do justice to the first-person perspective, it seeks to understand the experience in terms of the meaning it has for the subject, and doesn't address the subpersonal mechanisms that might enable us to experience the way we do. However, we shouldn't overlook that disciplines such as psychopathology, neuropathology, developmental psychology, cognitive psychology, anthropology etc. can provide person-level *descriptions* that might be of phenomenological relevance. The examples are legion, but if one were to mention a few, one could single out (1) neuropsychological descriptions of anosognosia, disorders of body-awareness, (2) psychopathological descriptions of schizophrenic disturbances of self-experience and intentionality, (3) developmental descriptions of social interactions in early

childhood, (4) ethnological descriptions of culture specific emotions, (5) descriptions of various types of memory provided by cognitive psychology, etc.

So on this proposal, the naturalization of phenomenology wouldn't merely consist in stressing the usefulness of phenomenological analyses and distinctions for, say, cognitive science. The point wouldn't merely be that phenomenology might prove indispensable if we wish to obtain a precise description of the explanandum - a *sine qua non* for any successful attempt to identify and localize the relevant neurobiological correlate. It wouldn't merely be a question of employing phenomenological insights in the empirical investigation of the mind. Rather, the idea would be that the influence goes both ways, that is, it would also be a question of letting phenomenology profit from - and be challenged by - empirical findings. This is why it is entirely appropriate to speak of a *mutual enlightenment* (cf. Gallagher 1997).

Various complementary proposals are currently in the offering, when it comes to cashing out this idea in more concrete details. One proposal entitled *neurophenomenology* was initially proposed by Varela (1996) and subsequently further developed by Lutz (2002), Lutz and Thompson (2003), and Thompson (2007). The basic idea here is to train the experimental subjects to gain greater intimacy with their own experiences. The subjects are subsequently asked to provide description of these experiences using an open-question format, and thus without the imposition of pre-determined theoretical categories. The ensuing descriptive categories are subsequently validated intersubjectively and then used to interpret correlated measurements of behavior and brain activity. At the same time, however, it is also suggested that, say, a consideration of insights from neurobiology and dynamical systems theory can help us improve and refine the classical phenomenological analyses (see Varela 1997). How is that supposed to happen? The basic idea is quite simple: Let us assume that our initial phenomenological description presents us with what appears to be a simple and unified phenomena. When studying the neural correlates of this phenomena, we discover that two quite distinct mechanisms are involved; mechanisms that are normally correlated with distinctive experiential phenomena, say, perception and memory. This discovery might motivate us to return to our initial phenomenological description in order to see whether the phenomenon in question is indeed as simple as we thought. Perhaps a more careful analysis will reveal that it harbors a concealed complexity. However, it is very important to emphasize that the discovery of a significant complexity on the sub-personal level - to stick to this simple example - cannot by itself force us to refine or revise our phenomenological description. It can only serve as motivation for further inquiry. Thus, it is certainly not being suggested that there is a straightforward isomorphism between the sub-personal and personal level. Ultimately, the only way to justify a claim concerning a complexity on the phenomenological level is by cashing it out in experiential terms.

More recently, Gallagher (2003) has made a slightly different proposal which he has entitled *front-loaded phenomenology*. Rather than focusing on the training of experimental subjects, the idea is here to start with the experimental design, and to allow insights developed in phenomenological analyses inform the way experiments are set up. To take a concrete example, let us consider the issue of self-consciousness. Within developmental psychology, the so-called mirror-recognition task has occasionally been heralded as the decisive test for self-consciousness. From around 18 months of age children will engage in self-directed behavior when confronted with their mirror-image, and it has been argued that self-consciousness is only present from the moment the child is capable of recognizing itself in the mirror (cf. Lewis 2003). Needless to say, this line of reasoning makes use of a very specific notion of self-consciousness. Rather than simply letting phenomenological insights guide our interpretation of the results obtained through the testing of mirror-recognition, one possibility would be to let the phenomenological account and analysis of pre-reflective self-consciousness guide our design of the experimental paradigm. It would no longer involve the testing

of mirror-recognition - which phenomenologists would typically consider evidence for the presence of a rather sophisticated form of self-consciousness - but, for instance, aim at detecting the presence of far more primitive forms of proprioceptive body-awareness. To front-load phenomenology, however, does not imply that one simply presupposes or accepts well rehearsed phenomenological results. Rather it involves testing those results and more generally it incorporates a dialectical movement between previous insights gained in phenomenology and preliminary trials that will specify or extend these insights for purposes of the particular experiment or empirical investigation (Gallagher 2003).

Are there any precedents in classical phenomenology for such integrative approaches? Let us briefly consider and compare the cases of Husserl and Merleau-Ponty, respectively. In several of his writings, Husserl distinguishes two different phenomenological approaches to consciousness. On the one hand, we have *transcendental phenomenology*, and on the other, we have what he calls *phenomenological psychology* (Husserl 1977). What is the difference between these two approaches? Both of them deal with consciousness, but they do so with rather different agendas in mind. For Husserl, the task of phenomenological psychology is to investigate intentional consciousness in a non-reductive manner, that is, in a manner that respects its peculiarity and distinctive features. Phenomenological psychology is a form of philosophical psychology which takes the first-person perspective seriously, but which - in contrast to transcendental phenomenology - remains within the natural attitude. The difference between the two is consequently that phenomenological psychology might be described as a regional-ontological analysis which investigates consciousness for its own sake. In contrast, transcendental phenomenology is a much more ambitious global enterprise. It is interested in the constitutive dimension of subjectivity, that is, it is interested in an investigation of consciousness in so far as consciousness is taken to be a condition of possibility for meaning, truth, validity, and appearance.

What is the relevance of this distinction? Although Husserl's primary aim was the development of transcendental phenomenology, he was not blind to the fact that his analyses might have ramifications for and be of pertinence to the psychological study of consciousness, and vice versa. As Husserl wrote "every analysis or theory of transcendental phenomenology - including [...] the theory of the transcendental constitution of an objective world - can be carried out in the natural realm, when we give up the transcendental attitude. Eidetically and empirically, a *pure psychology* - a psychology that merely explicates what belongs to the psyche, to a concrete human Ego, as its own intentional essence - corresponds to a *transcendental phenomenology*, and vice versa" (Husserl 1999, 131 [transl. modified]). Husserl consequently spoke of a parallelism between phenomenological psychology and transcendental phenomenology and claimed that it is possible to step from one to the other through an attitudinal change. In fact, in *Cartesian Meditations* he even writes that it is pointless to treat transcendental phenomenology and the positive science of intentional psychology separately. At first he suggests that the former should pave the way, and that the latter could then take over some of the results (without having to bother with the transcendental considerations), but as he eventually goes on to say, in its core intentional psychology (the study of consciousness) contains a transcendental dimension, is part of transcendental philosophy, though this will remain concealed until psychology is relieved of its naivety (Husserl 1999, 147). Might such considerations allow for the possibility that empirical findings (if based on a meticulous analysis of the phenomena and if subjected to the requisite modifications) could be taken up by, and consequently influence or constrain the analysis of transcendental subjectivity? I see no reason why not. Consider for instance Husserl's discussion in *Ideas II* of the effects of consuming the anthelmintic drug santonin (Husserl 1989, 67-69), or to take a more fundamental example, consider the fact that Husserl's ontological way to the reduction takes a careful description of a specific ontological region as guiding-line for the subsequent transcendental analysis (Husserl 1970, 170-174).



If we move on to Merleau-Ponty, it is well known that he already in his first major work *The Structure of Behavior* discusses such diverse authors as Pavlov, Freud, Koffka, Piaget, Watson, and Wallon. The last sub-chapter of the book carries the heading “Is There Not a Truth in Naturalism?” It contains a criticism of Kantian transcendental philosophy, and on the very final page of the book, Merleau-Ponty calls for a redefinition of transcendental philosophy that makes it pay heed to the real world (Merleau-Ponty 1963, 224). Thus, rather than making us choose between either an external scientific explanation or an internal phenomenological reflection, a choice which would rip asunder the living relation between consciousness and nature, Merleau-Ponty asks us to reconsider the very opposition, and to search for a dimension that is beyond both objectivism and subjectivism.

This interest in positive science, in its significance for phenomenology, remains prominent in many of Merleau-Ponty’s later works as well. His use of neuropathology (Gelb and Goldstein’s famous Schneider-Case) in *Phenomenology of perception* is well known. For some time, in the years 1949-1952, Merleau-Ponty even held a chair in Child Psychology at the Sorbonne. As for his last writings, a representative statement is found in *Signs*, where Merleau-Ponty declares that “the ultimate task of phenomenology as philosophy of consciousness is to understand its relationship to non-phenomenology. What resists phenomenology within us - natural being, the ‘barbarous’ source Schelling spoke of - cannot remain outside phenomenology and should have its place within it” (Merleau-Ponty 1964, 178).

What is interesting and important is that Merleau-Ponty didn’t conceive of the relation between transcendental phenomenology and empirical science as a question of how to apply already established phenomenological insights on empirical issues. It wasn’t simply a question of how phenomenology might constrain positive science. On the contrary, Merleau-Ponty’s idea was that phenomenology itself can be changed and modified through its dialogue with the empirical disciplines. In fact, it needs this confrontation if it is to develop in the right way.<sup>1</sup> And mind you, Merleau-Ponty held on to this view without thereby reducing phenomenology to merely yet another empirical science, without thereby dismissing its transcendental philosophical nature (Merleau-Ponty 1962, 63).<sup>2</sup>

In order to clarify the distinctive character of this take on the relation between philosophy and empirical science, let me briefly contrast it with the position recently advocated by Bennett and Hacker in their book *The Philosophical Foundations of Neuroscience*. According to their outlook, a philosophical investigation of consciousness differs in principle from an empirical one for which reason it is meaningless to suggest that the latter can challenge or even replace the former. Philosophy is not concerned with matters of fact, but with matters of meaning. The business of philosophy is with logical possibilities, not with empirical actualities. Its province is not the domain of empirical truth or falsehood, but the domain of sense and nonsense. To put it differently, philosophy clarifies what does and does not make sense. It investigates and describes the bounds of sense: that is, the limits of what can coherently be thought and said. The boundary between what does and what does not make sense, between what is meaningful and what transgresses the bounds of sense, is determined by the concepts we use, and the way philosophy can contribute to an investigation of the nature of the mind is consequently by clarifying our concept of mind and the way this concept is linked to related concepts (Bennett and Hacker 2003, 399, 402). The primary method of dissolving conceptual puzzlement is by carefully examining and describing the use of words - that is, we should investigate what competent speakers, using words correctly, do and do not say. Rather than engaging in first-order claims about the nature of things (which it can leave to various scientific disciplines) philosophy should consequently concern itself with the conceptual preconditions for any such empirical inquiries. Conceptual questions antecede matters of truth and falsehood. They are presupposed by any scientific investigation, and any lack of clarity regarding the relevant concepts will be reflected in a

corresponding lack of clarity in the questions posed, and hence in the design of the experiments intended to answer them (Bennett and Hacker 2003, 2). To put it more directly, empirical research that proceeds from conceptually flawed premises is likely to yield incoherent empirical questions and answers.<sup>3</sup> Bennett and Hacker then proceed by arguing that the relationship between conceptual and empirical issues is unidirectional, and that philosophy is of much greater importance to science than vice versa. For while philosophers can clarify the concepts used in science and thereby offer an immense service to science, it is a mistake to think that science could have much of an impact on philosophy. In fact, Bennett and Hacker even consider the supposition that scientific evidence may contravene a philosophical analysis ridiculous (Bennett and Hacker 2003, 404). In their view, we should not commit the mistake of confusing metaphysical or epistemological theories with empirical claims which can be corroborated by some *experimentum crucis*. Thus, the relation between philosophy and empirical science is a one-way enterprise. It is an application of ready-made concepts. There is no reciprocity, and there is no feedback. The application does not lead to a modification of the original analysis.

This is certainly one type of response to the challenge posed to philosophy by the revival of naturalism. But as I have just suggested, I don't think this is the way phenomenology has responded or should respond. To let an examination of ordinary language-use be our primary, if not exclusive, guide to a philosophical investigation of the mind is far too restrictive and underestimates the degree to which ordinary language reflects commonsense metaphysics. It blocks the way for concrete phenomenological analyses that might reveal aspects and dimensions of the mind that are not simply available to any reflection on common sense (consider for instance Husserl's investigations of the structures of time-consciousness or pictorial consciousness) and which at the same time might be challenged and enriched by descriptions provided by empirical science. By contrast, perhaps it is not entirely without reason that the style of analytical philosophy defended by Bennett and Hacker has been accused of promoting a kind of semantic inertia and conceptual conservatism.

Empirical data can serve to challenge and corroborate theoretical analyses. Conversely, conceptual analysis can provide directions and tools for the empirical scientists and might also help in the design and development of experimental paradigms. But although empirical findings are important, we should obviously not overlook that they are open to interpretation. Their interpretation will usually depend upon the framework within which one is operating. Thus, the theoretical impact of an empirical case is not necessarily something that can be easily determined. Although I would argue that phenomenology should pay attention to empirical findings, this doesn't entail that it should also necessarily accept the (metaphysical and epistemological) interpretation that science gives of these findings.

It is important to encourage the exchange between phenomenology and empirical science, but the possibility of a fruitful cooperation between the two should not make us deny their difference. I see no incoherence in claiming that phenomenology should be informed by the best available scientific knowledge, while at the same time insisting that the ultimate concerns of phenomenology are transcendental philosophical and that transcendental philosophy differs from empirical science.

---

## Philosophical Naturalism

So far, I have distinguished two different understandings of naturalization:

- The first radical proposal sees the naturalization of phenomenology as one that will eventually make phenomenology part of, or at least an extension of, natural science and it argues that this is something we should aim for. As I have made clear, I consider this suggestion to be misguided,

since it de facto denies the legitimacy of methods and questions that are unique to philosophy. I wants to replace the transcendental clarification that phenomenology offers with an explanatory account. Were one to implement this strategy, one would by the same token abandon much of what makes phenomenology philosophically interesting. Phenomenology is basically, I would insist, a transcendental philosophical endeavor, and although one might ease the way for its naturalization by abandoning the transcendental dimension, one would not retain that which makes phenomenology a distinct philosophical discipline, strategy, and method.<sup>4</sup>

- The second more modest proposal argues that a naturalized phenomenology is the kind of phenomenology that engages in a meaningful and productive exchange with empirical science. Phenomenology can question and elucidate basic theoretical assumption made by empirical science, just as it might aid in the development of new experimental paradigms. Empirical science can present phenomenology with concrete findings that it cannot simply ignore, but must be able to accommodate; evidence that might force it to refine or revise its own analyses.

At this point, however, it is necessary to briefly address an issue that so far has remained somewhat in the background. It could be argued that naturalism is far from being a univocal term, and that the real task facing phenomenology is to resist the attempt by metaphysical realists to monopolize the concept of nature. The real challenge would in other words be to rethink the very concept of nature - a concept about which Hume once declared “there is none more ambiguous and equivocal” (Hume 1888, 474).<sup>5</sup> In short, why make do with an unduly restricted conception of nature, why not recognize that there might be other kinds of naturalism than the one that takes it for granted that nature is exhausted by what natural science - as it is currently conceived - is capable of revealing to us (cf. McDowell 1996). To put it differently, maybe we should realize that it is mandatory to operate with a richer notion of nature, one that has room for such issues as meaning, context, perspectives, affordances and cultural sediments.

So far the point being made is simply that in discussing the relation between phenomenology and naturalism we shouldn't make the mistake of letting the concept of nature remain unexamined. In a parallel move, one might make a similar point regarding the notion of the transcendental.

One commentator has recently argued that Husserl through the 1920s and 1930s “became increasingly wide-reaching, even baroque, in his conception of the transcendental” (Moran 2002, 51). But rather than calling Husserl's notion of the transcendental baroque, perhaps it would be more to the point to realize that Husserl subjected the very notion of the transcendental to a far-reaching transformation. As I have argued elsewhere, Husserl's phenomenology is characterized by its attempt to modify the static opposition between the transcendental and the mundane, between the constituting and the constituted (Zahavi 2001, 2003). This was not an insight that Husserl only reached at the very end of his life. In a text which was written around 1914-15, and which has subsequently been published in *Husserliana XXXVI*, the volume entitled *Transzendentaler Idealismus. Texte aus dem Nachlass*, Husserl argued that actual being, or the being of actual reality, doesn't simply entail a relation to some formal cognizing subject, but that the constituting subject in question must necessarily be an embodied and embedded subject. Already in this period, Husserl was claiming that the subject in order to constitute the world must necessarily be bodily embedded in the very world that it is seeking to constitute (Husserl 2003, 133). And as he then continued, the constitution of an objective world also requires that the subject stands in an essential relation to an open plurality of other embodied and embedded subjects (Husserl 2003, 135).

In *Les mots et les choses*, Foucault has argued that phenomenology exemplifies a type of modern discourse that in its investigation of experience seeks to both separate as well as integrate the empirical and the transcendental. It is an investigation of experience that in the face of positivism ha

tried to restore the lost dimension of the transcendental, but which at the same time has made experience concrete enough to include both body and culture. To Foucault it is quite clear that this modern type of transcendental reflection differs from the Kantian type by taking its point of departure in the paradox of human existence rather than in the existence of natural science. Although Husserl had apparently succeeded in unifying the Cartesian theme of the cogito with the transcendental motif of Kant, the truth is that Husserl was only able to accomplish this union in so far as he changed the very nature of transcendental analysis. When transcendental subjectivity is placed in the more fundamental dimension of time, the strict division between the transcendental and the empirical is compromised. The questions of validity and of genesis become entangled. It is this transformation that in Foucault's view has resulted in phenomenology's simultaneously promising and threatening proximity to empirical analyses of man (Foucault 1966, 331-336).

I think Foucault's diagnosis is correct (though I do not share his subsequent criticism of phenomenology). To put it differently, I think one must realize that the phenomenological notion of the transcendental differs from the Kantian one. This holds true not only for Husserl, but also for many of the post-Husserlian phenomenologists. As Merleau-Ponty would write in *Signs*:

"Now if the transcendental is intersubjectivity, how can the borders of the transcendental and the empirical help becoming indistinct? For along with the other person, all the other person sees of me - all my facticity - is reintegrated into subjectivity, or at least posited as an indispensable element of its definition. Thus the transcendental descends into history." (Merleau-Ponty 1964, 107)

The fact that phenomenology operates with an enlarged notion of the transcendental, the fact that it includes topics such as embodiment and intersubjectivity into its transcendental analysis, gives it an advantage in comparison with a more traditional Kantian type of transcendental philosophy. But, of course, it would also be fair to say that this enlargement and transformation generate new problems and challenges as well.

According to the proposal currently being considered a naturalization of phenomenology would entail a reexamination of the usual concept of naturalization and a revision of the classical dichotomy between the empirical and the transcendental. In short, according to the current proposal, a naturalization of phenomenology might not only entail a radical modification (rather than abandonment) of transcendental philosophy, but also a rethinking of the concept of nature - a rethinking that might ultimately lead to a transformation of natural science itself. Regardless of how theoretically fascinating such a proposal might seem, it should, however, be obvious that the task is daunting and that there is still a long way to go.<sup>6</sup>

A more modest and considerable easier way to approach the issue regarding the relation between phenomenology and naturalism is to look concretely at how phenomenology and empirical science might engage in a fruitful and productive exchange. It is no coincidence that Husserl is reputed to have demanded small change (*Kleingeld*) from his students, and that he in a letter to Natorp wrote that he remained unsatisfied "as long as the large banknotes and bills are not turned into small change" (Husserl 1994, V. 56). Husserl stressed the importance of providing minute and careful analyses at the expense of developing ambitious and speculative systems. We should take this advice to heart. Of course, as in so many other cases, the proof of the pudding is in the eating, and any claims concerning a mutual enlightenment between phenomenology and empirical science must be demonstrated *in concreto*. However, this has already been done by an increasing number of people, and the present volume contains many further demonstrations.<sup>7</sup> In short, if you are genuinely interested in phenomenology and the problem of naturalization I recommend that you stop reading this article and instead turn to some of the other contributions in the volume.<sup>8</sup>

---

# References

---

- Aikin SF (2006) Pragmatism, naturalism, and phenomenology. *Hum Stud* 29:317-340  
[CrossRef]
- Bennett MR, Hacker PMS (2003) *Philosophical foundations of neuroscience*. Blackwell, Oxford
- Crick F (1995) *The astonishing hypothesis*. Touchstone, London
- Foucault M (1966) *Les mot et les choses*. Gallimard, Paris
- Gallagher S (1997) Mutual enlightenment: recent phenomenology in cognitive science. *J Conscious Stud* 4(3):195-214
- Gallagher S (2003) Phenomenology and experimental design. *J Conscious Stud* 10(9-10):85-99
- Gallagher S, Meltzoff A (1996) The earliest sense of self and others: Merleau-Ponty and recent developmental studies. *Philos Psychol* 9:213-236  
[CrossRef]
- Gallagher S, Zahavi D (2008) *The phenomenological mind. An introduction to philosophy of mind and cognitive science*. Routledge, London
- Heidegger M (1978) *Wegmarken*. Vittorio Klostermann, Frankfurt am Main
- Hume D (1888) *A treatise of human nature*. Clarendon, Oxford
- Husserl E (1970) *The crisis of European sciences and transcendental phenomenology. An introduction to phenomenology* (trans: Carr D). Northwestern University Press, Evanston, IL
- Husserl E (1977) *Phenomenological psychology: lectures, summer semester, 1925* (trans: Scanlon J). Martinus Nijhoff, The Hague
- Husserl E (1982) *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy. First book. General introduction to a pure phenomenology* (trans: Kersten F). Martinus Nijhoff, The Hague
- Husserl E (1984) *Einleitung in die Logik und Erkenntnistheorie. Vorlesungen 1906/07. Husserliana XXIV*. Martinus Nijhoff, Dordrecht
- Husserl E (1987) *Aufsätze und Vorträge (1911-1921). Husserliana XXV*. Martinus Nijhoff, Dordrecht
- Husserl E (1989) *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy. Second book. Studies in the phenomenology of constitution* (trans: Rojcewicz R, Schuwer A). Kluwer, Dordrecht
- Husserl E (1994) *Briefwechsel, Husserliana Dokumente III/1-10*. Kluwer, Dordrecht
- Husserl E (1999) *Cartesian meditations: an introduction to phenomenology* (trans: Cairns D). Martinus Nijhoff, The Hague
- Husserl E (2001) *Logical investigations I-II* (trans: Findlay JN). Routledge, London
- Husserl E (2003) *Transzendentaler Idealismus. Texte aus dem Nachlass (1908-1921). Husserliana XXXVI*. Kluwer, Dordrecht
- Lewis M (2003) The development of self-consciousness. In: Roessler J, Eilan N (eds) *Agency and self-awareness*. Oxford University Press, Oxford, pp 275-295
- Lutz A (2002) Toward a neurophenomenology as an account of generative passages: a first empirical case study. *Phenomenol Cogn Sci* 1:133-167  
[CrossRef]
- Lutz A, Thompson E (2003) Neurophenomenology: integrating subjective experience and brain dynamics in the neuroscience of consciousness. *J Conscious Stud* 10:31-52
- McDowell J (1996) Two sorts of naturalism. In: Hursthouse R, Lawrence G, Quinn W (eds) *Virtues and reasons: Philippa Foot and moral theory*. Clarendon, Oxford, pp 149-179

- Merleau-Ponty M (1962) *Phenomenology of perception* (trans: Smith C). Routledge & Kegan Paul, London
- Merleau-Ponty M (1963) *The structure of behavior* (trans: Fisher AL). Duquesne University Press, Pittsburgh
- Merleau-Ponty M (1964) *Signs* (trans: McCleary RC). Northwestern University Press, Evanston, IL
- Merleau-Ponty M (2000) *Nature: course notes from the Collège de France*. Northwestern University Press, Evanston, IL
- Moran D (2002) Making sense: Husserl's phenomenology as transcendental idealism. In: Malpas J (ed) *From Kant to Davidson: philosophy and the idea of the transcendental*. Routledge, London, pp 48-74
- Roy J-M, Petitot J, Pachoud B, Varela FJ (1999) Beyond the gap: an introduction to naturalizing phenomenology. In: Petitot J, Varela FJ, Pachoud B, Roy J-M (eds) *Naturalizing phenomenology*. Stanford University Press, Stanford, CA, pp 1-83
- Ryckman T (2005) *The reign of relativity: philosophy in physics 1915-1925*. Oxford University Press, New York
- Schelling FWJ (1978) *System of transcendental idealism (1800)* (trans: Heath P). University of Virginia Press, Charlottesville, VA
- Sellars W (1963) *Science, perception and reality*. Routledge and Kegan Paul, London
- Tatossian A (1979/1997) *La phénoménologie des psychoses. L'art du comprendre*, Paris
- Thompson E (2007) *Mind in life: biology, phenomenology, and the sciences of mind*. Harvard University Press, Cambridge, MA
- Varela F (1996) Neurophenomenology: a methodological remedy to the hard problem. *J Conscious Stud* 3:330-350
- Varela F (1997) The naturalization of phenomenology as the transcendence of nature. Searching for generative mutual constraints. *Alter* 5:355-381
- Williams B (2005) *Descartes: the project of pure enquiry*. Routledge, London
- Zahavi D (2001) *Husserl and transcendental intersubjectivity. A response to the linguistic-pragmatic critique*. Ohio University Press, Athens
- Zahavi D (2003) *Husserl's phenomenology*. Stanford University Press, Stanford, CA
- Zahavi D (2005) *Subjectivity and selfhood: investigating the first-person perspective*. MIT Press, Cambridge, MA
- Zahavi D (2008) The phenomenological tradition. In: Moran D (ed) *Routledge companion to twentieth-century philosophy*. Routledge, London, pp 661-692
- 

## Footnotes

- 1 This is not to say, however, that Merleau-Ponty should be considered the ideal of how to integrate phenomenology and empirical science. In an article from 1996 Gallagher and Meltzoff pointed to certain shortcomings in Merleau-Ponty's use of developmental psychology, and back in 1979 the influential French phenomenological psychiatrist Tatossian criticized Merleau-Ponty for using empirical research in a speculative fashion. Tatossian wrote that if one really wants to grasp the phenomenological experience of the mentally ill person, one shouldn't remain in the ivory tower of the transcendental philosopher. Rather than just reading the specialized literature - as Merleau-Ponty had done - one should engage directly with the madman. This would, according to Tatossian, be the "genuine positivism" which Husserl was advocating (Tatossian 1979/1997, 12).
- 2 A quite recent attempt to follow up on and further develop this specific take can be found in Evan Thompson's book *Mind in Life: Biology, Phenomenology and the Sciences of the Mind*.
- 3 Although I have reservations regarding Bennett and Hacker's depiction of the relation between philosophy of mind and empirical science, I find their criticism of certain grandiose tendencies in contemporary cognitive neuroscience quite to the point. The first

two generations of modern neuroscientists, people such as Eccles and Penfield were neo-Cartesians. The third generation repudiated the dualism of their teachers and explicitly endorsed a form of physicalism. But as Bennett and Hacker point out, neuroscience has continued to remain bedevilled by a crypto-Cartesian and empiricist legacy. It might have replaced the immaterial Cartesian mind with the material brain, but it has maintained the dualism between brain and body, and thereby the logical structure of dualist psychology. Indeed, most of the neuroscientists who have castigated philosophy for its alleged failings - for not having accomplished anything scientifically worthwhile in its 2,500 year history - are unaware of the extent to which much of their own framework of thought has a questionable philosophical heritage. But as Bennett and Hacker argue, it is a simple fact, that the seventeenth-century philosophical conception of reality, of what is objective and what is subjective, of the nature of perception and its objects, has profoundly affected the ways in which brain scientists currently conceive of their own investigations (Bennett and Hacker 2003, 134). And as they then polemically ask, is what twenty-first century neuroscience can offer to philosophy simply a rehash of seventeenth-century epistemology and metaphysics (Bennett and Hacker 2003, 407)?

4 Some might deny that post-Husserlian phenomenology is at all to be called transcendental, but I would disagree with this appraisal (cf. Zahavi 2008).

5 That there are speculative precedents to such a move in the history of philosophy is well known. It is no coincidence that Merleau-Ponty in the quote given above referred to Schelling. As the latter wrote in his *System of Transcendental Idealism*: “The highest consummation of natural science would be the complete spiritualizing of all natural laws into laws of intuition and thought. [...] Nature’s highest goal, to become wholly an object to herself, is achieved only through the last and highest order of reflection, which is none other than man; or, more generally, it is what we call reason, whereby nature first completely returns into herself, and by which it becomes apparent that nature is identical from the first with what we recognize in ourselves as the intelligent and the conscious” (Schelling 1978, 6).

6 It should be noted though that there are those who argue that the full theoretical implications of Einstein’s and Bohr’s revolutions in physics are yet to be realized. In 1922, Moritz Schlick gave a talk where he argued that the general theory of relativity had disconfirmed transcendental philosophy and vindicated empiricist philosophy. This view has found much resonance, but as Ryckman has argued in his recent book *The Reign of Relativity: Philosophy in Physics 1915-1925* it happens to be quite incorrect. As Ryckman points out, the outstanding mathematician Herman Weyl who was one of Einstein’s colleagues in Zürich, and who contributed decisively to the interpretation and further development of both the general theory of relativity and the field of quantum mechanics, did not only draw quite extensively on Husserl’s criticism of naturalism, but was also deeply influenced by Husserl’s transcendental idealism. Thus, it is by no means obvious that some of the decisive developments in theoretical physics really leave our standard conception of subjectivity, objectivity and knowledge untouched.

7 For some of my own contributions, see Zahavi (2005) and Gallagher and Zahavi (2008).

8 Thanks to Evan Thompson, Dorothee Legrand and Joel Krueger for comments to an earlier version of the article.

# Phenomenology and Non-reductionist Cognitive Science

Shaun Gallagher<sup>1, 2</sup> 

- (1) Philosophy and Cognitive Science, Institute of Simulation and Training, University of Central Florida, Florida, USA
- (2) Philosophy Department, University of Hertfordshire, Hertfordshire, UK

## Abstract

The basic argument of this chapter, and more generally of this volume, is that it is possible to have a non-reductionist science of the embodied mind that is superior in many ways to any reductionist science that uses only “indirect routes” to, and often fails to arrive at experience. More specifically, in recent years, arguments have been put forward that we can pursue this non-reductionist science to the extent that phenomenology, or alternative introspective methods that can provide access to a methodologically controlled description of first-person experience, can be employed in experimental science (Frith 2002; Gallagher 2002, 2003; Gallagher and Overgaard 2005; Gallagher and Sørensen 2006; Jack and Roepstorff 2002; Schooler 2002; Varela and Shear 1999; also see especially the papers collected in the two-volume *Trusting the Subject*, Jack and Roepstorff 2003; Roepstorff and Jack 2004). Despite this growing but cautious agreement about the importance of first-person approaches, there are still questions about precisely what these methods are and how they are to be used. There are also doubts and objections, most famously summarized by Dennett (2001): “First-person science of consciousness is a discipline with no methods, no data, no results, no future, no promise. It will remain a fantasy.” For purposes of this chapter I set aside such objections (see Noë 2007 for ongoing debates), and focus on the varieties of first-person approaches that can contribute to cognitive science.

Psychology was defined by William James as ‘the science of mental life’, but psychologists seem to have developed a great reluctance to study ‘mental life’ by any but the most indirect routes. The most extreme example of this lack of directness is seen in functional brain imaging. For some researchers it seems that, if you have a brain scanner, then you no longer need to study mental activity because brain activity is a truly objective alternative. (Frith 2002, 374)

The basic argument of this chapter, and more generally of this volume, is that it is possible to have a non-reductionist science of the embodied mind that is superior in many ways to any reductionist science that uses only “indirect routes” to, and often fails to arrive at experience. More specifically, in recent years, arguments have been put forward that we can pursue this non-reductionist science to the extent that phenomenology, or alternative introspective methods that can provide access to a methodologically controlled description of first-person experience, can be employed in experimental science (Frith 2002; Gallagher 2002, 2003; Gallagher and Overgaard 2005; Gallagher and Sørensen



- [read Ross Poldark \(The Poldark Saga, Book 1\)](#)
- [click Helen and Desire here](#)
- [click Too Much to Know: Managing Scholarly Information Before the Modern Age.pdf, azw \(kindle\), epub, doc, mobi](#)
- [download online Encyclopedia Brown and the Case of the Slippery Salamander \(Encyclopedia Brown, Book 22\) book](#)
  
- <http://kamallubana.com/?library/Sons-of-Macha--Shadowmagic-.pdf>
- <http://kamallubana.com/?library/Helen-and-Desire.pdf>
- <http://www.satilik-kopek.com/library/Economic-and-Philosophic-Manuscripts-of-1844.pdf>
- <http://www.freightunlocked.co.uk/lib/Tartine-Bread.pdf>