



Global Epistemologies and Philosophies of Science: Global Dialogues and New Directions for Philosophy of Science

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1 Introduction

Philosophy of science has been, and continues to be, dominated by European and North American voices. By convening more diverse voices from across the globe, both new and standing ontological, epistemological, and methodological issues may be addressed, which would certainly be beneficial for the field. The recently published *Global Epistemologies and Philosophies of Science* (Routledge), edited by David Ludwig, Inkeri Koskinen, Zinhle Mncube, Luana Poliseli, and Luis Reyes-Galindo, wants to move beyond the traditional ‘Western’¹ philosophical canon to show different visions on epistemology and philosophy of science (Ludwig et al. 2022). With this move, the volume aims to provide the reader with an understanding of the roles that philosophy of science could play in articulating global knowledge and the intertwinement of knowledge with politics.

This edited collection is primarily directed to specialized academic communities of philosophers of science, though we consider that this book potentially could be instructive for anyone with interest in the field. Within academic philosophy, we identified two groups for which this book could be especially useful: (i) academics who adhere to a strictly Anglo-European canon grounded on ‘analytical’ philosophy, and (ii) undergraduate and graduate

¹ In this essay we will use the term ‘Western’ interchangeably with the term ‘Euro and US-centric’. We understand ‘Western philosophy’ as the traditional philosophical curriculum, which mainly centres around (Western-)European and North American debates and scholars. We do not presuppose that this traditional curriculum came into existence in one constant, natural development from Plato to Heidegger that has been completely without influence from other ‘non-Western’ intellectual traditions.

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students in history and philosophy of science. The book provides the first group with two key points. Firstly, it has a broad overview of epistemologies from different cultural and geographical areas. And secondly, it applies traditional frameworks of philosophy of science to diverse fields of knowledge. Both strategies can add nuances and refresh the readers' views on philosophy of science. In other words, this book helps to inform lecturers and professors who teach and do research at university level about the new directions of philosophy of science. The decentering of traditional curricula have the potential to make them more inclusive and trickle-down to university students.

When it comes to the second group, the book is a first guidebook to help students who want to explore what is outside of the traditional curriculum in introductory philosophy of science courses, which is still mostly centered on Europeans and North Americans (e.g., Karl Popper, Thomas Kuhn, Imre Lakatos, Paul Feyerabend and Rudolf Carnap). This volume instead offers entry points into philosophy of science along paths that were, until recently, taken only rarely, such as decolonial philosophy and feminist epistemology.

We note that these visions are not necessarily new or unique, but they do present a novel proposal in its application to philosophy of science and committed plurality. Other authors have tried to diversify philosophical perspectives by analyzing key philosophical concepts in different philosophical traditions (Flavel and Robianno 2023), by comparing Western to other philosophical traditions (Hamminga 2005), by highlighting the importance of language for epistemology (Stich et al. 2018; Mizumoto et al. 2020), or by exploring worldviews and epistemologies across cultures from the perspective of feminist epistemology (Duran 2001). This large *corpus* of works includes, for instance, the volume *Sciences from Below* (Harding 2008), in which science and technology are scrutinized through the lenses of feminist and postcolonial science studies. However, these volumes scarcely focused on the field of philosophy of science and its practitioners, and the volume by Ludwig and colleagues partially fills this gap.

There are many ways to tackle this larger issue. Whilst some rigorous decolonial frameworks that are relevant for philosophy of science have been recently developed (i.e., Quijano's coloniality of power and knowledge; see Quijano 2000; 2002), this book does not attempt to restrain its diverse contributions to any such singular normative framework. The collection of essays makes clear that there is an explicit lack of a single global epistemology, instead opting to take readers through a journey of studies grounded in different contexts and following contrasting frameworks of what counts as knowledge. Thus, readers should not expect to find any clear-cut take-home messages. Rather, the barrage of short chapters offers diverse, if occasionally shallow, perspectives on familiar and less familiar topics to classical philosophy of science, which will certainly spark any reader's imagination to look beyond the canon. Before engaging in a deep analysis of the book, we will outline its structure in the following section.

2 Rethinking, Reconfiguring, Negotiating, Situating and Reimagining Science and its Philosophy

The book is divided into five main parts composed of five to six short papers each. Altogether these contributions provide a good degree of diversity of authors (in terms of academic stage, disciplinary background, institution) and topics. Related to this last point, to

diversify philosophy of science the chapters rely on two strategies: Some chapters in the book apply ‘traditional’ philosophical topics and methodologies to new case studies that are typically situated in non-Western regions. Other chapters dispute the taken-for-granted limits of philosophy of science and the usual set of argumentative resources, dichotomies, and methodologies.

Part 1, “Rethinking philosophical practices” deals with questions on the effects of pluralism (Ch. 1), language diversity (or the lack thereof) (Ch. 2), the inclusion of decolonial literature to feminist philosophy (Ch. 3), the role of politics in the history of philosophy of science in China (Ch. 4) and experimental philosophy (Ch. 5). The degree in which these chapters ‘rethink philosophical practices’ and thus fulfill the objective of this part of the book is variable. In this regard, especially Chapter 5 does not offer a way to rethink experimental philosophy, but rather uncritically presents a field that is entirely concerned with ‘testing’ the applicability of Euro and US-centric concepts to *other* philosophies and localities. This approach assumes the applicability and use of distinctly Western methods and ideas of experiment with little to no reflection on the relationship between these very particular methods and the equally particular kinds of knowledge that are produced by way of them. We believe that the authors of this chapter could have further reflected on the Euro and US-centric approach subtending their methodology. This lack of critical reflexivity is worrying given the very nature of what the field is positioning itself as concerned with (i.e., the ‘universality’ of these concepts). Such lack of reflection results in practices that ultimately *do* nothing more than question the potential assimilation of other philosophies to a Euro and US-centric tradition or framework, an unfitting result for this volume.

Part 2 “Reconfiguring scientific methods” centers on characteristics of science that only become relevant if we pay attention to *other* sciences, *other* places and *their* dynamics. It includes articles on the role of disagreement in transdisciplinary scientific practice (Ch. 6), a critique to assumed divides in philosophy of science like the natural/social sciences and the quantitative/qualitative dichotomy by looking at sustainability science (Ch. 7), the meaning of decolonization and its relation to atemporal notions of scientific rationality (Ch. 8), the relevance of epistemic injustice and ‘epistemicide’ in global scientific contexts (Ch. 9), the mismatch between holistic indigenous worldviews and philosophies and research methods used in science (Ch. 10). Lastly, Chapter 11 explores the ways in which notions of culture and belief in anthropology have distorted what radical alterity can mean and the effects of this distortion in our understanding of nature and culture.

Part 3 “Negotiating science in/with society” centers on the role of values framing interactions with different stakeholders in varied case studies and scenarios. It explores calls for the democratization of science and its challenges in a globalized perspective (Ch. 12), post-truth scenarios in Brazil (Ch. 16) and the damaging effects of industry funding in pharmaceutical research (Ch. 14). In sum, these chapters contribute to the current boom on the role of values in science and their analytical input in helping us to solve the pluralist-relativism challenge, for instance, by allowing a reconciliation between sciences and traditional *saberes* (Ch. 13), and by generating ways of questioning a trend towards innovationism (Ch. 15).

Part 4, “Situating the living world”, is composed of a collection of essays dealing with diverse case studies. Three of these deal with African philosophy or with case studies situated in South Africa. Chapter 17 explores environmental thinking in African philosophy and the notion of *nma ndu* as a defense of biocentrism and an understanding of life in terms of relations and belonging. In Chapter 20, the author shows that arguing for the epistemic

equality of traditional and Western medicine goes against the goal of decolonization as a way of promoting tolerance and pluralism in medical practice. To promote the values of decolonization it is important to rethink and expand the way value is assigned to medical traditions. Chapter 21 goes on to explore the historical complexities of racial politics in South Africa and the way social and biological sciences can inform each other and current political controversies. The two remaining chapters deal with the explanatory value of cultural evolution. Chapter 18 puts forward the need to incorporate other knowledge systems in order to avoid othering processes (Ch. 18), while Chapter 19 offers a literature review to answer the question: what does it mean for indigenous psychologies to have a philosophy of science?

Part 5 “Reimagining abstract and physical worlds” deals with practices and concepts that support theorizing about science and cast science as a practice of worldmaking. Examples are cartography or ‘map-thinking’ (Ch. 22), the weediness of science to understand science spreading in Japan (Ch. 23), and science as craftwork with integrity (Ch. 26). On a slightly different note, Chapter 24 explores the potential of Buddhist logic both to enter in dialogue with and to challenge Western logics. A similar question arises from Chapter 25 and the revision on the Indian mathematical tradition. The next section develops some of the shared concerns in these essays around two central themes: global philosophies and epistemologies.

3 Global Philosophies, Entangled Epistemologies

The one common denominator across the volume’s widely divergent contributions is a commitment to emphasizing the rich history and promising future of ‘interactions’, ‘connections’ and ‘entanglements’ between heterogeneous epistemic agents. Clearly, the days when philosophers of science confined themselves to ostensibly universal and timeless epistemological questions relating to (natural) science are long gone. This volume sketches a more heterogeneous future, where boundaries are bound to be broken and plurals replace singulars. In this horizon, philosophy of science’s future is more evidently entangled.

But, how do we navigate this wildly interconnected network coming into being? What are the opportunities and benefits? And when do we benefit from boundaries, working in splendid isolation rather than in a noisy global network? In what follows, we explore two aspects of entanglement which are at the forefront of the book. First, we examine the implications of bringing together perspectives across geographical boundaries. Second, we look at interactions between academic disciplines.

3.1 A Quest for a Global View

A key term in this book is the adjective ‘global’ - uplifting the name it precedes to the big scale, making it an attribute of the whole world. Throughout the book, ‘global’ usually appears accompanying words like challenges or structures, but also philosophy(ies) and knowledge(s). The global evidently bears some relation to the ‘local’, which raises difficult questions. Would a global view *include* many local ones? Or would it be a question of how knowledge is produced at the global level? It is not controversial to say that certain local

knowledges have been more highly valued than others, so we must ask how global perspectives reflect power relations between different communities.

These questions permeate the volume, though mostly implicitly, and it takes until the postscript for the editors to voice a (tentative) statement about their own conception of 'global', namely: (1) global as a plurality of local perspectives; (2) 'global' as in the common nature of issues that affect the whole world regardless of borders and nations; and (3) as an engagement with communities that have been underrepresented in academic contexts (p. 309). Certainly, this is not a clear distinction, each of these axes necessitates the other two in most cases, but it is relevant for the project of the book to emphasize the nuances that the word can have in different contexts.

Chapters that relate mostly to the first use of the term 'global' indicate the potential for philosophy of science to intensify conversations with thinkers of other (local) epistemic centers. When performed with an open mindset and through seeking an equal footing, these local-local interactions may be enriching to both, explicating previously tacit assumptions, even if such interactions are by no means trivial. For example, in Chapter 24, 'Buddhist logic from a global perspective', Koji Tanaka considers Western and Buddhist philosophy of logic, while acknowledging the risks of direct comparison of Buddhist and Western concepts. Crucially, he proposes that a "global view" on logic could extract Buddhist ideas and recontextualize them in a way that they can be applied in other discussions (p. 277). In this way, Tanaka suggests that what the global perspective offers is not just a supplement to Western logicians by adding other views, but an opportunity for Buddhist philosophers to enrich themselves by expanding their reach and potentially overcome assumed cross-geographical incompatibilities. This point can be generalized to Western academic disciplines which have overlapping objects of study with other traditions. In this context, the global perspective implies a dialogue that flows in both ways, which constitutes a new challenge to surmount for epistemology.

The second use of 'global', namely as universality, is the most treacherous. Indeed, relevant contributions are critical of universalizing views, embedded in dominant power structures, that have contributed to overlooking global epistemic diversity. In Chapter 9, 'Structural epistemic injustice(s) in global contexts', Inkeri Koskinen and Kristina Rolin expose how knowledge production at a global scale favors Western scholars' work and undermines that of people from the Global South, creating 'epistemic injustice'. Originally defined by Miranda Fricker (2007) as "wrong done to someone specifically in their capacity as a knower" (p. 1) the term has been developed further and many kinds of epistemic injustice have been specified. Testimonial smothering, willful hermeneutic ignorance, and epistemic trust injustice are various forms of silencing marginalized communities or hindering their engagement with scientific institutions (Koskinen and Rolin 2022, p. 116). The volume thus shows that scientific institutions have too often been focused on the supposed universal aspects of knowledge production, which continues to engender injustices. Hence, a global philosophy of science should become more explicitly aware of the tension between universalizing tendencies in science, and its relation to the local and situated.

The third use of the term suggests that projects of 'global philosophy' should be aware of lingering traces of violence done by Western science and resulting opposition to it. A powerful case study is provided in Chapter 8, "'Science Must Fall' and the call for decolonisation in South Africa", in which Chad Harris describes a movement among South African university students who claim that decolonization entails a rigorous of abolishment of "science"

altogether, since it pervades all academic contexts, and it is incompatible with indigenous knowledges. The author reconstructs the logical argumentation of the defenders of the so-called ‘fallism’ movement, but also argues that there are good reasons to believe that epistemic decolonization is possible without dismantling science completely, letting it coexist with African knowledge in academic institutions. Harris’ idea of decolonization fits into the editors’ broad project that aims to prevent polarization, but instead attempts to assemble various ways of knowing without heedlessly assimilating or imposing conceptual systems. This attempt of decolonization should be taken into account to make a global epistemology that really is a dialogue with the Global South.

However, bounded neither by disciplines nor borders, the ‘global’ has its limitations. Issues of translatability and comparison between philosophies that are geographically or conceptually far apart from each other force us to conceive all these knowledges as ‘situated’ in Haraway’s sense (see Haraway 1988)—even the global account. The three uses of the word ‘global’ have shown that various forms of pluralism can be fruitful for multiple parties, embracing the possible contradictions as well as transdisciplinary entanglements. Scientific pluralism is an open debate in philosophy of science (Kellert, Longino and Waters 2006; Koskinen and Mäki 2016; Marchionni 2008; Van Bouwel 2014) and this book helps to confront some of its challenges. A global account of epistemology/ies and philosophy/ies of science requires thinking about how to include, integrate or isolate different views to foster dialogue in a manner that ends up being fruitful for all participants.

3.2 Crossing Disciplines

Besides emphasizing geographical connections of philosophy of science, the volume also indicates often unseen and under-explored connections across academic fields relevant to philosophy of science. Or perhaps we should say *philosophies of sciences*, as the singularity of disciplines and disciplinary boundaries are questioned in the volume explicitly in some cases, and implicitly throughout. As such, several chapters contribute ideas on philosophers’ potentially pro-active role in meta-analyses of the dynamics of unorthodox academic collaborations. Such cross-disciplinary (and extra-academic) engagement is by no means new, but has in recent years received increased attention, as academic communities are quickly embracing so-called ‘Open Science’ values and launching multi-, inter- and transdisciplinary projects. This volume lifts the veil to a possible future in which philosophers of science achieve new roles in such networks, being more concerned with science as necessarily multi-disciplinary, rather than focusing on singular disciplines, as has been done in classical philosophy of science. Though not free from contradiction, and occasionally exploratory, the volume thus hints at fascinating new questions that can be raised in philosophy of science.

Such questions may be deceptively mundane: How can we understand one another in cross-disciplinary engagement? Or rather, how can we best understand ‘disciplines’ to begin with? Two chapters in particular handle such questions, showcasing the practical and theoretical potential of epistemological meta-analyses of cooperative academic research projects. Chapter 6, ‘Developing transdisciplinary practices’, provides a case study of epistemic interaction of participants in an interdisciplinary research team. Poliseli and Leite show that despite a shared commitment to their collaborative aim, the participants with distinct scholarly background quickly entered a state of ‘cacophonous academic disagreement’. To

prevent such cacophony, the authors provide a somewhat abstract strategy towards more productive academic dialogue. Chapter 7 meanwhile directly questions traditional disciplinary demarcations when viewing “sustainability science as a management science” (p. 92). Nagatsu and Thorén argue that sustainability science as an interdisciplinary enterprise does not face the often-presumed challenge of bridging classical natural-social divides but is already unified on methodological principles and shared understandings of sustainability. The authors conclude that seeking new classifiers to distinguish various niches of sustainability science may help to better understand its practical and epistemic challenges. Though somewhat rough and elementary, both Chapters, 6 and 7, thus indicate novel and potentially fruitful areas for philosophical meta-analyses of collaborative science projects.

Ultimately, these ideas can be applied directly to philosophy of science if we are honest about the (growing) interaction of philosophy of science with related fields and methodologies. Indeed, both the opportunities and pitfalls of cross-disciplinary interaction involving philosophy of science are (generally) tacitly present throughout the volume. Poliseli and Leite, who build on their experience with academic disagreement and the contribution of the experienced disagreements to develop a framework for transdisciplinary collaboration, again provide the clearest example of this issue (p. 88). Curiously, Chapter 1 seems to itself contain a form of ‘epistemic disagreement’ like the one analyzed by Poliseli and Leite in Chapter 6. In Chapter 1, a dialogue is recorded between two editors, who discuss their preferences of singular or plural conceptions of philosophy and epistemology, quickly agreeing on the productivity of a plural form for the former, but finally agreeing to disagree on the latter as they seem to hold on to incommensurable presumptions of the meaning of epistemology to begin with. Though the unresolved dialogue does highlight the limitations of cross-disciplinary interaction, we did consider the debate productive in confronting our own unspoken standpoints when thinking about these contested terms.

4 Broadening Philosophies of Science

How successful is this book in fulfilling the ends it set for itself? Its first goal is descriptive, as the editors aim to showcase entanglements of epistemology and philosophy of science with diverse scientific, technological and political practices, and its potential in addressing knowledge production across these domains. The volume indeed displays previously hidden entanglements in heterogeneous ways (e.g., between disciplines and across geographic regions). Doing so, the editors avoid subsuming any of these practices under one epistemic center, as this would risk reifying the exact dichotomy between a Western center and global periphery of knowledge production that the book (and its pluralism) is aiming to transcend.

Occasionally though, this pluralism seems to slip into chaos. Also for the case of readers more familiar with the field of a particular entry, some articles may seem lacking due to their overall quality or brevity, in particular those instances where the focus is largely on one individual’s work (for instance, Ch. 22, “Philosophical cartography”). Nevertheless, when read together, these chapters do end up providing a ‘kaleidoscopic’ perspective of scientific and philosophical entanglements.

The book’s second goal is more normative, aiming to pivot these perspectives into action, “to challenge academic philosophy to become more engaged with questions of global knowledge production” (p. 1). To varying degrees, the contributions to the volume formu-

late explicit challenges to academic conventions and orthodoxies regarding voices, methods, subject-matter, language, region and tradition. To mount an effective challenge against an established orthodoxy, an alternative project must be aware of specific difficulties it will face and base its strategy on this awareness. Therefore, evaluating the success of the project requires considering the editors' explicit positions and the embodiment of various strategies in specific contributions.

It is clear that the editors are aware of the challenges of a global philosophy of science to the fabric of its academic discourse, as material, institutional decolonisation requires organization and action beyond academic publications (p. 311). Aside from the well-documented risks posed to novel or critical perspectives by processes of assimilation and subordination, the editors also discuss the issue of marginalization, which neutralizes global perspectives by relegating them to "niche fields" that exercise limited impact on the mainstream (p. 9).

Given the breadth of the issues at play, it is no surprise that different contributions champion strategies which, conceived abstractly, may appear to be in tension, or perhaps even in open contradiction, with each other. Chapter 10, for example, discusses the relation of Martin Heidegger's concept of method to the issue of finding appropriate methods in indigenous philosophy (pp. 127–128). While making some use of a concept developed by a Western philosopher, it is clear that the author's primary intention is not to make indigenous thought subject to or compatible with Western philosophy. Rather, the article explicitly addresses indigenous researchers on an issue that appears, first and foremost, in the context of indigenous research (p. 132).

Tanaka's ideal of a mutually enriching dialogue between Western and Buddhist logic, discussed above, involves a markedly different approach. Rather than legitimizing an appropriation of the material of Buddhist logic for the established concerns of Western contemporary logic, such a dialogue could work to counteract the disciplinary marginalization of a subject with 'merely historical' interest by reasserting and (crucially) demonstrating its continuing philosophical relevance.

The volume's attempt to accommodate such varying approaches is testament to the editors' adherence to the important idea that viable alternatives to an existing academic orthodoxy can take multiple forms, in each case determined by the specific interests of the actors and issues in question. For example, a tendency for South-to-North exchanges can be counterposed with both North-to-South and various inter-South exchanges (p. 311). So again, rather than dictating specific responses to these difficulties based on an established program, the volume's 'broad church' vision for a global philosophy of science requires a flexibility that leaves questions of specific strategy to those carrying out the specific interventions.

5 Conclusion: What's (Y)our Role?

We see this book as a timely intervention which attempts to draw attention to underexplored dimensions of philosophy of science. The authors of this essay are part of the Delinking HPS group at Utrecht University. Through reading and discussing decolonial literature, we try to broaden our understanding of our field. We have been inspired by the project initiated by Anibal Quijano and further developed by Walter D. Mignolo (Quijano 2000; Mignolo 2007). Delinking science, or philosophy of science, broadly means breaking out of the Western hegemony, and actively engaging with a variety of forms of knowledge production.

As we have understood, it is important to approach the process of delinking with a reflective mindset, which involves actively challenging one's implicit assumptions. This means actively seeking to confront one's political and social biases, for which this volume may be helpful as it gathers (conflicting) perspectives on (Western) philosophy of science. But there is no change of content without change of form: delinking also means confronting traditional modes of research and expression. Doing research or philosophy on topics related to indigenous knowledge, for example, is not enough. Instead, academia should be seen less as the central node in knowledge production, and more as one among many actors involved in this task. This volume can increase awareness of the pitfalls of particular types of academic expression, such as the colonial tropes of harvesting (epistemic) resources from others for your own purposes. However, as a traditional academic volume, it is unlikely to inspire many new methodologies. Finally, delinking also requires recognizing limitations, asking whether commonalities need to be connected (entangled) to be interesting, or if similarity is sufficiently interesting. Sometimes we just need to let difference remain different.

In other words, delinking philosophy of science, or—more generally—engaging with global knowledge as a philosopher of science, means facing questions like: Am I situating myself and the work I do? How often do I question what I am trying to achieve? Am I prepared to engage in healthy debates with anyone, beyond academics, who also find value or potential significance in the subject matter I am working on?

With occasionally conflicting chapters, exploratory chapters and an unstable use of plural or singular terms—philosophy/ies, science(s), epistemology/ies, global(s)—the book is an invitation to reflect on these questions. This collective volume helps to foster new meta-perspectives on philosophy of science's entanglements, raising awareness of disciplinary boundaries and tacit assumptions among philosophers themselves. Thus, ideas developed in these pages may help to imagine new roles for and of philosophers of science as science itself continues to change.

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