About this Collection

A Short Introduction to the Open MIND Project

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1 What is this?

This is an edited collection of 39 original papers and as many commentaries and replies. The target papers and replies were written by senior members of the MIND Group, while all commentaries were written by junior group members. All papers and commentaries have undergone a rigorous process of anonymous peer review, during which the junior members of the MIND Group acted as reviewers. The final versions of all the target articles, commentaries and replies have undergone additional editorial review.

Besides offering a cross-section of ongoing, cutting-edge research in philosophy and cognitive science, this collection is also intended to be a free electronic resource for teaching. It therefore also contains a selection of online supporting materials, pointers to video and audio files and to additional free material supplied by the 92 authors represented in this volume. We will add more multimedia material, a searchable literature database, and tools to work with the online version in the future. All contributions to this collection are strictly open access. They can be downloaded, printed, and reproduced by anyone.

2 What is the MIND Group?

The MIND Group is an independent, international body of early-stage researchers, which I founded in 2003. It is formed of young philosophers and scientists with a strong interest in questions concerning the mind, consciousness, and cognition. They come from various disciplines such as philosophy, psychology, cognitive science, and neuroscience.

Over the past decade, the MIND Group has cooperated with a number of institutions, such as the Frankfurt Institute for Advanced Studies, the *Meditationszentrum Beatenberg*, the *Wissenschaftskolleg zu Berlin*, and the *ICI Kulturlabor Berlin*. I first founded the group at the *Johannes Gutenberg-Universität* in Mainz in 2003, but soon had to relocate it to Frankfurt am Main, where we meet twice a year. Meetings typically involve two or three public lectures at the *Johann Wolfgang Goethe-Universität*, delivered by highly prominent guests, most of whom are now authors of the target papers in this collection and senior members of the group. In addition, our invited speakers offer extended, closed workshops, where advanced students have the opportunity to give short mock-lectures in English.

This format was inspired by a question which kept confronting me in my teaching: namely why are there so many excellent, smart young philosophers in Germany, who nevertheless are—and often remain—almost completely invisible on the international stage? More than half a century after World War II, only three or four German universities rank among the top 100. The established philosophical community is still largely disconnected from many of the latest and most exciting developments in modern philosophy of mind. One result of my thinking about this

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problem was that this lack of integration into the global research context was caused, in part, by the language barrier. The biggest psychological obstacles for many young German philosophers seem to be, quite simply, to prepare a talk in English; find the courage to travel to an international conference in another country; and actually present their work there. One of the things we practice at MIND Group meetings is to prepare them for this.

The MIND Group sees itself as part of a larger process of exploring and developing new formats for promoting junior researchers in philosophy of mind and cognitive science. One of the basic ideas behind the formation of the group was to create a platform for people with one systematic focus in philosophy (typically analytic philosophy of mind or ethics) and another in empirical research (typically cognitive science or neuroscience). One of our aims has been to build an evolving network of researchers. By incorporating most recent empirical findings as well as sophisticated conceptual work, we seek to integrate these different approaches in order to foster the development of more advanced theories of the mind. One major purpose of the group is to help bridge the gap between the sciences and the humanities. This not only includes going beyond old-school analytic philosophy or pure armchair phenomenology by cultivating a new, type of interdisciplinarity, which is "dyed-in-the-wool" in a positive sense. It also involves experimenting with new *formats* for doing research, for example, by participating in silent meditation retreats and trying to combine a systematic, formal practice of investigating the structure of our own minds from the first-person perspective with proper scientific meetings, during which we discuss third-person criteria for ascribing mental states to a given type of system.

In addition to bridging geographical and disciplinary gaps, the MIND Group also aims to bridge conventional gaps produced by institutionalized hierarchies in academia. If you will, this is simply the academic variant of the generation gap: Few things are more intimidating to young researchers than being confronted, at a conference, with criticism from a researcher who has long been one of their intellectual heroes, known only from textbooks, university classes, and research articles. For this reason, the MIND Group meetings have provided a protected space for promoting supportive and collegial interactions between senior and junior group members. In particular, the meetings of the MIND Group have helped establish and cement collaborations both among junior members and between junior and senior members. In some cases this has led to research visits, joint research projects, or long-term mentoring relationships. One motivation for founding the group, after all, was to smooth the path from university studies to being a professional academic for advanced students and young researchers.

3 Why did we do this?

We wanted to make a contribution by offering a freely available resource to others. When we first started thinking about what to do for the 20th meeting of the MIND Group, we knew we wanted it to be something special, some way of sharing with the interested academic public some of the expertise and collegial atmosphere we had built up over more than 10 years of working together. Initially we considered inviting everyone to a big four-day conference at an attractive location. But then we decided that we would do something more substantial and innovative - rather than creating a transient event and an enormous CO_2 footprint. We wanted to create a resource of lasting value that will subsist for years to come, and most importantly something that really is accessible for everybody—not only for people in affluent parts of the world, like ourselves. There seemed no better way to do this than by providing a large, open-access collected edition showcasing the work of our senior and junior members.

It quickly became clear that because of the scope of the project, and also because we had specific ideas about how it should be realized, this was going to be an experiment in autonomous open-access publishing. The MIND Group is an independent body, and apart from evening lectures by our invited speakers, its meetings are not open to the public. One goal of the Open MIND project was to first publish our scientific work without the support of a publisher, who would

eventually sell our own intellectual property back to us and our peers and simultaneously make it inaccessible to students in Brazil, India or China by locking it behind a paywall. We wanted to see if we could successfully establish a professional form of quality control via a systematic, journal-independent peer review process—and also if we could make it happen faster than existing and established institutions of academic publishing. We gave authors a deadline of 1st March 2014, and planned to publish the entire collection (including commentaries and replies) on January 15th 2015. We knew that these two pillars—speed and quality control—would be crucial to the success of the project. Academics are sometimes reluctant to publish their work in edited collections that often only appear years after the manuscripts have been submitted. We suspected that we would only succeed in obtaining state-of-the-art research papers if we could guarantee that the research discussed within them would not be out-of-date by the time the collection went online.

This publication format is also novel in another sense. Because a selected subset of junior group members acted as reviewers and commentators, the whole publication project is *itself* an attempt to develop a new format for promoting junior researchers, for developing their academic skills, and for creating a new type of interaction between senior and junior group members. Many of the reviewers and commentators in this edited volume have never actively participated in any scientific review process before, and, for many their commentary is their first ever publication. Throughout the project, all junior members were able to play different roles: they acted as reviewers, trying to improve and constructively criticize the target articles submitted by senior group members and commentaries submitted by their peers. Sometimes, reviewers were asked to go back and revise their reviews—and sometimes their reviews also led to the rejection of target papers altogether. They also acted as authors; and because their commentaries also went through a review process, they got to experience the review process from the other side as well.

This collection, therefore, is the result of a three-layered interaction between junior and senior members: personal (through meetings), editorial (through implementing a common publication project), and philosophical and scientific (through writing commentaries and replies). Throughout this process, we were often surprised and impressed by the results—and we hope that you will be, too.

4 Who did this?

Many people have made this contribution possible and many hours of unpaid work have gone into it. Here are the most important supporters.

4.1 The editors

As founder and director of the MIND group, I consider myself to be neither a junior nor a senior member. Therefore, I have not contributed a target paper or a commentary. If anything, my contribution lies in the choice and selection of authors and in the work, together with my collaborator Jennifer Windt, of bringing this project to completion.

4.2 Financial funding

All in all it has cost about € 241.000, to realize this project. First and foremost, the *Barbara Wengeler-Stiftung* needs to be mentioned: not only has it supported the current project with € 80,000, but over the years it has enabled the MIND Group to stay independent, and to realize a long series of fruitful meetings, during times when it was difficult to get support elsewhere. It has also supported some members by providing PhD and travel grants and by offering the annual € 10,000 *Barbara Wengeler*-Prize, awarded at our meetings in Frankfurt. The Gutenberg Research College and the *Vokswagen-Stiftung* have generously supported the project by providing two editorial staff positions for David Baßler, Daniela Hill, and Dr. Ying-Tung Lin, and by awarding a five-year Research Fellowship, beginning in April 2014, to me, Thomas Metzinger. This work was also partly supported by the European FP7 collaborative project VERE (contract no. 257695).

What Does it Mean to Have an Open MIND?

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1 Instead of an introduction

In our discussions leading up to the Open MIND collection's going online, we thought long and hard about how exactly to showcase the vast material in this collection and the ideas and motivations behind the project in our editors' introduction. We first thought about using the introduction to briefly summarize the take-home message of every single target article, commentary, and reply, as is customary in introductions to edited collections. This struck us, however, as being both unwieldy and redundant: it would have entailed summarizing and commenting on a total of 117 texts. More importantly, due to the online format of the collection (including in-text search functions) and the inclusion of abstracts and keywords in the papers themselves, the authors have already provided concise introductions to their own texts. Retracing their steps in an editorial introduction would not have added anything to the value and usability of the collection.

We then considered using the introduction to create our own personal best-of-Open-MIND list, discussing what we take to be the most valuable insights in every single article, or perhaps even focusing on the contributions that we personally take to be the most theoretically important. Though our own list of personal favorites seemed to write itself naturally during the editing process, this strategy quickly struck us as being at odds with our motivation for creating the collection in the first place. Using the editors' introduction to create a personal best-of list would have been highly selective and biased by our own personal research interests and styles in a way that we felt would have contradicted our own ideal of open mindedness. In fact, for this reason, we decided to omit any references to the contributions to Open MIND in this introduction.

These considerations naturally gave rise to a more difficult and more profound question: What exactly do we mean by "open mindedness," not just in general, but in the context of interdisciplinary research on the mind? The strategy of using the contributions to the Open MIND collection as a foil for this more general academic variant of open mindedness was tempting. But again, we quickly realized that this approach would strike many readers (as well as, perhaps, some of our own authors) as highly idiosyncratic, arbitrary, or self-important.[1]

1 This is not, of course, to deny that we take "Open MINDedness" (as broadly practiced in the context of this collection) to be an example of "open mindedness" as a more general epistemic stance. And we are certainly proud enough of what we like to think of as our little star-collection to allow ourselves at least a few words on why we think this

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So we decided to use our editors' introduction to briefly address a difficult, somewhat deeper, and in some ways more classical problem: that of what *genuine* open mindedness really is and how it can contribute to the Mind Sciences. The material in the collection speaks for itself. Here, and in contrast to the vast collection that is Open MIND, we want to be concise. We want to point to the broader context of a particular way of thinking about the mind. And we want to propose an account of what open mindedness could mean in the context of the contemporary, interdisciplinary Mind Sciences. This variant of open mindedness is characterized by epistemic humility, intellectual honesty, and a new culture of charity. It also has a pragmatic dimension: open mindedness of this kind is research generating and fosters an environment of sincere and constructive interdisciplinary collaboration. And it is profoundly inspired by the classical ideals of philosophy as a pursuit of genuine insight and rational inquiry, the importance of a critical and in a certain sense non-judgmental attitude, and the deep relationship between wisdom and skepticism as an epistemic practice. Finally, and again very classically, open mindedness has an ethical dimension as well: it implies sensitivity to normative issues, including issues of an anthropological, sociocultural, and political kind. By bringing these different strands of ideas together and creating a bigger (and admittedly still sketchy) picture of what "open mindedness" might mean in the interdisciplinary Mind Sciences, we hope to start a conversation about how an open-minded attitude and a charitable culture of collaboration can be cultivated in the future. This is very much intended as an invitation to further think about and develop this topic. We hope our readers will join us in this endeavor.

is the case. To begin with, many of the papers published here explore new ways of thinking, in the broadest sense, about the mind and new and innovative ways of driving research forward. In addition and perhaps most importantly, our choice of the title Open MIND reflects the idea that by introducing a two-way interaction between senior target authors and junior commentators through the review process, the commentaries and replies, we wanted to give our commentators the opportunity to enter into a discussion with more senior and prominent representatives of the field. Relatedly, the availability of the online version of the Open MIND collection to students and researchers from anywhere in the world, free of charge exemplifies theoretical and practical dimensions of what we consider to be academic open mindedness. And finally, on many levels, Open MIND was an exercise in editorial open mindedness. The authors and commentators asked to contribute to this collection were explicitly encouraged to discuss any topic they themselves thought relevant. The only restriction was that the target articles fall within the scope of the Mind Sciences. We also tried to foster a particular type of intellectual atmosphere by encouraging authors, commentators, and reviewers to be consistently constructive and charitable. Our hope was that this approach would bring out the best in our contributors in the different stages of the project. In many cases, we explicitly encouraged our authors to write in a way that would be accessible to readers from different academic backgrounds and to take different disciplinary perspectives into account. Generally, the publication of academic articles always involves a process of give and take between authors, editors, and reviewers. And we strongly felt that it would be a good indicator of the success of our collection if, at the end of the day, our authors were themselves happy and proud of their contributions. This entailed carefully calibrating our own roles as editors and in many cases leaving the final decision to our authors.

2 Open mindedness as an epistemic stance

Open mindedness is not a theoretical position, but an epistemic practice. Clearly, there are many different kinds of open mindedness, and the precise way of characterizing the relevant kind will depend on the subject matter in question, or, more simply, on what it is that one is open minded about. As a first pass at a definition, we might say that open mindedness, in its most general sense, is characterized by epistemic humility and adherence to a general ideal of intellectual honesty. This is true for open mindedness in general, but also for the specific variants we are interested in here, namely open mindedness in academic research, including interdisciplinary scientific discourse on the mind.

Whatever else it may be, open mindedness is also an *attitude* that is now shared by a growing number of researchers in philosophy of mind, cognitive science, neuroscience, and artificial intelligence (AI). We are all interested in the deep structure of the human mind and of conscious experience, but we also recognize how far away we still are from a unified theoretical model that could satisfy philosophers and scientists alike, a model that is conceptually convincing, able to integrate all existing data and make use of different methods at the same time. We do not want to fool ourselves. Although great progress has been made during the last five decades, it is not at all clear which combination of methods and which type of theoretical approach will generate the final breakthrough

or even facilitate epistemic progress. We, meaning researchers of different stripes and from different disciplines comprising the Mind Sciences, including the authors contributing to this collection, are all in the same boat: we share a common epistemic goal, and we find ourselves working in a period of major historical transition. Progress in the empirical sciences of the human mind is certainly impressive and continuously gaining momentum, generating large amounts of new and sometimes surprising data. At the same time, exciting new approaches in formal modeling and philosophical meta-theory are increasingly opening up new perspectives. Yet it is not at all clear that we are already asking the right kinds of questions or exactly which combination of conceptual and empirical tools will do the trick. Seeing this fact clearly has already begun to change our attitude. Researchers from different disciplines are listening and talking to each other in new ways. Developing news forms of inter- (and intra-)disciplinary collaboration is an integral part of this process. "Having an open mind" also refers to a kind of scientific practice that involves honestly listening to representatives of exactly those approaches and academic disciplines that you may not have expected to make a contribution.

At the same time, open mindedness, understood as a fruitful and research-generating epistemic practice, should be clearly distinguished from arbitrariness, indecisiveness, lack of specificity, and, especially in the context of philosophy, lack of conceptual precision. Open mindedness is not just any kind of openness, and it is different from simply being non-committal or hedging. The challenge is to develop an understanding of open mindedness that is guided by theoretical considerations and empirical research findings alike. Ideally, this account should suggest specific strategies for cultivating forms of sincere interdisciplinary collaboration, sharpening the underlying conceptual issues, and developing precise predictions for future research. Open mindedness of this epistemically fruitful type will often be more about asking better questions than about committing to specific answers. It will involve an attitude of willingness to question or even reject one's own prior commitments. It will be inherently critical (cf. Lambie 2014). And it will, perhaps, have more to do with striving for genuine understanding than with the search for truth and knowledge (Taylor 2014). One core idea of the great philosopher of science Karl Popper, which is now reappearing in the latest mathematical theories of brain functioning, was that we are always in contact with reality at exactly the moment at which we falsify a hypothesis: the moment of failure is exactly the moment at which we touch the world.[2] Similarly, the best scientific theories will be those that most easily lend themselves to falsification. For this reason, open mindedness involves, among other things, endorsing very specific theoretical positions purely for the sake of epistemic progress, rather than for the sake of being right, advancing one's career, publishing in high-impact journals, and so on. Open mindedness is not so much about the specific content of a belief, be it personal or theoretical, but about the way in which it is held.

Searching for the right kinds of questions without considering the specific answers they are likely to generate or their immediate practical implications is a good first-order approximation to the specific type of attitude we are trying to describe. Another is to consider it as an interdisciplinary variant of the principle of charity. Our point is not just that philosophers should be empirically informed or that neuroscientists should listen carefully to constructive attempts at conceptual or methodological clarification. We need to develop a new culture of scientific investigation, and this will require new and sustainable forms of interdisciplinary collaboration. In philosophy, the "principle of charity" has long been recognized and pursued in the form of reading others' statements according to the best, strongest possible interpretation

2 Here is what he said about the fundamental principle of any ideological form of rationalism turned *weltanschauung*: "Uncritical or comprehensive rationalism can be described as the attitude of the person who says 'I am not prepared to accept anything that cannot be defended by means of argument or experience'. […] Now it is easy to see that this principle of an uncritical rationalism is inconsistent; for since it cannot, in its turn, be supported by argument or by experience, it implies that it should itself be discarded" (cited from Popper 2013, p. 435; originally in Popper & Kiesewetter 1945/2003; see Metzinger 2013c for a popular discussion).

—that is, to never attribute irrationality, falsehoods, or fallacies to another if alternative and more charitable readings exist. But we also all know how hard this can be. Still, the point is to not gratuitously maximize disagreement with the aim of showcasing the novelty or importance of one's own arguments. Agreement should be optimized and as each other's interpreters, we should always, whenever possible, prefer the most coherent reading in order to maximize the truth or rationality of what another philosopher says. We now need an interdisciplinary variant of this principle, and not only in bridging the gap between the humanities and the so-called hard sciences of the mind, but also in organizing novel and more efficient forms of cooperation. This point applies not only to the relationship between disciplines, but also to that between different generations of researchers. An optimization problem has to be solved: What is the best way of pooling intellectual resources and of efficiently structuring research? Therefore, a second step toward approximating an undogmatic attitude of open mindedness is to characterize it as an openness to the possibility that, for mind and consciousness, there may be no such thing as a single leading or dominating discipline, no *Leitwissenschaft*, as we say in German. Rather, not only does the connectivity between already-existing research programs have to be strengthened, the overall pattern of scientific practice also requires a new internal structure. What is needed is a new and as we will argue genuinely philosophical way of thinking.

A genuine receptiveness to unexpected ideas and different disciplinary perspectives also presupposes a certain set of abilities and different types of epistemic virtues. Some of these may lie in the field of what is commonly, if somewhat vaguely, called "first-person methods", for instance in the systematic cultivation of contemplative practice (i.e., the philosophically motivated development of *non-cognitive* and *non-intellectual* epistemic abilities). Another is tolerance of ambiguity: to not only tolerate transient cognitive, conceptual and theoretical inconsistencies between disciplines or generations, but to view certain kinds of ambiguity as actually desirable, as a source of progress. Again, the challenge will be to distinguish productive types of ambiguity from those that are overly cautious or vague, hampering real progress. The same is true, of course, within academic disciplines themselves. Academic disciplines are not natural kinds. Contrary to what some might think, there may be no single authoritative or right way of doing philosophy, and there may be no clean way to distinguish philosophy from the empirical sciences. Open mindedness of the constructive kind will not waste time worrying too much about disciplinary demarcation criteria or labels, but will be open to different methods and approaches both between and within individual disciplines. Put differently, it may turn out to be less important whether a given question or position is philosophical (in the sense of being of a purely conceptual nature) or empirical than whether it genuinely helps advance the overall debate. Open mindedness clearly also has an inherently pragmatic dimension. When this kind of tolerance of ambiguity, for instance towards disciplinary borders, but also towards different (and ideally complementary) research methods is paired with conceptual clarity and precision, it becomes a driving force for research. This balancing act is what academic open mindedness is all about.

3 Open mindedness and the phenomenology of (un)certainty

Having an open mind involves, among other things, a specific way of being noncommittal with respect to the truth of a theoretical claim or proposition. As pointed out earlier, this is not the same as hedging: one can investigate and even defend the truth of a proposition or the adequacy of a given theoretical-conceptual or empirical model while at the same time acknowledging that it might be false. This continued openness to the falsifiability of scientific hypotheses, often associated with attempts to bring about specific ways of establishing and testing their falsity, is commonly regarded as a marker of good scientific practice. It is also the core of intellectual honesty. As Russell tells us,

"intellectual integrity [is] the habit of deciding vexed questions in accordance with the evidence, or of leaving them undecided where the evidence is inconclusive" (2009, p. 579). The moment at which we give up this openness is the moment at which we lapse into dogmatism. The real danger, says Russell, is never the content of a doctrine, be it religious or political, but always "the way in which the doctrine is held" (Russell 2009, p. 582). Of course, this intrinsic connection between wisdom and not-knowing has long been recognized (Ryan 2014). In the *Gorgias*, Socrates explicitly claims that he is happy to be refuted if he is wrong. In fact, he claims he would rather be refuted than to refute someone else because it is better to be delivered from harm oneself than to deliver someone else from harm. And in the *Apology* (21d), after being accused of blasphemy and of corrupting the youths of Athens, Socrates famously states, before the tribunal of 501 Athenians, "I neither know nor think that I know". Both in Western and in Eastern philosophy, the acknowledgment of not-knowing has long been regarded as an antidote to epistemic harm.

This is not the place to enter into a discussion of open mindedness in the context of the philosophy of science or to trace the history of philosophical theorizing about the concept of "wisdom". We do, however, want to draw attention an important point: open mindedness as an epistemic practice involves a specific kind of mental attitude and is closely related to certain kinds of phenomenal states. Cultivating the relevant kinds of conscious states and epistemic attitudes makes a real difference, or so we suspect, by facilitating the development of a research climate that is conducive to constructive and genuinely fruitful discourse and new forms of collaboration. This is an empirical prediction, and it could turn out to be false. For now, our claim is that the kind of open mindedness we describe here is needed if we are even to begin investigating the truth of this prediction. If, at the end of the day, this strategy should fail — that is, if there turn out to be good empirical reasons for rejecting the claim that there actually are specific phenomenological profiles and mental attitudes that decisively facilitate progress in interdisciplinary research on the mind— this would be a valuable insight. But this insight about the value of open mindedness in scientific discourse itself depends on an initial willingness to cultivate exactly the kind of epistemic practice in question.

If this is right, there is another reason to be interested in open mindedness in the present context. This is that open mindedness, as an epistemic practice and mental attitude, is itself a potential target for interdisciplinary consciousness research. Philosophy of mind in particular can contribute by laying the theoretical–conceptual groundwork for the further empirical investigation of open mindedness in academic life and proposing points of contact with psychology and cognitive neuroscience. To make this inner connection more clearly visible, we will now briefly sketch the outlines of such an account.

Where might one begin investigating open mindedness as a mental state? At the outset, it stands to reason that the relevant form of open mindedness has precursors in the history of philosophy and might also be interestingly related to current debates on philosophical methodology. After all, the principles of epistemic humility, intellectual honesty, charitability, and searching for more accurate questions while cultivating a productive form of tolerance of ambiguity are deeply rooted in the history of philosophy. On a systematic and more general level, one would expect philosophy, as the discipline traditionally most concerned with the status of knowledge and truth and the practice of inquiry itself, to be able contribute to an analysis of what open mindedness really is. Based on these considerations, four questions seem particularly relevant: one, what is the relationship between open mindedness, intuitions, and philosophical methodology? Two, what is the relationship between open mindedness and the tradition of philosophical skepticism? Three, what would answers to the first two questions tell us about the relationship between open mindedness and the allegedly most pressing problem for interdisciplinary consciousness research, the subjectivity of phenomenal mental states? Might we even use the analysis of open mindedness to formu-

late principles for the investigation of phenomenal states and the status of first-person data? And four, how is open mindedness as an epistemic stance related to ethical and practical questions? For instance, how can the analysis of open mindedness contribute to normative issues related to neurotechnological interventions in the human brain? And does it lead to any specific suggestions on how to cultivate new forms of interdisciplinarity?

3.1 Intuitions and the phenomenology of certainty

The concept of intuition has a long philosophical history and is also firmly rooted in everyday language and folk psychology.[3] Intuition, in everyday language, refers to immediate and direct insight, independent of reflection, to instinctively grasping or sensing a matter of fact. In the history of philosophy, the concept of intuition often has dual epistemic and experiential readings, and this is true for the traditions of rationalism and empiricism alike. In the *Rules for the Direction of the Mind* (Rule 3), Descartes describes intuitions as an immediate, effortless, and indubitable kind of seeing with the mind, which is even more reliable than deduction. In his *Essay Concerning Human Understanding* (IV.II.I), Locke tells us that intuition involves a direct perception of ideas that is, once more, the basis of all forms of knowledge. The close relationship between intuitions and sensory perception, and especially seeing, is already evident in the Latin verb *intueri*, which means to look and observe, but also to examine or consider. The central underlying element is the immediacy and directness of perception, which is imported into the concept of intuition via an implicit analogy between the phenomenology of sensory perception and genuine insight in an epistemic sense.

The epistemic status of intuitions, as well as different ways of defining the concept of intuition, are a matter of controversy in the current debate on philosophical methodology. The debate on intuitions stands at the center of the confrontation between classical and allegedly intuition-based conceptual analysis conducted in the proverbial philosophical armchair (for critical discussion, see Cappelen 2012) and recent claims from experimental philosophy. Experimental philosophy typically involves collecting laypersons' responses to vignettes inspired by well-known philosophical thought experiments (for discussion, see Knobe & Nichols 2008; Alexander 2012; for a general introduction to intuitions in philosophy, see Pust 2014). These questionnaires are supposed to offer a new, empirically-based method for investigating intuitions and the underlying cognitive mechanisms. According to some experimental philosophers (for discussion and further references, see Alexander & Weinberg 2007), the results of these types of studies cast doubt on the reliability of intuitions as a mark of philosophical expertise. Intuitions, in this view, are simply too variable and context-dependent to count as insights in any deep, epistemologically interesting sense.

Here, we would like to propose a definition of intuitions that is compatible with the historical literature as well as being phenomenologically and empirically plausible. Departing from our brief remarks on the history of intuitions in philosophy, we suggest that intuitions are the "phenomenal signature of knowing", a seemingly direct and effortless way of perceiving or seeing with one's mind arising independently of a prior process of reflection. The analogy between intuiting and perceiving provides an entry point for a naturalized concept of intuition. But it also suggests a potentially dangerous equivocation between phenomenological and epistemological readings of the concept of intuition. If the phenomenology of intuiting is indeed similar to that of perceiving in virtue of its effortless and seemingly direct experiential quality, then this immediately poses the problem that the phenomenology of intuiting and perceiving can be deceptive: what seems, subjectively, to be a case of veridical perception can always turn out to be a hallucination or an illusion (for an introduction to the problem of perception, see Crane 2014), or a nocturnal dream (see Windt & Metzinger 2007; Metzinger 2013a; Windt 2015). Similarly, what seems to bear the

3 This section draws on arguments first presented in Metzinger & Windt (2014).

marks of genuine insight can always turn out to be an epistemic illusion.[4]

If intuitions are indeed mental states characterized by a specific phenomenology, this suggests that the attempt to simultaneously characterize them both as involving genuine insight and as the basis of knowledge rests on what elsewhere we call the *"E-error"*: a category mistake in which epistemic properties are ascribed to something that does not intrinsically possess them (Metzinger & Windt 2014, p. 287). If our account of intuitions is on the right track, then intuitions are potentially dangerous, because in virtue of their phenomenology and their possessing an occurrent conscious character of "insight", they predispose us to believe certain propositions merely on the basis of seemingly "understanding" them. The phenomenology of intuitions is such that it immediately and effortlessly creates a bias towards accepting the truth of propositions that, subjectively, we simply *know* or feel to be true, while simultaneously preventing us from seeking further justification, because these truths also seem unconstructed, indubitable, and self-evident. In this view, one of the factors underlying intuitions and intuitive plausibility is that, because of their phenomenal character, they prevent open-minded inquiry. Intuitions turn us into inner dogmatists. And this is true not only for individual propositions held to be intuitively true, but also for continued adherence to theoretical claims about the status of intuitions as a guide to or even as the basis of knowledge and genuine insight. The phenomenal character of intuitions even predisposes us towards certain meta-theoretical intuitions about the general epistemic status of intuitions, and we can see the marks of this throughout the history of philosophy as well as in contemporary debate (e.g., Bealer 1998; Chudnoff 2013). The analysis of intuition clearly should not itself be driven by intuitions. Instead, this is a prime example of where an open mind is needed.

Our own account starts out from the assumption that intuitions are a specific class of phenomenal states. Human beings can direct their introspective attention toward the content of the relevant states and, at least partly and under certain conditions, report on it. Many higher animals very likely also possess intuitions even if they are not able to directly attend to or verbally report on their intentional contents. Before the evolution of biological nervous systems and before the emergence of phenomenal consciousness, no intuitions existed on our planet. Patients in coma or human beings in unconscious, dreamless sleep have no intuitions in the sense intended here. At the same time, intuitions probably have a long evolutionary history: there must have been a point in time at which the first intuition appeared in the mind of some conscious organism and this specific type of inner state then propagated itself across thousands of generations while its functional profile became ever more differentiated. Plausibly, one could describe the having of intuitions as an *ability*—a mental ability that was adaptive and that was acquired gradually.

If one takes the phenomenal character of intuitions seriously, this ability clearly seems to be an epistemic ability: *prima facie,* to have an intuition means to have the subjective experience of knowing something, directly and immediately, without necessarily being able to ex-

4 For a striking case study of two patients who experienced strong feelings of subjective certainty, including religious beliefs, during epileptic seizures, see Picard (2013). These cases are particularly interesting as these beliefs seemed entirely convincing during the seizures, even though they contradicted the patients' longstanding convictions. It is interesting to see the connection to what earlier, we called the "ability to tolerate ambiguity": While conceptually, "certainty" involves "knowing that one knows" (or *maximal epistemic precision*), on a purely formal level describing the underlying brain dynamics, epistemic precision is the inverse of variability, or the "confidence" the system places in a source of sensory information about the external world (Picard & Friston 2014). Empirical research suggests that it is the functional role of the anterior insula to signal uncertainty, the fact "that there is something we do not understand" (Picard 2013, p. 2497). The representation of uncertainty and ambiguity, in turn, causes an aversive affective state, often involving feelings of discomfort and anxiety of the type we continuously try to minimize. By contrast, direct electrical stimulation of a small area in the anterior-dorsal insula causes intense feelings of bliss (Picard et al. 2013), and it has been suggested that such blissful states, if occurring in the context of epileptic seizures, are associated with maximized coherence of the phenomenal self-model (PSM; Metzinger 2003). Subjectively, this coherence is expressed by a dramatically heightened sense of self, by an intense phenomenal experience of presence, integratedness, harmony with the world, plus intense positive affect (for five case reports, see Picard & Craig 2009). For human beings, ambiguity is not easy to tolerate, because it presents a constant threat to the coherence of our PSM, and cultivating such tolerance requires developing the functional ability to de-identify from the aversive affective states and the "epistemic anxiety" that automatically accompanies them. Tolerance of ambiguity, it seems, demands courage and a specific form of choiceless awareness.

press this knowledge linguistically or to provide an epistemic justification. Typically, inner experience seems to present knowledge to the subject of experience, even if one does not know *how* and *why* one possesses this knowledge. Intuitions are the phenomenal signature of knowing, a seemingly direct form of "seeing" the truth. As soon as we ascribe epistemic status to intuitions on the basis of their phenomenology alone, however, we commit the E-error. "Epistemicity", the phenomenal quality of "insight" and "comprehension", or the feeling of being a knowing self, as such is only a phenomenal quality, just as redness, greenness, and sweetness are. One well-known philosophical problem is that the phenomenological and epistemological readings can always come apart, because what phenomenologically appears as a kind of perception could really be a hallucination or an illusion. Subjectively indistinguishable mental states do not necessarily have the same epistemic status. Trivially, the difference between veridical perception and hallucination (in the philosophical sense; see Macpherson 2013; Crane 2014) is not available on the level of subjective experience itself, and therefore the confusion between phenomenal character and epistemic content is naturally grounded in the transparent phenomenology, the seeming directness and immediacy of the relevant kinds of phenomenal states. The same is true for the phenomenology of intuition. Conflating epistemic status and phenomenal character becomes particularly dangerous if it is imported into theoretical debates, and if the phenomenal quality in question is that of "epistemicity", of direct and non-inferential knowing itself. The important lesson is that *as* phenomenal states, such states are neither necessarily veridical nor necessarily non-veridical. Experience as such is not knowledge. *As* subjective experiences, these states possess no intentional properties and cannot be semantically evaluated by concepts like "truth" or "reference". Phenomenal transparency is not epistemic transparency.

Many, but not all, of our philosophically relevant intuitions are characterized by an additional element of *certainty*, of *just knowing* that one knows. Here, the phenomenal signature of knowing does not only refer to the content of what is seemingly known in a direct, and non-inferential manner, but to our higher-order, subjectively-experienced knowledge itself. This means that the phenomenal character of "epistemicity" that accompanies and tags the respective mental content as an instance of knowing has itself become transparent. Its representational character is not introspectively available anymore: the fact that epistemicity is itself the content of a non-conceptual mental representation, that it is internally constructed and always contains the possibility of misrepresentation, is veiled by an experience of immediacy. Transparency is a special form of darkness. Something constructed is experienced as a *datum*, as something given. Therefore, in stable intuition states we not only experience the first-order content as directly given, but the epistemicity of the state itself. Let us call such states *intuitions of certainty*. Referring to G. E. Moore[5] one might say that the phenomenal signature of knowing has itself become diaphanous or transparent: according to my own subjective experience, I simply *know* that I know, and the possibility of error and falsehood is not given on the level of conscious experience itself. From the fact that a conscious perception instantiates the phenomenal quality of "greenness" it does not follow that the underlying process or even the perceptual object are green. The same is true for the "phenomenal signature of knowing" that characterizes intuitions.

Intuitiveness is a property of theoretical claims or arguments, relative to a class of representational systems exhibiting a specific functional architecture. Conscious human beings are one example of such a class. The brains of human beings are naturally evolved information-processing systems, and when engaging in explicit, high-level cognition they use specific representational formats and employ characteristic

5 In *The Refutation of Idealism*, G. E. Moore wrote: "The term 'blue' is easy enough to distinguish, but the other element which I have called 'consciousness'—that which a sensation of blue has in common with a sensation of green—is extremely difficult to fix. […] And in general, that which makes the sensation of blue a mental fact seems to escape us; it seems, if I may use a metaphor, to be transparent—we look through it and see nothing but the blue; we may be convinced that there is something, but what it is no philosopher, I think, has yet clearly recognized" (1903, p. 446).

styles of processing. Whenever we try to comprehend a certain theory, an argument or a specific philosophical claim, our brains construct an internal model of this theory, argument, or claim (Johnson-Laird 1983, 2008; Knauff 2009). This mostly automatic process of constructing mental models of theories possesses a phenomenology of its own: some theories just "feel right" because they elicit subtle visceral and emotional responses, some claims "come easily", they are experienced as sound and healthy, and some arguments (including the implicit assumptions upon which they rely) seem "just plain natural". Some forms of skepticism appear "healthy" to us, while others do not—there seems to be a deep connection between sanity and reason.

There may be two overarching reasons for this well-known fact. First, theories that are intuitively plausible exhibit a high degree of "goodness of fit" in regard to our network of explicit prior convictions. More generally, they optimally satisfy the constraints provided by our conscious and unconscious models of reality as a whole. These microfunctional constraints implicitly represent both the totality of the knowledge we have acquired during our lifetime and certain assumptions about the deep causal structure of the world that proved functionally adequate for our biological ancestors. Theories that immediately feel good because they are characterized by a high degree of intuitiveness maximize a specific kind of internal harmony. What we introspectively detect is a high degree of consistency, but in a non-linguistic, subsymbolic medium. Therefore we could also replace the term "intuitiveness" with a notion like "intuitive soundness" or "introspectively detected consistency or goodness of fit" (relative to a preexisting model of reality). In principle it should be possible to spell out this point on a mathematical level, by describing the underlying neural computations and their properties in a connectionist framework, or by utilizing the conceptual tools provided by dynamical systems theory or predictive coding.

A second perspective might be to look at intuitions not from a representationalist, but from biophysical perspective. We are embodied beings, and there are different levels of embodiment (Metzinger 2014). Computational, but also thermodynamical imperatives guide the self-organization of representational states in our brains. One major causal factor underlying the conscious experience of "intuitive soundness" might simply be the amount of energy it takes to activate and sustain a mental model of a given theory, plus the amount of energy it would take to permanently *integrate* this theory into our pre-existing model of reality. Our mental space of intuitive plausibility can in principle be described as an energy landscape: claims that "come easily" do so because they allow us to reach a stable state quickly and easily, theories that "feel good" are theories that can be appropriated without a high demand of energy. Theories that *don't* feel good have the opposite characteristics: they "don't add up", they "just don't compute", because they endanger our internal harmony and functional coherence, and it would take a lot of energy to permanently integrate them into our overall mental model of reality. They are costly. In a biophysical system like the human brain there may well be a direct connection between thermodynamic efficiency and reduction of complexity on the level of information processing. If biological self-organization involves continuously minimizing the prediction errors generated by the flow of "hypotheses" originating in the brain's current model of reality, then the process that creates what today we call our deepest "theoretical intuitions" may also be described as such an attempt to reduce variational free energy. While on a more abstract level this process can be said to minimize representational complexity while simultaneously maximizing the evidence for the overall model, it is also a physical process that is not guided by abstract rationality constraints, but simply one that optimizes metabolic and statistical efficiency at the same time (Sengupta et al. 2013; Friston 2010; Hohwy 2013).

We need an open mind, because many of the best future theories about the human mind and conscious experience may just "not compute" for beings like us. However, what does or does not compute is, in part, a contingent fact determined by the functional architecture of our

brain, shaped by millions of years of biological evolution on this planet, as well as—to a much lesser degree—by our individual cognitive history and a given cultural/linguistic context. The phenomenology of intuitive soundness—the fact that some arguments seem "just natural"—is a biological phenomenon that is additionally supported by a short cultural history of cognitive niche construction. In this framework, the space of intuitive plausibility reflects exactly those aspects of our evolutionary history and of our more recent cognitive niche that have become transparent—that we have long ceased to experience as evolved and culturally driven, but regard as unconstructed, immediate, and even indubitable. Importantly, the inner landscape of our space of intuitive plausibility is not simply contingent on our evolutionary history and on certain physical and functional properties of our brains—it was optimized for *functional adequacy* only. This process of optimization serves to maximize reproductive success and to sustain an organism's coherence and physical existence, but this does not mean that the *content* of intuitions is epistemically justified in any way. This is especially true because the evolved functional adequacy of intuitions applies to everyday action in practical contexts and ancestral environments—not to abstract reflection in theoretical contexts or cognitive environments. This is why searching for a comprehensive theory of the conscious mind presents such a major challenge to our intellectual honesty: it demands that we investigate a claim even if it contradicts our deepest intuitions, even if it cries out for a more moderate, weaker version because it just "doesn't compute" and somehow seems "just too radical", costly, painful or even self-damaging. In this view, any philosophical methodology that just tries to make our "deepest intuitions" explicit in a conceptually coherent manner appears to be a rather trivial enterprise. If our claims here are correct, then intuition-mongering may even border on intellectual dishonesty. At best, it just charts our intuition space; at worst, it confuses failures of imagination with insights into conceptual necessity ("philosopher's syndrome", according to Dennett 1991, p. 401).

3.2 Suspending judgment, inner quietude, and the phenomenology of uncertainty

If intuitions can be described as creating a transparent inner bias and perhaps even as involving an inner form of dogmatism, then we might, it would seem, make progress in understanding open mindedness as a mental state by looking to cases characterized by the phenomenal signature of *not* knowing and of uncertainty. The philosophical tradition of skepticism seems to be a promising place to look. Skepticism comes in many different strengths and flavors (see Landesman 2002 for a comprehensive introduction), but what is distinctive about philosophical skepticism is perhaps best captured by the meaning of the original Greek term, where skeptic (related to the Greek verb *sképtomai*) refers, quite simply, "to one who inquires into the truth of things or wishes to gain knowledge about some subject matter" (Landesman & Meeks 2003, p. 1). Skeptical inquiry, in the philosophical sense, is not so much concerned with the truth of particular beliefs or theoretical claims as with the possibility of knowledge and certainty in a more fundamental sense. It also does not always aim at denying the truth of our most basic beliefs by construing outlandish skeptical hypotheses such as the Cartesian evil genius. Generally, skeptical arguments cast doubt on commonly (and often implicitly and unreflectively) accepted means for attaining knowledge—and in so doing frequently give rise to new and fruitful discussions on how our epistemic practices might be improved. Throughout the history of philosophy, skepticism, at its best, has often been deeply constructive and has enabled genuine progress.

The philosophical tradition that has perhaps been most concerned with cultivating a skeptical attitude and with uncertainty and not-knowing as a mental state, at least in Western philosophy, is Pyrrhonian skepticism, which was one of the two major schools of skepticism in antiquity. Here, we want to tentatively suggest that it could be instructive to trace many of the aspects that we claim characterize open mindedness all the way back to the Pyrrhonian skeptics. This claim might strike some as sur-

prising, because Pyrrhonian skepticism is often seen as a particularly radical and excessive kind of skepticism (Hume's *Enquiry Concerning Human Understanding* is a classical example of this). It is fair to say that in contemporary philosophy, Pyrrhonian skeptics are an endangered species (for an introduction, see Fogelin 1994; Sinnott-Armstrong 2004; especially Stroud 2004; Fogelin 2004), with the tradition often being regarded as a bit of a historical oddity. This is fueled by what little is known of its founding father, Pyrrho of Elis (c. 360 to c. 270 BCE). Most of this is anecdotal, as Pyrrho wrote nothing himself (Bett 2014). Diogenes, for instance, tells us that Pyrrho**:**

> led a life consistent with this doctrine, going out of his way for nothing, taking no precaution, but facing all risks as they came, whether carts, precipices, dogs, or what not, and, generally, leaving nothing to the arbitrage of his sense; but he was kept out of harm's way by his friends, who [...] used to follow close after him. (1943, 9.62)

Pyrrho did not return the favor, reportedly passing by an acquaintance who had fallen into a slough without offering him any help (ibid., 9.63). Clearly, this is a far cry from the constructive and research-generating type of open mindedness we hope to promote here.

A more thoughtful and differentiated account can be found in Sextus Empiricus's (1987) treatment of skepticism, where he refers solely to Pyrrhonian skepticism.[6] According to Sextus:

> Skepticism is an ability, or mental attitude, which opposes appearances to judgments in any way whatsoever, with the result that, owing to the equipollence of the objects and reasons thus opposed, we are brought firstly to a state of mental suspense and next to a state of 'unperturbedness' or quietude. (1987, Chapter 4)

6 Sextus distinguishes three types of philosophers by their adherence to different types of systems: dogmatists, or those who claim to have discovered the truth; academics, who deny that the truth can be apprehended; and skeptics, who continue to inquire.

Clearly, there is at least a superficial similarity between Sextus's claim that skepticism is an ability and our description of open mindedness as an epistemic practice. Here, we briefly review the most important characteristics of Pyrrhonian skepticism and argue that there indeed exist a number of insightful parallels to open mindedness as an epistemic practice.

A first point is that from the perspective of Pyrrhonian skepticism, dogmatism is the end of reasoning and the opposite of philosophical reflection. At the same time, the anti-dogmatism of the Pyrrhonian skeptics did not prevent them from giving "assent to the feelings which are the necessary results of sense-impressions" (1987, 7.13). The Pyrrhonian skeptics merely withheld assent to "the non-evident objects of scientific inquiry" (ibid.**,** 7.13). As an early form of what we call academic open mindedness, Pyrrhonian skepticism was directed, first and foremost, "against the dogmas of 'Professors'—not the beliefs of common people pursuing the honest (or, for that matter, not so honest) business of daily life. The Pyrrhonian skeptic leaves common beliefs, unpretentiously held, alone." (Fogelin 2004, p. 163)

This suggests that if we want to contrast the cultivation of an anti-dogmatic mindset with intuitions, this point should be applied not to intuitions and feelings of certainty in general, but to philosophical intuitions in particular. Philosophical intuitions, in virtue of their distinctive phenomenal character, involve a specific and often highly-specialized form of inner dogmatism: they quickly and effortlessly create an inner bias towards a given theoretical position, while at the same time making it seem so indubitable and certain as to prevent further critical inquiry. Even though the terminology is, of course, different, the Pyrrhonian attitude of anti-dogmatism presents itself as an antidote to exactly the type of uncritical, judgmental attitude that is the hallmark of intuitions.

Second, the Pyrrhonian skeptic, in his quest for "quietude in respect of matters of opinion and moderate feeling in respect of things unavoidable" (Sextus 1987, 12.25), makes use of stereotyped tropes or modes of argument. The tropes are all very similar in structure, in-

volving a series of contrasts between opposing statements, with the aim of leading to irresolvable disagreement and inducing a suspension of judgment. True to the characterization of the Pyrrhonian skeptic as one who inquires, "the modes [...] were not designed to inhibit reasoning. Rather, they were designed to assist the Pyrrhonian in continuing to inquire by shielding her from the disquieting state of dogmatism" (Klein 2014). As Sextus (1987, 7.13) tells us, the Pyrrhonian, when entering into a debate with the dogmatist, does not assert his arguments in the manner of claiming their truth; instead, he asserts them only provisionally and purely for the sake of argument, enabling him to practice epoché, or to bracket his assumptions about the truth of the relevant propositions. The tropes, then, are not just a strategy for convincing one's opponent, but a specific way of cultivating this more general kind of epistemic attitude:

> Like piano exercises for the fingers that would result in semi-automatic responses to the printed notes on a sheet of music, the modes were mental exercises that would result in semi-automatic responses to claims being made by the dogmatists—those who assented to the non-evident. (Klein 2014)

We certainly do not mean to suggest that we should all become Pyrrhonian skeptics by formulating modernized versions of the tropes. We only want to point out that the naturalistic strategy of preparing and then handing over questions to scientific research can be viewed as fulfilling a similar function, namely as cultivating the epistemic virtues and abilities associated with open mindedness. This in itself, of course, is nothing new. A similar idea can be found, for example, in Russell's claim that,

> as soon as definite knowledge concerning any subject becomes possible, this subject ceases to be called philosophy, and becomes a separate science. [...] those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy. (Russell 1912/1999, p. 112)

Following Russell, philosophy itself is a specific variant of cultivating what, earlier, we called a tolerance of ambiguity, and its value is "to be sought largely in its very uncertainty" (1912, 113). The Pyrrhonian tropes are just one example from the history of philosophy of how a particular style of argumentation can be used not just to generate particular insights but also to promote a particular style of thinking. Analogously, one of the reasons why interdisciplinary collaboration and data-driven arguments in philosophy are valuable may be that they are a way of practicing and cultivating open mindedness. Interdisciplinary research projects don't just produce new data, but leave their marks on the minds of the researchers involved as well.

Third, the suspension of judgment, which is the outcome and in some sense the aim of the modes, is described by Sextus as a state of mental rest and as an "untroubled and tranquil condition of the soul" (1987, 4. 10). It also, however, has a normative dimension, involving the claim that if there is irresolvable disagreement between two opposing positions, one should refrain from adopting either of them.

In the ambiguity between these two readings, there is a nice point of contact between open mindedness as a mental state and something that today one might call the ethics of belief (Clifford 1877/1999; Chignell 2010) and of belief formation. There is clearly a social (Goldman 2010) and perhaps even an interdisciplinary dimension of epistemology, both in a theoretical and in practical sense. As is the case for the dialectical confrontation between the Pyrrhonian and the dogmatist, progress (in the sense of suspension of judgment) will often result from confronting one's own convictions with those held by others, as well as from confronting them with real-world counterexamples.[7] By contrast, accumulating evidence suggests that

7 This reliance on actual cases of disagreement, rather than on hypothetical scenarios and thought experiments, is also one of the differences between Pyrrhonian and Cartesian skepticism.

merely simulating this process by charting one's own intuitive responses to carefully calibrated thought experiments is not nearly as effective, and is actually often quite misleading (Gendler & Hawthorne 2010; Alexander 2012; Dennett 2013). Doing, as the Pyrrhonian skeptics realized, is better than merely imagining.

Indeed, empirical evidence suggests that our natural confidence in naïve realism is so strong that it remains largely unscathed by theoretical evidence to the contrary. In one study, when participants read a text about cognitive limitations and biases, this did not affect their confidence in their own social judgments. Confidence levels were only significantly reduced when theoretical challenges to naïve realism were presented alongside specific examples, such as visual illusions. As the authors put it, "acknowledging susceptibility to bias [...] may not always translate to actually tempering one's confidence or expressing an openness to change. Instead, experiencing unconscious cognition and bias was required to reduce confidence and closed-mindedness" (Hart et al. 2015, 6). This acknowledgment of the value of the practical and experiential dimensions of suspending judgment is implicit in the Pyrrhonian tropes.

Fourth, ataraxia, or quietude, according to Sextus, automatically and effortlessly follows on the heels of the suspense of judgment. This unintentional character of quietude is important, because it means not only that quietude cannot be actively brought about, but also that it is found in a place quite different from that in which one was looking:

> the Skeptics were in hopes of gaining quietude by means of a decision regarding the disparity of the objects of sense and of thought, and being unable to effect this they suspended judgment; and they found that quietude, as if by chance, followed upon their suspense, even as a shadow follows its substance. (Sextus Empiricus 1987, 12.29)

This mental quietude may well be the phenomenal signature of not-knowing and of uncertainty, coupled with a highly developed tolerance of ambiguity; and it may be intimately related to the ability to formulate a question or identify a problem while refraining from giving a solution.

What we can see now, especially by contrasting this point with what we said about intuitions earlier, is how mental quietude might be turned into a target for consciousness research in its own right, perhaps even forming a new branch of the psychology or cognitive neuroscience of interdisciplinarity. In particular, the mental state cultivated by the Pyrrhonian skeptics is diametrically opposed to that involved in intuitions. Both are phenomenal states only, and as such have no intrinsic epistemic warrant. However, where intuitions block further inquiry, mental quietude and the phenomenology of uncertainty promote it. The skeptic aims, in a sense, at a state in which inquiry has become permanent.

But there is also an important difference. Whereas intuitions and intuitive plausibility come to us naturally and effortlessly, open mindedness, the suspension of judgment and the tolerance of ambiguity are the result of careful cultivation, long-term practice, and sustained effort. From a purely evolutionary perspective, uncertainty and a non-judgmental attitude are costly and perhaps even dangerous, because they do not motivate action in the same immediate, quick, and unreflected way as intuitions.[8]

8 In fact, if doubt has an evolutionary function, it might be to prohibit activity and induce rest in situations in which the benefits of physical activity are outweighed by its risks, for instance in illness. Doubt and certainty of the theoretical sort may have more distinctly bodily precursors; they may be different ways of regulating how we relate to our own bodies and gauge our own level of physical ability. Carel (2013) describes bodily certainty as involving a tacit confidence "that our bodies will continue to function in a similar fashion to the way they have functioned in the past: we expect our stomachs to digest the lunch we have just eaten, our brains to continue to process information, our eyes to continue to see, and so on" (ibid. p. 4). By contrast, bodily doubt involves a breakdown of our beliefs about our own bodily capacities, but also a disruption on the level of subjective experience. "Bodily doubt is a physical sensation of doubt and hesitation arising in one's body. It is not solely cognitive, although it can be expressed in propositions. [...] Bodily doubt not only changes the content of experience, it also pierces the normal sense of bodily control, continuity, and transparency in a way that reveals their contingency. It shows our tacit faith in our own bodies to be a complex structure that becomes visible when it is disturbed. It changes the normal experience of continuity, transparency, and trust that characterize this structure" (ibid. p. 11). Bodily doubt is often associated with physical illness and depression, and in some cases, it seems this form of experiencing our own physical vulnerability may have a protective function. But according to Carel, the analysis of bodily doubt

If on encountering a bear in the wilderness you take too much time to contemplate the nature of the threat (or to question your intuitive assessment that the bear is indeed a threat), you might be eaten before you come to a conclusion. Cleary, introducing the Pyrrhonian spirit to such practical, everyday situations is absurd and perhaps even unhealthy. However, in the context of philosophical and scientific inquiry, cultivating vulnerability of the epistemic type (cf. Chinnery 2014) might be a strength and might help prepare the ground for genuine collaboration and fruitful discourse. But we can now also understand why, even in science, open mindedness is so frustratingly difficult to sustain: mental quietude is not a state of passivity or mental inertia. It is a mental ability that requires constant alertness and a lifetime of practice.

3.3 Acknowledging the problem of subjectivity

If open mindedness indeed draws from the same ideals as are rooted in Pyrrhonian skepticism, how can we put these insights to work in investigating phenomenal states and tackling the problem of subjectivity? In contemporary philosophy of mind, the problem of subjectivity is often taken to be the main conceptual and methodological obstacle for a true science of the mind. Can the first-person perspective be naturalized? What, exactly, is the place of subjectivity in the scientific world-view? And is there really something like "first-person data" that can—and perhaps must—enter the process of constructing a truly comprehensive theory of the conscious mind? Questions of this kind are good examples of high-level theoretical issues that require the epistemic virtues associated with an open mind. Even the editors of this collection have a tendency to disagree on this question—and we hope that this disagreement is of a constructive sort.

One of us (TM) thinks that a greater practical openness to so-called "first-person methods" on the part of researchers in philosophy and cognitive science alike might lead to great heuristic fecundity and would, perhaps dramatically, improve the quality and efficiency of research. Many such methods can be seen as the cultivation of a set of abilities that increase mental autonomy (M-autonomy; Metzinger 2013b, 2013d) and establish the inner preconditions for critical, rational thought: by stabilizing the first-person perspective, they create a more robust "epistemic agent model" (EAM; Metzinger 2013a, Box 1; Metzinger 2013d), or the experience of being a knowing self. At the same time he holds that there simply are no "first-person data" in any strict or conceptually more rigorous sense. Seriously assuming the existence of such data rests on an extended usage of a concept that is only well-defined in another (namely, scientific) context. First, the whole concept of a "first-person perspective" is just a visuo-grammatical metaphor, without a theory to back it up—and currently we simply don't know what that could be, namely what "a" first-person perspective would look like (for a first conceptual differentiation, see Metzinger 2003, 2004; Blanke & Metzinger 2009). Second, "data" are extracted from the physical world by *technical* measuring devices, in a *public procedure* that is well-defined and well-understood, replicable, and improvable; and which is necessarily *intersubjective*. But in introspecting our own minds we never have any truly direct or immediate access to a mysterious class of "subjective facts"—all we have are neural correlates and publicly observable reports (which need not be verbal). Speaking of "first-person data" rests on an extended usage of a concept that is only well-defined in another context of application, rhetorically exploiting a fallacy of equivocation. "Data" are typically (though not always) gathered with the help of technical measuring

also illuminates the extent to which we are normally guided by a tacit and unshakeable kind of bodily certainty that typically cannot be rejected or rationally justified and that forms part of our brute animal nature. If this is right, then it might also explain why even the more abstract and theoretical variants of certainty continue to be associated with health and strength on the level of subjective experience—even though this confidence can be epistemically misleading. This also fits in nicely with the claim, elaborated in footnote 4, that ambiguity threatens the perceived coherence of the phenomenal self-model, whereas certainty, on the level of subjective experience, appears to be associated with heightened self-awareness. We might now say that doubt and the tolerance of ambiguity are an acquired taste: while in their early stages, they are often associated with discomfort or even anxiety, their cultivation may also be the key to genuine peace of mind.

devices (and not individual brains) and by groups of people who mutually control and criticize each other's methods of data-gathering (namely, by large scientific communities). In particular, data are gathered in the context of rational theories aiming at ever better predictions, theories that—as opposed to phenomenological reports—are open to falsification.

To be sure, autophenomenological *reports*, theory-contaminated as they may be, are themselves highly valuable and can certainly be treated as data. But the experience "itself" cannot. However, even if one presupposes this rather straightforward view, having an open mind certainly also means acknowledging the additional fact that, for various reasons, this cannot be the *whole* story. It would be intellectually dishonest to deny without argument that what is sometimes called "first-person methods" could have enormous potential in our quest for a rigorous, empirically based theory of the human mind. The question rather is: What *exactly* is it about these methods that generates the extra epistemic value, if there really is one? It seems clear that not all epistemic virtues are *intellectual* virtues, and it is striking to note how such methods have played a central role in all cultures and in almost all ancient philosophical traditions of humankind. This is not only true for Asian systems of philosophy. At the very beginning of Western philosophy, Cicero (1971), in the *Tusculanae disputationes* (II 5), defined philosophy itself as *cultura animi*, as a way of caring for and cultivating the soul.

The other (JW) thinks that first-person data exist, and that for a true science of the mind, of consciousness and of subjectivity, it is important to acknowledge their existence. First-person data are not, however, to be found in the direct observation of conscious experience—thus far JW and TM are in perfect agreement—but in describing and more properly in reporting it. A first step towards seeing why this is the case is to clearly distinguish first-person reports from general opinions, convictions, or even intuitions about experience. First-person reports, in this view, are the product of (verbal or non-verbal) behaviors conducted with the sincere intent of conveying or recording certain relevant information about a specific experience. They are not mere opinions about what it is typically like for oneself to have a certain kind of experience. They also should not be confused with attempts to generalize from one's own case to what it is typically like for other people to undergo a given type of experience, or with the practice, occasionally found in academic philosophy of mind, of relying on intuitive judgments or thought experiments to reach general conclusions about the necessary or even typical characteristics of given types of experience.

First-person reports, construed as sincere descriptions of specific and individual experiences, form the data-base of scientific consciousness research. They can be gathered with the help of public methods such as standardized interview techniques or questionnaires, and the data obtained from these reports are open to intersubjective validation (e.g., by using independent raters, different methods of statistical analysis and of scoring the content of reports, and so on). At the same time, this strategy works only against a background of trust that first-person reports can, when gathered under sufficiently ideal reporting conditions, be regarded as trustworthy with respect to the specific experiences they purport to describe. Indeed, assuming at least a subgroup of first-person reports to be trustworthy is a necessary condition of possibility for scientific consciousness research, for methodological reasons (see Windt 2013, 2015).[9]

Much of the serious work, in this view, will consist in identifying and improving the appropriate conditions under which maximally accurate experience reports can be obtained. Seen in this manner, the trustworthiness of first-per-

9 Clearly, this is not to say that such reports, or the data obtained from their analysis, are trustworthy with respect, for instance, to the neural underpinnings of the respective experiences, and we should not expect them to be. First-person reports, when gathered under ideal reporting conditions, are trustworthy with respect to the phenomenal character of experience only. Moreover, because this type of phenomenological information cannot be gleaned, for instance, from neuroimaging data, first-person data obtained from the analysis of experience reports necessarily complement third-person data. As dream researchers Tore Nielsen & Philippe Stenstrom (2005, p. 1289) put it, "[i]n an era of high-resolution brain imaging, similarly high-resolution reports of dream imagery may be needed". A true science of consciousness will draw from different methodologies and different ways of measuring experience, and it will strive to integrate different types of data and different levels of description.

son reports becomes, to a considerable degree, a methodological problem for empirical research, not a principled philosophical or conceptual one, and the contribution of philosophy consists, at best, in showing why this is the case (again, see Windt 2013; for critical discussion, see Solomonova et al. 2014). By contrast, principled distrust in first-person reports, or even the attempt to investigate the phenomenology of experience independently of first-person reports, is an obstacle to a true science of consciousness.

While we, the editors, may disagree on the trustworthiness and epistemic status of first-person reports or even on the existence of first-person data in a strict sense, we certainly agree about the need to take our own subjective experience seriously, and we also agree that the epistemic stance we call "open mindedness" may well include a need to cultivate familiarity with our own subjective experience. In this respect, our accounts may well be complementary. Readers familiar with contemplative traditions may also have noted that there is a surprisingly direct and often quite literal correspondence between many classical notions such as "withholding judgment", "mental quietude", or "ataraxia", and the practical instructions given by meditation teachers around the world, from different periods and different non-Western systems of philosophy. These notions are not only theoretical concepts—they draw our attention to the fact that there is more than one type of epistemic practice, and that open mindedness may in part be constituted by the set of abilities that connects them (Metzinger 2013c). On a more theoretical level, to have an open mind again means to acknowledge (and not repress) the fact that there may actually be a deep, unresolved ambiguity here, between the need to take subjective experience seriously and the suspension of judgment. In fact, bracketing one's own folk-psychological or intuitive judgments about experience is part of what it takes to move towards a truly scientific approach to subjective experience. For this reason, open mindedness involves cultivating not only a particular attitude towards one's beliefs, but also towards oneself as a believer.

A similar tolerance of ambiguity is at play in the attitude of lending equal credence to reports from different subjects, acknowledging inter- and intrasubjective variation in experience, and, ultimately, trying to integrate these reports into a maximally large data-base, while resisting the pull of generalizing from one's own case or engaging in armchair phenomenology (where this involves pumping intuitions about experience rather than carefully observing and describing what it is like to have particular experiences). We might even say that this strategy of stepping back from one's own convictions about experience and formulating questions about the phenomenal character or the subjectivity of experience is in keeping with the Pyrrhonian spirit: both are directed at academic disputes and assume commonplace experience or individual experience reports to be trustworthy, and both strive towards a confrontation of theoretical statements with real-world counterexamples, with the aim of ultimately giving rise to more sophisticated theories.

The issue of subjectivity is an excellent example of a persevering problem that comes in many different guises and reappears on many different levels. Perhaps there really *is* something about the conscious mind that cannot be explained reductively, even in principle. But searching for a maximally parsimonious scientific explanation is a rational research heuristic, not an ideology. It should never be a substitute for religion, and as such it carries it with it no immediate metaphysical commitments. To have an open mind is an *epistemic* stance, which means that epistemic progress is what counts in the end. Many of the authors in this collection, including the editors, are staunch methodological naturalists, because they view philosophy and science as engaged in essentially the same enterprise, pursuing similar ends and using similar methods. If it could be shown, however, more precisely than ever before in the history of philosophy and science, that there are strictly irreducible aspects of the human mind, then most of the authors in this collection, and indeed most researchers in this field, would be satisfied with this result. They would have what they wanted all along: epistemic progress.

4 The wider context

Having an open mind means never losing sight of the bigger picture and being continuously aware that scientific research, including research on the mind, is embedded in a wider context. In what follows, we will very briefly draw attention to three examples of what we mean by the "bigger picture" and the "wider context": ethical, anthropological, and sociocultural issues; globalization and transcultural philosophy; and what we provisionally call "the sapiential dimension"—getting *philosophy* back into philosophy.[10] Let us begin with the ethical ramifications of the type of work presented in this collection.

New theories lead to new technologies and new potentials for action. Gradually, they also change the image of humankind, a fact that may in turn have major social and cultural consequences. Having an open mind means being sensitive to normative issues and ethical aspects of research in philosophy of mind and cognitive science. It also means acknowledging the fact that the human mind is a culturally embedded phenomenon and that what we come to believe about it will eventually change not only sociocultural practice, but our own minds as well. Such "soft issues" are not empirically tractable, at least not in any direct manner (Metzinger 2000, pp. 6–10; Metzinger 2009). Here, perhaps even more so than elsewhere, the challenge is to formulate the right kinds of questions in a rigorous, precise, and fully intelligible manner. These questions are certainly difficult, but they are also clearly *relevant*.

4.1 Sensitivity to ethical issues

Theoretical innovation leads to technological innovation, necessitating careful and reflected risk assessment. For example, modern virtual reality technology not only enables the concrete realization of a large number of new experimental paradigms, but has also provided us with many novel and philosophically relevant insights into the multimodal bodily foundations of selfhood and subjectivity (Blanke 2012; Blanke & Metzinger 2009; Metzinger 2014). In combination with constantly improving brain-computer interfaces, virtual reality technology also possesses the potential for military applications, for example via virtual or robotic re-embodiment. New ways of causally coupling the human-self-model with avatars and surrogate bodies in virtual reality will have clinical benefits in the medical treatment of patients and, perhaps, in rehabilitation programs for prisoners. But it also opens the door to new forms of consumer manipulation and potentially unexpected psychological side-effects (e.g., Blascovich & Bailenson 2011).

A second example of the social and political dimension of new action potentials, in terms of how they might intervene in the brain, is provided by new developments in pharmaceutical cognitive enhancement (Merkel et al. 2007; Metzinger & Hildt 2011). Cognitive enhancement is a molecular-level technology, which aims to optimize a specific class of information-processing functions: *cognitive* functions, physically realized by the human brain. The human brain, however, is also embodied as well as embedded in a dense network of environmental interactions, many of which are of a distinctly cultural and social nature. And it not only possesses a long evolutionary history, but also changes over an individual's lifespan. Here, the central philosophical problem is that *normative* elements are already built into the concept itself. In bioethics, the term "enhancement" is "usually used [...] to characterize interventions designed to improve human form or functioning beyond what is necessary to sustain or restore good health" (Juengst 1998, p. 29). As opposed to medical treatments or therapies, enhancements modify physical or mental characteristics in healthy individuals, just like cosmetic surgery. In psychopharmacological enhancement, psychoactive drugs originally devised as therapy

10 Again, this comes back to the classical idea of wisdom as not only knowing how to live well, but also succeeding at doing so (Ryan 2014). There is also a clear connection between open mindedness as an epistemic practice and its ethical dimension. As Russell (1912/1999, p. 116) puts it, "[t]he mind which has become accustomed to the freedom and impartiality of philosophic contemplation will preserve something of the same freedom and impartiality in the world of action and emotion. [...] The impartiality which, in contemplation, is the unalloyed desire for truth, is the very same quality of mind which, in action, is justice, and in emotion is that universal love which can be given to all, and not only to those who are judged useful or admirable". The true value of philosophy lies not just in its effects on our thoughts, but on our lives, on our actions; "it makes us citizens of the universe" (ibid., p. 116).

for specified diseases are typically used off-label or illicitly by normal, healthy individuals in order to modify brain functioning. In the future, how exactly can we benefit from scientific progress, for example by influencing and constructively interacting with the ever-developing neuronal architecture of our brains on a molecular level, while not leaving the social context out of consideration?

Who counts as a "healthy individual"? A trivial but important point is that concepts like "normal mental functioning" or, say, "normal age-related cognitive decline" possess a statistical and a normative reading. The semantics of both types of concepts change over time. For example, the statistical and descriptive features of "normal mental functioning" or "normal age-related cognitive decline" change as science progresses, as the predictive success of our theories improves, and as textbook definitions are adapted. Our concepts become richer in content and more differentiated. But if a specific society suddenly has new tools and new potentials for action—say, to alter certain cognitive functions in the elderly—then the statistical distribution of even those objective properties underlying a purely statistical notion of what is "normal" may also change. Cognitive enhancement is a neurotechnology, and technologies change the objective world. However, objective changes are also subjectively perceived and may lead to correlated shifts in value judgments. Concepts such as "healthy individual", "normal mental functioning", or "normal age-related cognitive decline" always have a descriptive as well as a normative reading, because they appear in statements about what human beings *should* be like. Is it really necessary to succumb to memory loss or a decreasing attention span after the age of 55? If other options are actually on the table, does this turn passively capitulating to age-related cognitive decline or certain individual limitations in the ability to engage in high-level, abstract thought into a cognitive form of unkemptness and dishevelment?

In this example, the not-so-trivial challenge lies in understanding the dynamic interaction between "normality" (in the descriptive sense) and "normalization" (in the normative sense). The theoretical and social dynamics linking both concepts and their interpretation is highly complex. It involves scientific theories (in cognitive neuroscience, molecular neurobiology, and psychopharmacology), applied philosophical ethics, changing cultural contexts, globalization, policy-making, as well as industrial lobbies trying to influence the historical change of our very own concepts and their meaning in order to market new products. Normalization is a complex sociocultural process by which certain new norms become accepted in societal practice. For this reason, the scientific process, say, of optimizing textbook definitions, empirical predictions, and therapeutical success has a political dimension as well. It attempts to firmly ground theoretical entities such as "normal mental functioning" or "normal age-related cognitive decline" in empirical data, but it is also driven by individual career interests, influenced by funding agencies, the pharmaceutical industry, media coverage, and so on.

A third important example of how new ethical issues emerge is presented by the question of animal consciousness and animal suffering. What is the ethics of creating suffering in non-human species, for example in the scientific pursuit of uniquely human epistemic goals? Much recent research shows that many animals are very likely not only conscious, but also self-conscious and able to suffer (Brown 2015; Boly et al. 2013; Edelman & Seth 2009; Seth et al. 2005). They represent a frustration of their own individual preferences on the level of their consciously experienced self-model and thus *own* their sensory pain. They are also very likely to be unable to distance themselves from negative emotions such as fear, anxiety, or depression. In the light of new and better descriptive theories of consciousness, classical normative issues such as animal ethics reappear in a new guise and with increasing urgency.

Philosophical questions such as "Who or what exactly should count as an object of ethical consideration?" soon may also become relevant for the applied ethics of synthetic phenomenology, that is, for all research programs in artificial intelligence that risk or even directly intend the creation of phenomenal experience,

of truly subjective, conscious states in non-biological hardware. "Synthetic phenomenology" (SP) was first introduced by J. Scott Jordan in 1998, explicitly paralleling the idea of "synthetic biology".[11] The possibility of machine consciousness now is not only part of the bigger picture and the wider context mentioned above, it also illustrates how theoretical innovation may eventually lead to technological innovation and require a careful assessment of possible risks. For example, the *Principle of Negative Synthetic Phenomenology* (Metzinger 2013b, pp. 2–8) is an ethical norm that demands that, in artificial systems, we should not risk the unexpected emergence of conscious states belonging to the phenomenological category of "suffering" or even aim at the direct creation of states that would increase the overall amount of suffering in the universe. But how exactly are we to unpack the logical details of this normative proposal? How does one approach these new types of questions in a rational and data-driven manner? Machine consciousness, just like VR-technology, pharmaceutical enhancement, and animal suffering is another example of a topic where a lack of imagination might prove dangerous and where an open-minded approach is pertinent.

Perhaps one central aspect of this problem is that in an increasing number of cases we will not only have to ask, "What is a good action?" but also, "What is a good state of consciousness?" Opening, cultivating and further developing one's own mind clearly is in the spirit of not only Cicero, Plato, and the ancients—systematically increasing our own mental autonomy seems to be a common ideal shared by many of humankind's philosophical traditions. However, the boundary conditions for this old philosophical project are beginning to change because the tools for manipulating or even systematically cultivating our own minds are constantly becoming better—and precisely as a result of interdisciplinary, empirical work in the Mind Sciences. If we arrive at a comprehensive theory of consciousness, and if we develop ever more sophisticated tools to alter the contents of subjective experience, we will have to think hard about what a *good* state of consciousness is. This again illustrates the point that as some parts of neurotechnology inevitably lead to consciousness technology, new normative issues arise and classical philosophical questions reappear in new guises (Metzinger 2009).

As editors of this collection, we do not want to take a specific position on any of these important and highly controversial issues. We merely want to point out that having an open mind also means cultivating a specific kind of sensitivity: a sensitivity for the actual and potential suffering of other sentient beings, for newly emerging ethical issues and for the obvious fact that the kind of research we are developing together does not take place in a political, social, or cultural vacuum. For example, open mindedness also requires a self-critical sense of responsibility to global society as a whole. It is also in *this* context that new conceptual bridges have to be built between artificial intelligence, cognitive neuroscience, philosophy of mind, and ethics. Once more, a first and important step may be to carefully consider the questions themselves, rather than to rush into an answer or attempt to quickly implement mere technocratic solutions. Ultimately, all of these questions have a lot to do with the classical philosophical problem of what a good life actually is.

4.2 Globalization and intercultural philosophy

There is not only an ethics of science, there is also an ethics of globalization. It has to do with fairness and, for example, the willingness of the rich to relinquish some of their sovereignty for the benefits of cooperation. Of course, there are technical issues behind philosophical notions such as "global fairness". But many would agree that we should distribute resources in a way that helps the worst-off, and that the only way

11 See Chrisley 2009, p. 68 and Chrisley & Parthemore 2007, note 2. SP encompasses a variety of different approaches, methodologies, and disciplines, but what they all have in common is that they see SP as the construction or guided dynamical self-organization of phenomenal states in artificial systems. They also share the deep-seated methodological intuition that any scientific explanation of consciousness necessarily involves a systematic *re-construction* of the target phenomenon. See Gamez (2008, pp. 887–910); Holland & Goodman (2003); Holland et al. (2007); Chrisley & Parthemore (2007); Aleksander (2008) for a first overview.

of justifying giving more to those members of humanity who are already well-off is if it demonstrably improves the position of those in the poorest and most dangerous parts of the world as well. The movement of effective altruism uses scientific research to determine the optimal ways of distributing goods to the poorest regions of the world, with the goal of maximizing the benefits and long-term efficiency for instance of donations to charities (for general information, see http://www.effectivealtruism.org/). Such debates apply to the globalization of science and philosophy as well. In this context, it is interesting (and sobering) to note how in academic philosophy, the basic idea of making scholarly work available free of charge and free of usage restrictions online is vastly underdeveloped in comparison to other fields of research. It is also sobering to note that academic philosophy, possibly more than other academic disciplines, continues to be dominated by white, Western (and mostly Anglo-Saxon) males. This is not just reflected in philosophy departments themselves, but also in well-known and widely consulted ranking systems, which almost exclusively focus on Anglo-Saxon departments. We could do much better here, in all of these respects. Of course, many of us have long realized this, and as editors of this collection, we are preaching to the choir. What is needed now are viable ways of changing this situation.

Because of the open access format of the Open MIND collection, which was conceived of, in part, as a donation of intellectual property, we want to focus on one single aspect here. One might argue that the current subscription-based publishing system, which comprises nearly all of the top-ranked journals that young researchers in particular strive to have on their CVs, is inherently conservative, stabilizes the academic status quo, and, given the context of academic globalization plus the urgent need to strengthen deeper and not just intellectual forms of intercultural exchange, potentially leads to a "global closed-mindedness", to a narrowing of intellectual and scholarly life. Typically, publically funded academics will be involved on different levels and in different stages of the publication process, not only as authors, but also as reviewers, members on editorial boards, editors, and so on. Indeed, these types of participation are awarded and often expected by hiring committees. Yet, despite all of the hours of free labor (from the perspective of the publishing houses), the scientific publications that flow out of this process are often locked behind a paywall, giving authors only limited rights to distribute their own research. More innovative journals give authors the opportunity to publish their papers open access—typically in return for a hefty publication fee that, once more, is most likely to be funded by rich universities in affluent countries. Again, we can, and should, do much better.

Through their work, scientists and philosophers continuously produce knowledge and new intellectual property. However, there exists not only knowledge production, but also knowledge consumption—and the overall process has an economical basis. How should such goods be justly distributed? Who can *participate* in the process of producing and consuming them? The world continues to be divided into "haves" and "have-nots" when it comes to accessing the fruits of the intellectual labor of humankind. The point is not only that taxpayers should have access to the results of all publicly funded work. A more central point is that, given globalization, we now need a much more transcultural type of philosophy. In order to realize this goal, we urgently need to experiment with different formats of open access publishing, testing out what works best. In this way, we could finally create a unified public sphere for research—a "global workspace" for the science and philosophy of all humankind. Clearly, this in itself is not sufficient, but is a very first, necessary step.[12] Still, the historical transition we are witnessing is one where having an open mind also

12 And new questions continuously arise. Is it, for instance, unethical to publish one's research in scientific journals or books that are not open access and which therefore systematically exclude a large majority of students and researchers from the less affluent part of the world? If you answer affirmatively to this question, would you also say that it is unethical to consume research published in books or journals that are not open access? And do you think, in terms of civil disobedience, that it is permissible to disregard copyrights (and authors' rights to royalties) to make such research, either your own or even that of others, openly available? This is just a small selection of the potentially difficult questions facing today's scholars and researchers. And people are already acting upon their answers (see, for instance, Ludlow 2013).

means publishing open access whenever possible —which in no way excludes *additionally* using, and paying for, traditional dissemination formats as well. But in creating humanity's global workspace, as Steven Harnad (2007) puts it, it has now simply become "unethical for the publishing tail to be allowed to continue to wag the research dog." What is needed is an honest and objective assessment of the most effective methods of scientific publishing—where effective not only means cost-efficient from the perspective of large publishing houses, but also addresses the dual challenges of optimizing the quality of research and peer-review processes while making scientific results available to all interested researchers and scholars.

"Intercultural philosophy" may sound good—but what does it really mean? Philosophy was born at different places and at different times, for example in India, in China, and in Europe. Philosophical thinking evolved in different cultural contexts that were often quite independent of each other and sometimes remained largely isolated for many centuries. Globalization now forces us to face the need to create novel forms of communication between philosophers as well as new forms of cooperation between different traditions and cultures. Yet this development is also an opportunity. The idea of "intercultural philosophy" is certainly not new, and there are many different ways of spelling it out. Here, we want only to point out that in our view, intercultural philosophy should not be a new academic discipline, but that it is, again, an *attitude*, an increasingly important form of epistemic practice.

At the same time, not *all* philosophical research contexts originally evolved in isolation, and the globalization of wisdom may be older than we think. To give just one familiar example, it is noteworthy that Pyrrhonian skepticism plausibly has a strong (and entirely mutual) intercultural dimension as well. The practice of using standardized arguments involving opposing statements to cultivate positionlessness, suspension of judgment, and epoché can be found in the Indian tradition as well, for instance in the Madhyamaka tradition and in Nagarjuna's writings. Textual evidence suggests that not only might Pyrrho himself have been inspired by ideas with which he came into contact in India, but also that later, Sextus's version of Pyrrhonian skepticism might have shaped Nagarjuna's Middle Way (Dreyfus & Garfield 2010; Geldsetzer 2010; Kuzminski 2008). Having an open mind, in this sense, involves not only bridging *disciplinary* cultures, but also integrating different research traditions from different cultures and different periods and looking for their common sources.

Obviously, the open-minded "pooling of intellectual resources" that we mentioned above must increasingly also include philosophers not only from Europe or the Anglo-Saxon world. From a traditional Western perspective, epistemic humility also means acknowledging that other philosophical traditions may long ago have had deep insights into theoretical problems that still puzzle us today, even if their knowledge is not presented in a format and terminology that we are used to or can easily understand. It would be intellectually dishonest to assume that the style of thought developed in Anglo-Saxon analytical philosophy is the only way of being intellectually honest. And obviously, if, as we do, one calls for an expansion of the principle of charity into interdisciplinary discourse, then one should also accept that the same principle applies to intercultural collaboration. If there is to be a culture of charity, then it must be a *global* culture of charity—including open access publishing and global fairness in the distribution of academic goods. Today, even more than in the past, this is another reading of what it means to have an open mind.

4.3 The sapiential dimension

Thanks to the internet and major technological advances, modern academic life is unfolding at a greater pace than ever before. It has also become more competitive than it ever was in the past. This development bears the promise of progress; but it also poses a very real risk. As knowledge production becomes a commodity and academia is increasingly reorganized based on economic principles of marketing and business administration, universities are replacing tenure-track lines with adjunct teachers and a constantly growing number of brilliant young academics are now

competing for scarce resources in a globalized academic environment. The acceleration of academic life as well as increased social pressure are beginning to have psychological effects on individual researchers as well. A recent surge in the detection of fraud and scientific misconduct may be a sign of underlying counterproductive incentives that have begun to influence scientists worldwide. According to a report in the journal *Nature*, published retractions in scientific journals have increased by around 1,200% over the past decade, even though the number of published papers grew only 44% in the same period (Van Noorden 2011). A detailed review of all 2,047 biomedical and life-science research articles indexed by PubMed as retracted by the 3rd of May, 2012 revealed that only 21.3% of retractions were attributable to error (Fang et al. 2012). 67.4% of retractions were attributable to misconduct, including fraud or suspected fraud (43.4%), duplicate publication (14.2%), and plagiarism (9.8%). It is also possible, however, that the rising number of retractions has been caused by a growing propensity to retract flawed and fraudulent papers and does not in fact involve a substantial increase in the prevalence of misconduct (Fanelli 2013). These numbers might therefore also suggest an increasing willingness to retract faulty publications. They might also be artefacts of an increased availability of data on such retractions. We do not know what the final interpretation of such data should be. But we do regard them as one potential indicator of overheated competition turned counterproductive.

In philosophy, there is a high and continuously growing pressure for specialization, and this historical development presents a major problem. One classical model of what philosophy is says that philosophers are "specialists for the general", who are concerned with integrating the knowledge of their time into an overarching conceptual model. As one German idealist philosopher put it, philosophy "is its own time comprehended in thought".[13] Today, the realization of this metaphilosophical vision has long become an impossible task for even the greatest scholar. The sheer number of publications in any given, specialized area of research—such as embodied cognition, self-consciousness, or the evolution of culture and complex societies—has become so large that it is now extremely difficult for any ambitious young philosopher to even get an overview of the field. At the research frontier, great progress has been made in the fine-grained differentiation of research questions, while conceptual precision, argumentational density, and the general speed with which technical debates are conducted is continuously rising. This historical shift has become particularly obvious in philosophy of mind. In the age of cognitive neuroscience and Bayesian modeling, "raising one's own age to the level of thought", as Hegel put it, has simply become an impossible task. On the other hand, philosophers of mind are not embedded journalists of the neuroscience industry. A philosopher's task today clearly goes far beyond offering methodological criticism plus a bit of applied ethics. Philosophers should not confine themselves to laying and clarifying some conceptual foundations or just developing a local, domain-specific "conceptual commentary" on the general way in which the empirical Mind Sciences change our perspective on reality and the human mind's position within it. In the future, philosophers must more actively introduce their own epistemic goals into the overall process as well. Failure to do so is to exercise a counterproductive sort of epistemic humility—and runs the risk of letting academic philosophy slip into irrelevance.

Having an open mind also means that there are no taboo topics. At the outset, philosophy was the "love of wisdom" and, as everybody knows, knowledge and wisdom are not the same thing. Knowledge is something that can be accumulated in an incremental and systematic way, but wisdom has to do with synthesizing very different kinds of knowledge in ways that are practically relevant, for example with respect to knowing what a good life is and, importantly, also with being *successful* at living a good life (Ryan 2014). This in turn may include actively minimizing the number of unjustified beliefs one has and continuously maximizing the

13 Hegel, in his preface to the *Elements of the Philosophy of Right*, ed. Allen W. Wood, trans. H. B. Nisbet, Cambridge, UK: Cambridge University Press, 1991.

dynamic coherence between one's beliefs, one's values, and one's actions. Perhaps wisdom can also be characterized by a sustained striving for accuracy and for the possession of a wide variety of epistemically justified beliefs on a wide variety of relevant subjects—with one such subject being the deep structure of the human mind itself. In this case, knowledge will automatically be self-knowledge, and the question now becomes on what level the *relevant* form of self-knowledge is to be found. Tackling this problem may involve a commitment to a deeper form of rationality that includes not only epistemic humility, but heightened sensitivity towards moral issues and one's limitations in both fields.

It now has become dramatically obvious that something has been lost along the way. Academic life has become distinctly *unphilosophical*. Professionalization, acceleration, and excessive competition have led us into a form of academic life that can now very rarely be described as a good life. First, it seems safe to say that many of the best and leading researchers are not very successful at living a good life—even if they are philosophers who, at least at the beginning of their careers, may have had a great interest in exactly what a "good" life in the philosophical sense might be. Second, overheated competition increasingly draws people into the field who are predominantly interested in competition and professional success *per se*, and not so much in the pursuit of knowledge, let alone wisdom. But intellectual superiority and insight are different things, just as knowledge and wisdom are. There is no intrinsic link between striving for intellectual superiority and being intellectually honest, practicing epistemic humility and cultivating an atmosphere of charitable collaboration. In academic philosophy, the sapiential dimension, in which theoretical insight and practical know-how are deeply interwoven, has now been lost almost completely, and one aspect of what it means to have an open mind—as opposed to just being professional, knowledgeable, and smart—is to be aware of this fact and to be ready to face it.

We, the editors, certainly do not claim to know what exactly philosophy really is or what it is to lead a good life, nor do we always agree on these questions—but we are convinced that whatever the answer is, it is deeply connected with a particular kind of attitude that reaches back all the way to the skeptical tradition, East and West. Philosophy at its best is not just purely academic or technical: it is also a practice, a way of life; and its theoretical and practical dimensions should never be completely independent of each other. This is what we mean when we say that academic philosophy would greatly profit from a sapiential dimension. And if we are right to say that philosophy is, among other things, an epistemic practice, a particular style of thinking resulting from the cultivation of an open-minded attitude (and one that is skeptical, we might add, in the most constructive sense), then this may also suggest a new reading of what it means to say that philosophy has an important role to play in the Mind Sciences. Asking for an interaction between cognitive neuroscience and philosophy as academic disciplines is one thing—but asking for the introduction of a particular way of thinking and a particular type of collaborative practice—a more genuinely *philosophical* attitude—into scientific research is another. We hope that by now it is clear that we think philosophy can contribute to the Mind Sciences in both respects, as an academic discipline and as an epistemic practice. Still, what we have been discussing here under the heading of open mindedness is first and foremost an example of philosophy as an epistemic practice—and as such it can be quite independent of philosophy as an academic discipline. Indeed, this is why we think that an important goal is to put philosophy, in this practical and classical sense, back into philosophy in the academic sense as well.

We openly admit that we have no ready-made answer to the question of how to re-introduce the sapiential dimension into modern academic philosophy, in a way that is rational and intellectually honest. In fact, we think this might well be the biggest challenge for the future. Obviously, what we call the "sapiential dimension" here has nothing to do with any kind of theology or organized religion. And we suspect that the real value of what we called "first-

person methods" above may lie not in supporting dubious metaphysical arguments, but lies, in part, in their potential for reintroducing the sapiential dimension into academic philosophy. But we also want to point out that this could simply be empirically false. Sometimes it is enough to remain with the question, to simply see it for what it is and to face the facts. Sometimes things take care of themselves. As we said when sketching the problem of subjectivity, to have an open mind means to acknowledge (and not repress) the fact that there may actually be a set of deeper metatheoretical ambiguities here. Having an open mind can also consist in admitting the existence of a problem—and that is all we want to do here.

4.4 Developing new forms of interdiscplinarity

Taking empirical constraints into account has become absolutely central in current philosophy of mind. However, there are different models of what good interdisciplinary practice is and *how* empirical constraints are to be satisfied or integrated. Interdisciplinary philosophy of mind does not simply consist in turning away from old-school armchair philosophy, which sometimes took intuitions as main input for philosophical work. And it would be false to say that "pure" philosophy has no place in the newly unfolding scheme of things—there is clearly relevant and highly valuable work that has only a small empirical component, or perhaps even none at all. One aspect of the Open MIND approach is that young philosophers should increasingly become active as experimenters themselves, for instance by proposing epistemic goals and novel experimental designs to empirical researchers and even by joining their colleagues from different disciplines to work on shared research projects. Another aspect of the approach, as we noted earlier, is that the extended principle of charity applies not only to the relationship between disciplines, but also to that between different generations of researchers.

We are all learning as we go along. Perhaps most centrally and most obviously, to have an open mind means to acknowledge the fact that while there has long been an "interdisciplinary turn" in philosophy of mind, the real task consists in creatively testing out and developing entirely new *types* of interdisciplinary cooperation. For example, it is important to preserve a critical spirit and an openly inquisitive mindset —interdisciplinarity must never be purely decorative, a fashionable necessity, or reduced to a rhetorical element in edifying Sunday speeches. Along the way, we will also need a new understanding of progress, of acceptable forms of inquiry and methods, as well as new measures of success, for instance concerning novel forms of collaboration and publication formats that are still under the radar of institutionalized impact factors.

To give a second example, the newly emerged discipline of neuroethics is an important and innovative form of interdisciplinary philosophy, but it should never indirectly contribute to moral hypocrisy, as a fig leaf ultimately used by others to cover the failure to directly and open-mindedly address the political issues involved. If interdisciplinarity becomes merely strategic (e.g., in dealing with funding agencies) or is really guided by off-topic motives, then it loses its systematic force and becomes counterproductive and stale. Interdisciplinary philosophy of mind is not simply about being empirically informed, or about introducing strong and fine-grained "bottom-up constraints" in the formation of new theories about mind and consciousness. It may actually be about the emergence of a new type of researcher. We like the idea of "dyed-in-the-wool interdisciplinarity", where "dyed-in-the-wool" is not used in a pejorative sense but indicates that young philosophers have learned how to *think* in a way that transgresses boundaries between disciplines, naturally and effortlessly. The classical approaches were intuition-based, and they made analytical philosophy one of the strongest intellectual currents of the 20th century. But we are now slowly moving from a priori methods and thought experiments to real experiments, and from abstract metaphysical questions about the relationship between mind and body to the investigation of specific aspects of cognition (Knobe 2015). And while it is clear that an open-minded philosophy of mind should not be

strictly or exclusively data-driven, it is equally true that it should be both empirically informed and informative, guided (but not completely constrained) by empirical data and theoretical-conceptual considerations alike.

In the end, there is also a sociological aspect to the current transition in our understanding of what good philosophy amounts to. Max Planck, the German theoretical physicist who created quantum theory and won the Nobel Prize for Physics in 1918, famously said: "A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it" (1948). As the editors of a collection promoting, among other things, senior–junior interaction, we think this may be a bit too pessimistic—and once more, we leave it to our readers to decide how successful this interaction was here, in this project. Still, for now, a careful suggestion is that possibly, the old should learn a little more from the young.

One of our experiences with the MIND Group was that there was a difference between what one might call "junior mentoring" and "senior mentoring". Junior researchers need friends in neighboring disciplines whom they can trust and ask about literature, current trends, and technical issues that are hard to understand. Our experience is that interdisciplinary exchange works best in excellent young people who are not yet on the job market, and in non-competitive situations in which at best no holders of academic resources are present, such as senior researchers who have grants, post-doc positions, etc. to give away. Good and established systems of senior–junior mentoring already exist, but we believe that given the current situation, junior–junior mentoring is an important resource to be developed as well. For this reason, in the Open MIND project, we installed a form of junior–junior mentoring during the anonymous peer-review process for commentaries. And while replies can be seen as a form of senior-junior mentoring, there was also, covertly in the form of target article reviews, a phase of junior–senior mentoring, in which some of our junior members not only wrote their first reviews ever, but now, after the collection's publication, can also see for themselves how their comments were implemented and whether this maybe even led to an improvement of the target papers. But above all, it is important that young people from the *same* generation have the opportunity to meet each other and form their own, autonomous networks based on shared interests and mutually shared (or acquired) expertise. And this will require a radical restructuring of research funding and of the university system itself, as well as new subsidizing schemes. The function of older, more mature researchers may rather consist in creating and offering such platforms, giving a better overview of the intellectual landscape and offering insight into what is really relevant in a specific phase of a young researcher's academic life. Today, the sociological aspect of what it means to have an open mind has an unprecedented global dimension. In trying to promote young blood, mostly in Germany, we found that language and cultural barriers actually are often higher than we wanted to admit. If what we have said about the ethics of globalization and intercultural philosophy here is correct, then we might not only need new formats of interdisciplinary and intragenerational collaboration, but also new types of intercultural mentoring as well.

As we said at the outset, instead of an introduction we wanted to begin a new conversation by offering some first starting points and perhaps even first building blocks for a fresh understanding of what, today, it could mean to have an open mind. Once again, we openly admit that we have no ready-made answers. But we are convinced that it is important to ask these questions. Somehow, we have to get philosophy back into philosophy.

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