

# Philosophy of Mind, Brain and Behaviour

**PHILOSOPHY OF  
MIND, BRAIN  
AND BEHAVIOUR**

Marc Slors, Leon de Bruin & Derek Strijbos

Boom | Amsterdam

© Boom uitgevers Amsterdam, 2015  
© Marc Slors, Leon de Bruin & Derek Strijbos

Behoudens de in of krachtens de Auteurswet van 1912 gestelde uitzonderingen mag niets uit deze uitgave worden verveelvoudigd, opgeslagen in een geautomatiseerd gegevensbestand, of openbaar gemaakt, in enige vorm of op enige wijze, hetzij elektronisch, mechanisch door fotokopieën, opnamen of enig andere manier, zonder voorafgaande schriftelijke toestemming van de uitgever. Voor zover het maken van kopieën uit deze uitgave is toegestaan op grond van artikelen 16h t/m 16m Auteurswet 1912 jo. Besluit van 27 november 2002, Stb 575, dient men de daarvoor wettelijk verschuldigde vergoeding te voldoen aan de Stichting Reprorecht te Hoofddorp (postbus 3060, 2130 KB, [www.reprorecht.nl](http://www.reprorecht.nl)) of contact op te nemen met de uitgever voor het treffen van een rechtstreekse regeling in de zin van art. 16l, vijfde lid, Auteurswet 1912. Voor het overnemen van gedeelte(n) uit deze uitgave in bloemlezingen, readers en andere compilatiewerken (artikel 16, Auteurswet 1912) kan men zich wenden tot de Stichting PRO (Stichting Publicatie- en Reproductierechten, postbus 3060, 2130 KB Hoofddorp, [www.cedar.nl/pro](http://www.cedar.nl/pro)).

*No part of this book may be reproduced in any way whatsoever without the written permission of the publisher.*

Verzorging omslag: Bas Smidt  
Verzorging binnenwerk: Steven Boland  
Afbeelding omslag: © Fleur Jongepier

ISBN 9789089536549  
NUR 730

[www.boomfilosofie.nl](http://www.boomfilosofie.nl)

# Contents

Introduction	9
1. The Mind-Body Problem	17
1.1 Substance dualism	19
1.2 Logical behaviourism	25
1.3 The identity theory	31
1.4 Functionalism	37
1.5 Mind as a computer program	44
1.6 Eliminativism	52
1.7 Interpretationism	55
2. Consciousness	61
2.1 Varieties of consciousness	62
2.2 The hard problem	68
2.3 Representational theories of consciousness	78
2.4 Type identity or naturalistic dualism	84
2.5 Heterophenomenology	89
2.6 Phenomenology and neuroscience	96
3. Intentionality	101
3.1 Characterizing intentionality	103
3.2 Internalism, externalism, and beyond	111
3.3 Explaining intentionality	120

4. Mental Causation	135
4.1 Reasons in a world of causes	136
4.2 The problem of explanatory exclusion	142
4.3 Responses to the explanatory exclusion problem	150
4.4 Mental causation in psychology and neuroscience	159
5. Free Will	167
5.1 Science versus philosophy on free will	168
5.2 The science of conscious control	172
5.3 Incompatibilism	181
5.4 Compatibilism	186
6. The Self	195
6.1 Conceptions of the self	196
6.2 Identity over time	207
6.3 Knowing ourselves	218
7. Embodied Embedded Cognition	227
7.1 Varieties of embodied cognition	228
7.2 Radically embodied embedded cognition	235
7.3 (Non-)representationalism and the cognitive gap	242
8. Social Cognition	253
8.1 The theory theory	255
8.2 The simulation theory	257
8.3 The false-belief test	259
8.4 Mirror neurons	264
8.5 Interaction theory	268
8.6 Narrative practice	275
8.7 False-belief understanding in infancy	277

## CONTENTS

9. Emotion	285
9.1 The Jamesian view of emotion	286
9.2 The cognitivist view of emotion	292
9.3 Perceptual theories	296
9.4 The narrative view of emotion	298
9.5 The evolutionary view of emotion	301
9.6 The social constructivist view of emotion	310
9.7 Emotion, mood and self	314
About the authors	319



# Introduction

How can it possibly be the case that electrical activity in the soggy grey substance of our brains is responsible for our thoughts, our conscious experiences, and our subjectivity? What *is* subjectivity, for that matter? Does it require a ‘self’, or a subject of experience? If so, what is *that*? Do we have free will? Is that even a possibility when all we think and do emerges from the physical brain? These are prototypical questions that characterize the philosophy of mind, brain and behaviour that we shall introduce in this book.

Many of the problems and theories we shall discuss fall under what is known as analytical philosophy of mind. There are probably few academic disciplines that can boast of as many truly excellent textbooks as analytical philosophy of mind. So why write another one? The reason is that we will include a considerably wider array of topics and methods than is usual in the discipline of philosophy of mind – hence the label ‘philosophy of mind, brain and behaviour.’

Standard topics in the philosophy of mind are the mind-body problem, mental causation, mental content and consciousness. There are a number of themes that are closely related to these but which fall just outside of the boundaries of the philosophy of mind, narrowly conceived. These themes usually do not make it into the textbooks. What they have in common with questions about the nature of mind, mental content, mental causation and consciousness, however, is that they are directly connected with the bigger issue of what it is that makes us human beings. Or better: human persons. These topics are ‘the self’, ‘free will’, ‘understanding other



minds', 'embodied, embedded cognition' and 'emotions'. They will be included in this book.

Method-wise we will not confine ourselves to what is known as analytical philosophy. Analytical philosophy, with its focus of precise conceptual analysis, does play a major role. But we shall also pay attention to the phenomenological tradition in philosophy, which emphasizes the importance of the analysis of experience itself. Furthermore, we will pay explicit attention to the relation between the philosophy of mind, brain and behaviour, and the science thereof.

All problems and theories that will be discussed in this book pertain to philosophical puzzles about the human mind and the way in which it relates to the physical brain and bodily behaviour. The term 'mind' is used here as an umbrella term. It refers to all states, capacities and processes that we would normally call 'mental': thinking, perceiving, wishing, hoping, intending, etc. Of course this is an imprecise and somewhat circular characterization of our subject matter. An exhaustive list of mental processes, states and capacities, or a formal definition of 'mind', however, are hard to come by and bound to be controversial. Instead, we think that an overview of the chapters to come, which we will give below, will give a good first grasp of the coherent set of interconnected topics that this book is about.

What makes the problems and theories discussed in this book philosophical rather than scientific? It is commonly thought that philosophical theories are speculative, where this is contrasted with the empirical nature of scientific theorizing. This is incorrect. The aim of philosophy is not speculation but analysis and conceptual clarification.

If we want to determine whether and how mental capacities, states and processes can exist in the natural world as studied by the physical sciences, we should be as careful as possible in defining them. And that proves to be much more difficult than it may at first seem. Many people may think they have a reasonably clear grasp of the concept of 'consciousness', for instance, or 'free will', but a little bit of probing usually reveals that providing a clear descrip-

tion or a set of defining characteristics is as difficult as providing a description of a specific colour, flavour or sound: we usually make do with a set of examples or comparisons.

And yet: it *is* possible to move beyond that. In the past decades much progress has been made in analysing concepts such as thinking, consciousness or freedom of the will. This doesn't mean that we now have simple definitions that can function as uncontroversial explications for science but it does mean that we have sophisticated theories that are non-circular and informative. Most of these theories attempt to analyse mental phenomena in such a way that we can understand how it is possible that they exist as parts of the natural world.

Not all philosophers are optimistic about the possibility of fully explaining the mind and its features in line with the natural sciences. Some arguments are intended to show that specific attempts at such explanation fail. It is important to note that the main aim here is not to argue that the mind will forever escape scientific scrutiny. Rather, the aim is to sharpen existing analyses by identifying caveats and omissions.

Ideally a philosophical theory about a given mental capacity should provide us with a complete description or conceptual analysis of what is called an *explanandum* for science, i.e. that which scientific theories aim to explain. This division of labour, however, in which analysis of the explanandum is the task of philosophy and the actual explaining the task of science, is nothing but a schematic ideal. In reality the boundary between philosophy of mind, brain and behaviour and the science thereof is vague and permeable. Philosophers often use the results of psychology and neuroscience in their arguments. Conversely, psychologists and neuroscientists take philosophical analyses as points of departure or contribute to them by means of experimental set-ups. In this book we have tried to do justice to the actual intertwining of philosophy and science in certain areas of inquiry.

This book is shaped as follows. In the first chapter we will start with a lengthy overview of the most important theories on the so-

called mind-body problem – known also as the mind-brain problem. This is the general question of how mental processes such as thinking, intending, perceiving, desiring and being conscious can be realized by a physical substrate such as the brain. From the middle of the previous century onwards, the idea that the mind resides in the brain is a common point of departure. But this premise yields at least as many questions as it provides answers. How can thought and consciousness *be* brain states? Is it, indeed, correct to identify the mind with the brain? What is the role of behaviour in this identification? And shouldn't we think that neuroscience supersedes, rather than explains, talk of ourselves in terms of minds and mental states? In the course of the second half of the last century, philosophy has produced quite a number of theories to answer such questions, which we shall discuss in chronological order. These theories will form the background against which more specific philosophical puzzles with respect to the mind will be addressed in subsequent chapters.

One of the most prominent of these more specific problems is the analysis of consciousness. In Chapter 2 we shall discuss the deep problems that arise when we want to characterize consciousness in such a way that it can be an explanandum for science. Most of the chapter will be devoted to a specific type of consciousness that philosophers refer to as 'phenomenal consciousness.' The problem here is how to explain the subjective, experiential character of our experiences. We can explain what pain is by referring to how it is caused, what behaviour it causes and what further internal changes it makes to the brain. But with all that we still haven't explained why pain hurts. Some philosophers have devised thought experiments that allegedly show that it is impossible to provide such an explanation within the confines of a naturalistic scientific outlook. Others have developed arguments that intend to show that these thought experiments are misleading. Both sides of the debate have developed theories about the nature of phenomenal consciousness with specific consequences for scientific research.

Another more specific problem about the mind is the puzzle of intentionality and mental content. This problem is not only about

intentions. It is about the peculiar fact that many of our mental states are *about* something, usually something other than these states themselves. This phenomenon, ‘aboutness’, is called intentionality. Your thought about Paris is in your head, but it refers to a city that is 600 kilometres away from where you are now. What relation between Paris and your brain enables this? How can this relation best be described? Moreover, what exactly determines the contents of your thought about Paris? Is this content entirely determined by brain processes, or does it exist outside of your brain as the actual city in France? And how can intentionality or content exist in the natural world? How can we explain it given that no other natural phenomena display this strange property of aboutness? We will discuss this problem in Chapter 3.

In Chapter 4 we discuss the problematic fact that many of our actions appear to be caused by mental states such as beliefs and desires. How can mental states cause physical actions? The easy way out here is to appeal to the fact that most philosophers think mental states are brain states. We know that our actions are caused by brain states. But instead of solving the problem, this move deepens it. For if some brain states cause our actions, what purpose does it serve to call these states mental as well? Isn’t it sufficient to describe them as the bio-chemical processes that they are? What explanatory role can the mind and mental states play? Why are they not explanatorily redundant? This is the problem of mental causation.

This problem should not be confused with one of the most hotly debated topics, both in philosophy and in the behavioural and brain sciences: free will. There is a long, venerable philosophical tradition of thinking about this topic. In fact this is one of the areas in philosophy in which much progress has been made in the last fifty years (which is in stark contrast to the common idea that philosophy has been milling over the same issues and theories for two-and-a-half millennia). We shall certainly devote attention to this tradition. We shall also pay attention, however, to current scientific claims about freedom of the will. These claims have stirred a lot of debate in and outside of science. It is important to compare

and contrast the scientific debate on free will with the philosophical one, for close analysis will reveal that they are not about the exact same issues. In Chapter 5 we will discuss and separate these debates and explain why it is not the case that neuroscience is currently deciding the philosophical issue of free will.

Chapter 6 will focus on the self. A host of different meanings are connected with that term, ranging from a simple ‘subject of experience’, to our most fundamental identities as persons. But do selves exist? If so, how? If not, are they illusions? And what is the connection between our selves and consciousness? Or between our selves and our bodies? And how can selves continue to exist through time, given that most of us change considerably, both in physical and in mental respects?

In a number of debates that will have been discussed in the chapters mentioned above, the embodiment of the human mind will have played a role. But the extent to which embodiment has so far been discussed doesn’t do justice to developments in the area of embodied and embedded cognition of the past two decades. In these developments, influences from phenomenology, robotics, biology and mathematics play an important role. Many approaches that fall under the heading of embodied and embedded cognition use a different conception of mind and mental capacities than the traditional ones that underlie the mind-body theories discussed in Chapter 1. For instance, some researchers in this area tend to think that cognition does not hinge upon wielding accurate representations of the world around us. Rather, they claim that cognition is ‘enacted’ – i.e. that it consists in continuous interaction with our environment. Other alternative conceptions of cognition have depicted it as incorporating processes and events outside of our bodies. Thus adherents of so-called extended cognition argue that our iPhones may well be part of our minds. These developments, and more, will be examined in Chapter 7.

In Chapter 8 we shall discuss our knowledge of and access to the minds of others. Can we understand why other people act as they do? If so, how? By what means do we understand other people’s motives? Do we use implicit theorizing to guess at or to produce

hypotheses about what goes on in the minds of others? Do we simulate the behaviour of others and project our own behavioural tendencies onto others? Or is the mind less hidden behind behaviour than these two approaches assume? What is the role of the embodiment of mind here? Perhaps we can see much of what goes on in the other's mind in facial expressions, gestures and bodily postures? Arguably, the debate on these topics is one of the best examples of collaboration between philosophy and behavioural and brain science. Philosophical arguments are directly translated into experimental set-ups (such as the well-known 'false-belief task'), and scientific findings, such as the discovery of mirror neurons, are quickly incorporated in philosophical theorizing.

Chapter 9 will focus on the philosophy and science of emotions. Although this topic does not play a major role in standard analytical philosophy of mind, there is a lively debate about the question of what emotions are and what purposes they serve. Are they implicit assessments about the events we respond to emotionally? Are they functional adaptations? Should we understand emotions as biological phenomena or as social constructs? And where do we draw the boundary between emotions and moods?

Each of the chapters will end with a brief list of literature for further reading. The references are to literature that is somewhat more advanced and deeper-digging than the introductory level of the chapters in this book.

We hope that the present book will be enjoyed as the informative and accessible introduction to an exciting field of academic inquiry we have intended it to be.