

# INTRODUCTION

## NATURALIZING THE MIND

MARCIN MIŁKOWSKI  
AND KONRAD TALMONT-KAMINSKI

The philosophical category of category mistakes is a mistake about categories.

—Paul Thagard (2009)

### **1. Kinds of Naturalized Philosophy**

It has become commonplace to trace the beginnings of contemporary naturalism in philosophy to Quine's essay on naturalized epistemology (1969). As in all clichés, there is some truth to it, but reality is much more complicated. One could trace not one but two kinds of naturalism in contemporary philosophy to Quine. And, what is more, there were philosophers who practiced naturalized philosophy much earlier than Quine. It would be apt to say, therefore, that naturalists returned to the mainstream when the proponents of the linguistic turn found themselves in a cul-de-sac (Kitcher 1992).

Even so, returning to Quine's manifesto is still very useful. It allows us to disentangle the two kinds of naturalism that sprung from it which makes it possible to clarify which kind of naturalistic approach is taken by the authors of the chapters included in this volume.

The first kind of contemporary naturalism is interested with reducing all knowledge to something fundamental, be it fundamental physics or sensory stimuli. Such was the attitude of logical positivism whose heritage is quite clearly visible in Quine's thinking. In particular, when Quine proposed naturalization of epistemology, he did so because of the miserable failure of the effort to logically derivate all theories from sensory experience. Instead of showing how all theories follow logically from sensory stimuli (or rather from sentences associated by reinforcement with certain sensory stimuli), we should look at the causal processes by which theoretical knowledge is built from sensory stimuli.

Even if this kind of program may still sound plausible to many philosophers today, it is not naturalistic in the second sense of the word explored here. Namely, it takes for granted that knowledge is indeed based on sensory observation, and that epistemology should be busy with showing how sensory stimulation becomes theoretical knowledge. Unfortunately for Quine, however, this is just a dogmatic assumption. As Fodor forcefully argued, experimental science does not require that empirical evidence stem from sensory stimuli at all (Fodor 1991). We may easily replace a human being, whose sensory abilities are quite limited, with a machine taking measurements, and the experimental evidence is no less empirical for that. You don't need qualia or whatnot to make evidence more observational than it already is when measured by an automated system. Fodor, in developing a program within this second kind of naturalism, simply finds no place for dogmatic empiricist assumptions when theorizing about knowledge. Instead of making such assumptions about empirical knowledge, we should look at how science really proceeds.

Notably, however, even the kind of naturalized epistemology that did rely upon these dogmatic presuppositions went further than many of today's 'naturalist' philosophers would ever want to go. This is because there is yet another kind of naturalism – should we say a 'deflationary' one? – that conflates naturalism with ontological physicalism. Instead of showing how knowledge (or some other philosophically relevant theoretical entity) is brought about by processes that are empirically investigable, it is busy with creating theoretical frameworks to describe the relationships between such entities and 'the physical', where 'the physical' is usually either left almost completely without any content, or equated with the view that the fundamental cement of the universe are some physical entities. These entities are usually couched in a terminology that suggests that they be elementary and atomic rather than relational. (That the latter view, presupposed for example by Jaegwon Kim in most of his writings, is hardly part of contemporary physics, barely needs mention; cf. Ladyman, Ross *et al.* 2007.)

So, to sum up, we may distinguish three kinds of naturalism: (1) the one that uses science to argue for philosophical positions even if they are clearly at odds with what science says or does; (2) the one that sees science and philosophy (along with the humanities) as belonging on the same continuum, and that does not seek for strict boundaries between those; and (3) the one that is just a new label for physicalism.

Since it is the second kind of naturalism that is of most relevance to the authors included here, it makes sense to elucidate it a bit further. It should be clear that this naturalism is a methodological position rather than

defending any particular ontological claim. It is also not focused on purely philosophical questions, such as showing how physicalism or empiricism is true by citing scientific papers and textbooks, or performing spectacular thought experiments about a future, ideal and complete fundamental physics. Rather, it is interested in the real subject matter of science, so it takes science most seriously in allowing that scientific discoveries lead to conceptual revolutions. Notably, it may also point to conceptual conundrums in science that seem to stem from philosophical assumptions or address worries connected with philosophical problems that seem pertinent to scientific theories, such as the worry whether causal explanations are genuine in a certain domain or whether some entities, say mental, are causally efficacious for certain phenomena. But these worries and conundrums are of common interest for philosophers and scientists alike. In effect, this brand of naturalism does not posit any abrupt discontinuity between scientific knowledge and philosophy.

In philosophy of science, this kind of approach is attributed to Kuhn (1970) and pioneered by Fleck (1979), who insisted on investigating the practice of science instead of proposing rational reconstructions of the logic of inquiry. Most philosophers of science have followed suit (for a pluralistic view on naturalized philosophy of science, see Callebaut *et al.* 1993.) Some have developed Kuhn's (1970) historical methods while others have turned to a cognitive approach to understanding science (e.g., Giere 1994, Nersessian 2008). Both the historical and cognitive approaches agree that naturalistic philosophy of science should not restrict itself to looking at the products of science—journal papers, books, reports, models or whitepapers—but must consider science as a process. It is not only important to consider whether theories are properly justified but also to think about how those theories come into being. By looking at how discoveries are made, we may improve our understanding of such important issues as how the research heuristics of localization and decomposition make possible certain kinds of reduction (Bechtel and Richardson, 1993). Or we may simply help improve research strategies.

Research into discovery in science belongs to the tradition initiated by Herbert A. Simon and his collaborators (see, for example, Langley *et al.*, 1987), and its influence on many subsequent philosophers of cognitive science and neuroscience is beyond doubt. In particular, the mechanistic philosophy of science (Darden, 2006; Craver, 2007; Bechtel, 2008) follows in Simon's footsteps by investigating the scientific heuristics employed in the identification of mechanisms; but you don't have to focus solely on mechanisms to talk of the importance of heuristic methods (Wimsatt, 2007). At the same time, this kind of philosophy of science is

deeply entrenched in philosophy of biology, where evolutionary theory supplies the conceptual framework.

This volume is intended to be an exercise in this kind of naturalism, a naturalistic philosophy that does not need to be naturalized further because it is methodologically naturalist. In particular, in theorizing about the mind, the discussion is not focussed on traditional topics of the philosophy of mind, such as finding aprioristic arguments showing that it may be logically possible to reduce future psychology to future complete physics. Fascinating as such arguments are, they are often of secondary interest to people who want to know something about how minds work, what they are, and how best to investigate them. We do not wish to suggest that all philosophy of mind is futile scholasticism to be replaced with science, so long as there remains a distinctive role for philosophers of psychology and cognitive science to play. This statement calls for some elucidation, so it makes sense to see what would be the point of such a wholesale, radical rejection of philosophy of mind.

The philosophy of mind is over. The two main debates in the philosophy of mind over the last few decades about the essence of mental states (are they physical, functional, phenomenal, etc.) and over mental content have run their course. Positions have hardened; objections are repeated; theoretical filigrees are attached. These relatively armchair discussions are being replaced by empirically oriented debates in philosophy of the cognitive and neural sciences (Chemero and Silberstein, 2008, p. 1).

But Chemero and Silberstein are clearly wrong. For example, the debate over mental content is not over at all, but is still as fierce as ever (Ramsey, 2007). Admittedly, for Chemero, the arch-antirepresentationalist, this debate is best swept under the carpet but it is a gross simplification (if not distortion) of the practice of cognitive science to say that representations do not play any role at all in cognitive explanations. They do. And we still do not understand what that role is, exactly. Similarly, the discussions over functionalism, and especially about reduction, multiple realization and causation are very much relevant both for today's philosophy of mind and philosophy of psychology (see, for example, Shapiro, 2004 or Polger, 2004). So while it might be true that re-focusing the debate on the goals of the scientific research into mental capacities should render the debate more concrete than in the past, when it relied on intricate thought-experiments, this does not make the whole field of traditional philosophy of mind irrelevant to naturalistic philosophy.

Paul Thagard (2009) gives at least two reasons why philosophy is relevant to cognitive science, and they apply to philosophy's significance for psychology or any science, for that matter. Firstly, philosophical

thinking in the context of science remains at a higher level of abstraction, or generality, which makes it easier to discover commonalities that would have been occluded by narrow specializations. This is particularly important in interdisciplinary conglomerates such as cognitive science, where merely verbal disputes are bound to arise because of the differences in terminology in various fields. Secondly, philosophers are skilled in normative arguments, and when science meets practical application—especially in the fields where practical advice is sought, such as psychiatry, neurosurgery, economics, or educational policy—philosophers are able to clear up the ways norms may be inferred. For example, instead of presupposing a traditional model of ideal rationality exemplified by homo oeconomicus, naturalistic philosophers may also link practical applications with the idea that human beings are merely satisficers.

Philosophical ‘therapy’, sermonized by late Wittgenstein and his followers, that aims to remove philosophical or metaphysical vestiges from science by declaring them meaningless, is itself quite meaningless for scientists. The trivial empirical observation that in some natural language words do not mean the same thing as in the technical vocabulary of science is of hardly any importance. Neuroscientists, for example, use the intentional idiom to talk about brain parts, and Wittgensteinians think that this is a serious category mistake, as only persons may be ascribed intentional capacities. The argument is that in natural language we don’t say so. As this is an outright falsity: it takes little effort to see that people frequently say, for example, that one eye sees a slightly different image than the other.<sup>1</sup> Of course, one could interpret this kind of utterance as an abbreviated form of *the* correct “a human being sees with one eye differently than with another,” and paraphrase similar utterances in the same way. Otherwise, this frequent talk would be a category mistake, as it is only the whole person that sees. However, the mere fact that one would need to paraphrase—and in the way that is so prolix as to make such paraphrase sound artificial—means that what is at stake is not ordinary language but a certain kind of regimentation of natural language into some kind of theoretically-laden talk. The language usage is simply different, and the biographical observation that (some) Wittgensteinians do not consider frequent English usage as standard, preferring hypercorrection over standard usage, does not justify the claims about category mistakes.

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<sup>1</sup> If still in doubt, see for example *Corpus of Contemporary American English*, available online at <http://corpus.byu.edu/> (Davies 2008). The query “person sees” has 53 matches, “eye sees” has 54 (you might also add “eyes see” with their 67 matches, and “persons see” with 1 match). The Google Books Historical Corpus allows investigating the changes in usage on the same website.

Wittgensteinians are free to talk whatever way pleases them but it is not a philosophical argument for others to change their language. There is nothing special in (a hypercorrect flavour of) ordinary language that would make it a privileged source of insight. The theoretically-laden paraphrase, in other words, has to be justified, and mere linguistic facts do not support it.

For a similar reason, Thagard argues that supposed category mistakes such as this are just the figments of philosophical imagination: concepts change and are not set in stone once they occur in ordinary speech. So, concepts are not something that you could analyze to gain philosophical insight into how things are (Fodor 1998); at best, you get lexical semantics. Indeed, the very category of ‘concept’ may not be as unified as philosophers usually presuppose (Machery 2009).

At the same time, it needs to be stressed that some of Wittgenstein’s insights turned out to be useful in the scientific investigation of prototype concepts. In particular, the notion of family resemblance was put to use there (Rosch & Mervis 1975). And, maybe ironically in this context, the Wittgensteinian insistence that the task for philosophers is to clear up conceptual confusion is still valid; but, this time, it is to clear up the mess that the Wittgensteinians themselves introduced by sermonizing that common sense is the measure of all things. For this reason, naturalists often engage in polemics with non-naturalized philosophy. We will see examples of that in this volume as well.

All that we have said up to this moment is not to be meant to imply that naturalistic philosophy of the kind that is pursued here is supposed only to serve the needs of science. There are distinct philosophical interests that naturalists take in their reflection that crosses the boundaries between the scientific and manifest image of the world. For example, for Daniel Dennett (2009) this is one of the tasks for philosophy of cognitive science: to understand the impact of new findings on the self-image of human beings, and help draw a broad, rational picture of the world. This, however, does not mean that the manifest image be replaced with some particular special science; we do not need scientific standards in everyday life, and for this reason we will satisfy by taking into account only the most crucial insights that science provides.

## **2. From Naturalized Philosophy to Naturalistic Thinking**

There is a second reason why we opened this introduction with a quote from Quine. Some of the early versions of the papers in this volume were presented during workshops in Kazimierz Dolny, Poland that we have

organized over a number of years, and a certain kind of dualism that seems to correspond to the two kinds of naturalism discussed above is reflected in the names of these workshops. Just like Quine, they started out as the Kazimierz Naturalized Epistemology Workshop (KNEW) back in 2005. After some time, roughly at the point when we decided that there was enough material about normativity to think of editing a volume about it (which appeared as Miłkowski and Talmont-Kaminski, 2010), we retained only the acronym, as we felt that epistemology was already successfully naturalized. The unofficial expansion was Kazimierz Naturalized Everything Workshop, while the official one – Kazimierz Naturalist Workshop. We wanted to stress that we are no longer so much interested in metaphysical reflection about the status of naturalism as in the real work done.

Because many of the participants of the workshops have decided to come regularly, we believe we can say that there is something that brings them together; this is exactly the second kind of naturalism, as described above. For the present volume, we asked some of our regulars to contribute chapters related to naturalistic approaches to the mind.

In the first section, the sciences of the mind are investigated as process, not as product: in other words, the authors focus on discovery rather solely on justification strategies. Marcin Miłkowski frames some of the simulation research in cognitive science and cognitive robotics in terms of “reverse engineering” and shows what light it sheds on the practice of cognitive investigation. The heuristics used to reverse-engineer a piece of software correspond quite strongly to the best practice in cognitive modelling. Samuli Pöyhönen, in turn, focuses on how the mental mechanisms of such complex phenomena as bulimia nervosa, which are partially socially constructed, could be still understood as natural kinds. He concludes that the notion of the natural kind, if used to discuss explanatory practices, should be relaxed as to include cultural factors as well. Finally, Mark Alfino shows that investigating the mechanisms that underlie the phenomenon traditionally called wisdom may be beneficial not only for psychology but for philosophy as well. This is because, if we are interested in improving our epistemological practices, we better look at what wise people do and how their expertise is explained by current psychological research.

In the next section, Biological Cognition, three chapters were included. Alvaro Moreno argues for understanding cognition as a biological phenomenon, and in particular one that occurs in autonomous systems capable of recursive self-maintenance. Cognition considered this way can no longer be reduced to abstract logical or computational capacities of the

mind. Paweł Grabarczyk focuses on the difficulties with applying psychological vocabulary to non-linguistic animals in order to explain their behaviour. Indeed, he argues, by drawing on numerous examples from ethology as well as on purely philosophical considerations, there are immense difficulties with justifying, for example, the claim that animals perceive something as belonging to one ontological category rather than another. And Benoît Dubreuil presents research he has been conducting in recent years on a topic that has been neglected by cognitively inclined philosophers and social scientists: the evolution of political hierarchies in humans. Why do humans live in political systems as different as small egalitarian foraging bands and large-scale hierarchical societies? His view is that cognitive sciences are essential tools that help making explanations in the social sciences deeper, but that they only reveal their full potential when they are used in conjunction with more traditional methods of social research, as part of an integrative and pluralistic approach to complex social phenomena.

The third section, Realisation, Explanation, and Reduction, focuses on another set of issues. Naturalists often see traditional reductionism as too far removed from scientific practice. Instead of arguing for autonomy of special sciences by declaring them irreducible, Markus Eronen uses the notion of robustness, as defined by Wimsatt (2007), to defend the view that entities used by special sciences are real as long as they are robust, i.e., presupposed by multiple independent theoretical frameworks. In this way, he naturalizes the traditional non-reductive physicalism without being committed to any a priori dogma. In particular, Eronen rejects the traditional argument from multiple realizability. In contrast, Panu Raatikainen argues conditionally that even when one accepts that there is multiple realizability, the argument that the mental cannot be causally efficacious is faulty. In particular, the causal exclusion argument, voiced most powerfully by Jaegwon Kim, cannot be sound if one accepts the interventionist account of causation, which has been successful in analyzing causal claims in science and dealing with traditional difficulties of theories of causation. Raatikainen defends, in effect, the view that it is possible for the mental to be causally efficacious without committing oneself to type identity or similar reductionist views. Witold Hensel, on the other hand, shows that many naturalists are careless when arguing for anti-reductionism. As it turns out, Craver's (2007) mechanism, his declarations notwithstanding, is best understood as a reductive framework, not as an anti-reductionist one. We think that these three papers show a range of different approaches to reductionism in contemporary naturalism. The debate is far from over.



Section four, *Metaphysics of Mind Naturalized*, contains papers that target the traditional metaphysical issue of qualia or phenomenal consciousness in the philosophy of mind. Jonathan Knowles argues for a version of naturalism in which the hard problem of the phenomenal consciousness does not arise, as what the organism cognizes, however basically, is *always already* a world *for it*, filled in and specified in relation to categories that only make sense in relation to *its* particular subjectivity and needs. Tadeusz Ciecierski tries to pin down the traditional claim that qualia are intrinsic properties and investigate what its consequences are. As it turns out, in conjunction with the claim that there are so-called object-dependent thoughts, the traditional notion cannot be consistent unless accompanied by some form of direct realism or direct reference thesis. This is a quite surprising corollary of a widespread view. Dimitris Platchias, in turn, argues that the challenge posed by David Chalmers (1996) against non-dualists may be answered in terms of the HOT theory of consciousness.

The last section is devoted to naturalization of truth and correspondence. Jaime Gomez presents a vindication of a naturalised theory of concepts, linked with an isomorphism-based notion of correspondence. In contrast to traditional accounts of correspondence, he acknowledges that a role for model-like representations in autonomous cognitive systems has to be shown. Krystyna Bielecka analyzes deflationary strategies as implying certain supervenience claims to show that they are either uninformative or implicitly inflationary. Even if she focuses only on Hartry Field, this argument seems to be generalizable to linguistic deflationism as such. Maria Frappoli, focuses on the enterprise of naturalizing truth, especially on the so-called prosentential theories of truth. For this reason, she gives more naturalistic ground to positions close to deflationism (if not deflationist per se).

As is, we hope, clear, the volume shows a lively debate between different positions in contemporary naturalism. Eronen and Hensel disagree about the role of reductionism, Frappoli argues for an essentially linguistic (prosentential) account of truth, while Bielecka argues against it; Gomez defends an account of representation as isomorphic encoding which is rejected by Moreno. A convergence of opinion is to be found in dead alleys in science; so long as there are insurmountable differences and controversies, there is a chance for cognitive progress. We only hope that the volume is a step in this direction.

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