Rethinking Geographic Diversity in Value-laden Ideals of Science

Abstract

In this paper, I stress the need to broaden the scope of *diversity* in value-laden ideals of science to include *geographic* diversity. I argue that egalitarian and normic value-laden ideals have conceptual limitations when considering this dimension. While egalitarian frameworks advocate for a placeless science, normic frameworks predominantly locate scientific knowledge within the "Global North," highlighting the importance of including "non-Western" perspectives from the "Global South." These limitations have negative and unjust epistemic consequences: they risk perpetuating cultural imperialism, reproducing a colonial epistemic norming of space, and epistemic exoticization towards scientific communities in subaltern regions.

1. Introduction

Philosophers of science have argued that the presence of so-called "non-epistemic values" in the content and the production of scientific knowledge is inevitable and desirable (Elliott 2017). Values *motivate* or *justify* (Ward 2021) epistemic decisions such as theory choice, the rejection and adoption of hypotheses, the assessment of evidence, the interpretation of data, and ontology (Carrier 2011; Douglas 2000; 2009; Longino 1990; Ludwig 2016; Rudner 1953). Furthermore, values *affect* and are *affected by* scientific knowledge (Ward 2021). They have

an impact on aspects such as agenda setting, funding, moral constraints to doing research, and knowledge application (Kitcher 2001). Moreover, values are "encoded" –and promoted– in research questions, concepts, theories, hypotheses, etc. (Anderson 2004; Brown 2013; Haraway 1988; Harding 1993). Thus, scientific knowledge is inevitably *situated* (Haraway 1988; Harding 1993; Wylie 2003). Abandoning the value-free ideal, however, leaves us with a "new demarcation problem" (Holman and Wilholt 2022): we need criteria to identify which values are to be allowed in science, what their legitimate roles are, or what social mechanisms could manage and justify (politically, morally, and epistemically) their presence. Most (if not all) of these ideals pose *social* and *cognitive* diversity as necessary for facing this challenge and having a more objective, empirically adequate, and socially responsible science.[1]

In this paper, I stress the need to broaden the *scope* of diversity in order to include a *geographic* dimension. I claim that current value-laden ideals have conceptual limitations and

[1] Social diversity refers to differences in social identities, social locations, and social values. Cognitive diversity refers to differences in worldviews, concepts, styles of thinking, research heuristics, and experiences. The former is taken to be a proxy of the latter (Page 2017; Phillips 2017). It is important to keep in mind that there may be cases of *epistemically detrimental dissent*, meaning that there are situations where diversity of opinions or values is not always epistemically and socially beneficial (Biddle and Leuschner 2015; Leuschner and Fernández Pinto 2022).

negative consequences when guiding us on how to have a geographically diverse science. Yet, this is necessary if we wish to fulfill science's *epistemic* and *social* roles (Kourany 2010) at a global level. By *geographic diversity* I mean the aspect of being located in different geographical regions. Thus, a *geographically diverse scientific community* would be one where its members participate in the production of scientific knowledge *from* different geographical locations.

With this in mind, first, I present two families of value-laden ideals found in the literature, *egalitarian* and *normic*, and identify their conceptual limitations. Egalitarian frameworks envision a *placeless* science (Ito 2021), portraying science as adopting a "view from nowhere" (Nagel 1986). Current normic ideals *narrowly* locate science in the "Global North" while acknowledging the importance of incorporating "non-Western" knowledges from the "Global South." Thus, the challenge of a geographically diverse and epistemically just science is posed as an issue of knowledge integration and transdisciplinarity (Albuquerque et al. 2021; Harding 2003; 2018; 2021; Ludwig et al. 2023). Second, I argue that framing geographic diversity in these terms is potentially unjust towards scientific communities in subaltern regions from the "Global South," given that it risks committing cultural imperialism (Young 1990), it reproduces a colonial epistemic norming of space (Mills 1997), and it can result in a case of *epistemic exoticization*, i.e., a prejudicial credibility excess (Davis 2016). I conclude by suggesting a way forward to develop more inclusive normative frameworks for a *geographically* diverse value-laden *global* science.

2. Value-laden Ideals and Their Conceptual Limitations

Value-laden ideals that pose diversity as necessary for science's epistemic and social aims can be divided into two groups according to their underlying *concepts of diversity* (Steel et al. 2018; Steel and Paier 2022): *egalitarian* and *normic*. In what follows, I present each of them and identify their limitations for addressing the challenges of geographic diversity within the context of science.

Egalitarian ideals. Egalitarian ideals emphasize the importance of social and cognitive *egalitarian diversity*. Ideal scientific communities, under these frameworks, are "those comprised of participants with diverse values and interests [or diverse social locations], who have equal authority to advocate for different research directions, theories, models, background assumptions, explanations, and interpretations of data" (Intemann 2011, 112). The epistemic benefits of diversity come from criticism and dissent, the division of labor, and the creativity produced by the encounter of these diverse perspectives. The social benefits come from the participation of historically marginalized groups since their contributions would most likely result in the development of a more epistemically just and socially responsible scientific knowledge that benefits all, especially the most vulnerable. Longino's (1990; 2002) critical contextual empiricism and Kitcher's (2001; 2011) ideal of well-ordered science are good examples of this type of framework.

However, egalitarian ideals have two conceptual limitations. First, they make no mention of the *geographic* location of scientific communities or the democratic societies that discuss the role of science. The emphasis is (i) on the social identities, values, perspectives, and experiences of researchers (in Longino's case) and deliberators (in Kitcher's case); and (ii) on the equal distribution of these social locations among the members of scientific communities and the process of deliberation. Consequently, these frameworks refer to abstract and *placeless* scientific communities and democratic societies and strictly address the issue of diversity *within* such boundaries.

Second, when we expand these philosophical proposals to think about the encounters *among* distinct scientific communities or societies across the globe, the main image is that of *cosmopolitanism*. If we expand Longino's critical contextual empiricism, an ideal *global* scientific community would be one with shared global public venues for criticism, shared global standards, tempered equality of intellectual authority, and responsive to criticism. If we expand Kitcher's well-ordered science, an ideal global process of deliberation would be one where all global perspectives are considered when deciding what to study, what to sponsor, how to do research, and what to do with the knowledge acquired.

Therefore, the *literal* geographic location of the institutions and the members of that global scientific community is not what is at stake here. It seems that scientific knowledge and epistemic resources (instruments, concepts, theories, technology, and people) can travel across different societies without friction. The world of science is pictured as a world of "placeless

flows" (Agnew 2007, 141). This image, to use Agnew's words, "presumes total ease of movement, timelessness, no directional bias, and *an Archimedean view over the whole*" (140, Emphasis mine). This resembles, paradoxically, the now contentious "view from nowhere" (Nagel 1986). Moreover, if we examine this closer, such is the situation of dominant scientific communities and societies in high-income contexts (i.e., the "Global North") with a long history of intellectual exchange and with *equal intellectual authority* and *epistemic resources* (Dasgupta 2021).

As a result, the ways in which the flow, the production, and the content of science are shaped by the *power* relations between scientific communities that interact from different geographical locations across the world cannot be addressed. Egalitarian ideals assume, from the start, equality and a free flow of epistemic resources, instead of telling us how this may be possible. Therefore, histories of colonialism and oppression that resulted in the unequal distribution of resources and a hierarchical and racial division of (cognitive) labor –i.e., in a colonial/modern world-system (Quijano 2000)– are ignored when thinking about how *scientific* communities in "peripheral" places produce and use shared epistemic resources. In sum:

> The social image of science that our epistemological models currently envisage is one of a highly concentrated center, located possibly in a closely contiguous space. Social models of science are built around this tacit assumption naturally take for granted that all scientific communities generally occupy a common level ground

> with respect to their authoritativeness, thanks to their long history of collaborative exchanges. (Dasgupta 2021, 28)

Starting off from this tacit assumption, the next inference is likely to be that *science* is something proper of resource-rich communities that are mainly situated in high-income countries, i.e., the "Global North" or "the West."

Now, some may object that egalitarian ideals do take into consideration the knowledge produced by oppressed communities in the "Global South" (most of which are former European colonies). However, since the image of *science* is that of the resource-rich centers, *scientific* knowledge is mostly thought to be characteristic of the "Western" or "European" epistemic culture. Consequently, the inclusion of epistemic communities from the "Global South" usually translates into the inclusion of indigenous or non-academic *local knowledges* that are, by definition, *place-bound* or characterized by "context-sensitive strategies" (Lacey 2021). Though the literature usually stresses the value and intellectual equality of such epistemic contributions and resources, the salient impression is that knowledge produced by communities in disadvantageous positions in the "Global South" is *different* from our traditional understanding of science, and that *this* is what we must take into account in order to have global epistemic justice. We are then left with an image of an (ideally socially diverse) science that is non-situated or "cosmopolitan" in contrast to those geographically *situated* indigenous knowledges in the regions conceptualized as "non-Western" or "non-European" (Hess 1995) –again, just like the "view from nowhere."

Normic ideals. Normic –or standpoint theory– ideals emphasize the importance of social and cognitive *normic diversity*. Ideal scientific communities, according to these frameworks, are those that include and *give uptake* to members from social groups that maximally *differ* from those categories that have been established as "dominant," "hegemonic," or "the norm" in a particular context.[2] The epistemic and social benefits of normic diversity come from the inclusion of non-hegemonic and marginalized perspectives and epistemic resources that (i) can be a source of creativity and innovation, (ii) most likely do not reproduce oppressive dominant values, (iii) are probably more accurate or less biased than those of the most privileged groups.

Harding's (1993; 1995; 2015) strong objectivity program is a good example. The experience of being oppressed, she argues, opens the possibility of identifying the conceptual systems that reproduce and justify structures of oppression and provides tools for imagining better and more empirically adequate perspectives of phenomena (Dotson 2014; Lugones 2003; Medina 2013). According to Harding, objectivity is maximized by "starting off thought" from the lives of those who have been oppressed, since these standpoints prompt a "strong reflexivity" or *accountability* (Haraway 1988; Harding 1993).

In contrast with the frameworks previously described, the strong objectivity program explicitly addresses the question of what an *international* philosophy of science should look

[2] Being considered as "dominant" or "the norm" can depend on either a numerical majority or a qualitative factor such as social privilege or power.

like (Harding 2019). However, the move in this literature is to locate what we traditionally understand by science *in* the "Global North" and then highlight the imperative of developing and engaging with the knowledges or sciences (broadly understood) from "the Global South" –hence the tags "Northern" and "Southern" sciences in Harding's works. Thus, this type of framework avoids picturing science as *placeless:*

> all knowledge systems, including modern sciences, contain at least traces of their particular histories and ongoing practices; they are all "local knowledge systems" in this respect. […] it is no news to Northern science and technology studies that Northern sciences, too, are always shaped by local cultural projects and accessible natural resources." (Harding 2003, 58-59)

Objectivity, therefore, would be maximized through the inclusion of perspectives from *below,* that is, those views that during colonialism (and today still) were undermined, exploited, marginalized, and even destroyed during their encounter with ("Western") ways of knowing (Alcoff 2022; Bennett 2007; Grosfoguel 2013; 2020; Schiebinger 2007). In Harding's words, "Western science *was imposed as an alien presence in Third World societies* in the past through overt conquest […] " (1992, 314, emphasis mine). Let us add to this picture the numerous examples of the failures and harms of the implementations of scientific

knowledge and technologies in the "Global South," during the 20th century[3] –mostly under a civilizing enterprise or developmental aid.

This view seems to have the following implications. First, the frameworks of "Western" science do not, and cannot, address the needs and values of the regions of the "Global South." Second, they lead to inadequate ways of production, consumption, and the destruction of local forms of life (Escobar 2016; Harding 1992; Hess 1995). Third, marginalized and low-income regions should develop and give uptake to their ways of knowing, which most likely suggest new models of being in the world that are more sustainable and responsible towards all living (and non-living) entities (Agrawal 1995; Albuquerque et al. 2021; El-Hani, Poliseli, and Ludwig 2022; Harding 2015; Hess 1995). Finally, and in alignment with decolonial and postcolonial studies, developing these other ways of knowing is the path to overcoming epistemic oppression and gaining epistemic freedom and autonomy. This may be achieved through *delinking*[4] or *epistemic disobedience* (Castro-Gómez and Grosfoguel 2007; Mignolo 2007b; 2009; Pitts 2017).

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[3] See, for example, the work of Escobar (1998; 2016), where he describes the harms of technification in the Colombian Pacific and Latin America.

[4] Delinking –in Spanish, *desprendimiento* (Mignolo 2007a)– is the process of separating from European/ "Western" epistemologies and developing other ways of knowing, thinking, and doing.

The ideal result of this effort would be, in Harding's words, a "'world of worlds,' in which multiple knowledge systems around the globe partially overlap with each other, and none can claim unique universal legitimacy" (Harding 2021, 46). Therefore, a *geographically diverse* science is thought of in terms of the integration and development of (very) different knowledge systems from diverse cultures (i.e., "Western" cultures and "non-Western" cultures). Nevertheless, this strategy, though laudable and well-intentioned, shares the main tacit assumption of the egalitarian ideals: that is, that (modern/ "Western") science is something proper of resource-rich contexts. Thus, it fails to address the production of scientific knowledge beyond such conditions. Accordingly, when (modern/"Western") science is pursued outside these privileged and high-resource contexts, then it is mainly portrayed as oppressive, exploitative, extractivist, and as if "peripheral" communities were doomed to complete epistemic dependence or mimicry (Táíwò 2019; 2022).

What I have just described is an unnecessary and unfortunate historiographic presupposition of current normic ideals which makes them inadequate for thinking about how to have a *geographically diverse science*. Even though they insist that they wish to overcome the triumphalist image of science as solely a European product (Harding 1992), they maintain the image of a *European* science that thrived *during* and *because* of colonialism. Hence, the

historiographic model at the foundation of this depiction continues to be a *diffusionist* model of science (Basalla 1967).[5]

Is it not better to overcome such depiction, and think of science as a *global* (not mainly "Western"/European) achievement in which many participated, though indeed under unequal, oppressive, and precarious conditions? The history of modern science, qua modern science, goes beyond Europe. Modern science was practiced –not without difficulty– in other regions of the world, not only by European settlers but also by natives (both of European and non-European descent). Various historiographic efforts have tried to overcome this model, offering alternative ways of understanding these encounters (which are, in addition, embedded in power relations) and the related production of scientific knowledge (Dasgupta 2021; Nieto Olarte 2010; 2019; Raj 2007). Such narratives emphasize the agency and creativity of those

[5] According to Basalla's (1967) model, modern science is a Western European cultural product that *spread* to other places, mainly through colonialism and conquest. In Basalla's words, "any region outside of Western Europe received modern science through direct contact with a Western European country" (611). In the first stage, non-European lands and non-scientific societies were mere *sources* of scientific knowledge: "science [was] scattered around the globe, but only nations with a modern scientific culture [could] fully appreciate, evaluate, and utilize it" (613). In the second stage, non-European nations developed a dependent/colonial science. Finally, a few gained scientific autonomy (e.g., the United States).

who participate while being in the "periphery." I believe that relying on these histories of science can help us move forward to a better understanding and better normative frameworks of global science.

3. Negative Consequences for the "Global South"

In the previous section, I presented two limitations of current value-laden ideals for considering a geographic dimension of diversity. Egalitarian and normic frameworks, because of their underlying assumptions, lead us to examine the issue of global epistemic justice as mainly one of pluralism and integration between different knowledge systems. Geographic diversity, under such perspectives, equates to the diversity of knowledge systems: i.e., "Western"/ "Northern" (or cosmopolitan) science and "non-Western" (or local, indigenous, traditional) sciences in "the South."

This may explain (i) why global structural epistemic injustices *in science* continue to be neglected in philosophy of science, (ii) why the focus of global epistemic justice has been on non-academic or "non-Western" epistemic practices, (iii) and why discussions on diversity in science have been centered around *institutional* contexts and national (or well-defined) societies (just as Kristina Rolin and Inkeri Koskinen (2021) correctly pointed out). Thus, the value-laden ideals at hand end up being inadequate for considering and addressing the challenges of having a geographically diverse *science*.

I now wish to push my argument further. I claim that these conceptual limitations have potentially unjust consequences towards epistemic communities in low-income regions in the "Global South:" (i) it risks committing cultural imperialism (Young 1990); (ii) it reproduces a colonial epistemic norming of space (Mills 1997); and (iii) it can result in a case of *epistemic exoticization*.

Cultural imperialism. Cultural imperialism is the action of systematically drawing radical differences between social groups while defining the dominant and privileged position as the *norm,* i.e., as the criteria by which "the Rest" is compared, ranked, and assessed (Hall, 2018). In the words of Young,

> Since only the dominant group's cultural expressions receive wide dissemination, their cultural expressions become the normal, or the universal, and thereby the unremarkable. Given the normality of its own cultural expressions and identity, the dominant group constructs the differences which some groups exhibit as lack and negation. These groups become marked as Other. The culturally dominated undergo a paradoxical oppression, in that they are both marked out by stereotypes and at the same time rendered invisible. As remarkable, deviant beings, the culturally imperialized are stamped with an essence. (Young 1990, 59)

The available value-laden ideals risk reproducing this form of oppression when they address issues concerning *global* science and knowledge. They do so in two ways. First, as I previously argued, the dominant view of science continues to be that of the "Global North" or

its resource-rich contexts. In other words, *science* is identified as that which is practiced in the resource-rich "centers" of knowledge production. This picture obscures the contribution and participation of *scientific* communities outside the realms of intellectual exchanges in conditions of equal intellectual authority and epistemic and material resources, rendering scientific communities in peripheral contexts "dependent," "followers," "bad imitators," or "inferior."[6] Second, this dominant view pushes us to exaggerate and *only* highlight as valuable that which is perceived as epistemically *different* in communities located outside of the "normal" scope. Hence, as Tanesini (2022) claims, cultural imperialism is mainly an injustice of *recognition:* "it consists in the creation and maintenance of conceptual frameworks that construe members of subordinate groups as inferior and deviant epistemic agents" (p. 86).

Colonial epistemic norming of space. As Mills (1997) argued, colonialism also involved an *epistemic norming of space*. It was not only human groups that were racially ranked; places were also construed as sources of intellectual and moral inferiority. Accordingly, reason and science could not have been born outside of Europe, i.e., the best-suited region for human flourishing. "Non-European" –or "non-Western"– places were pictured as epistemically dark (Mills 1997; Quijano 2000), illegitimate (Henke and Gieryn

[6] Think, for instance, of how non-mainstream scientific venues in the "Global South" are more prone to be targeted as "predatory," "illegitimate," or "parody" (Bell 2017; Boncourt and Mills 2023; Krawczyk and Kulczycki 2021).

2008), and as obstacles to *producing* scientific knowledge (Nieto Olarte 2010)–even though they were clearly valuable *sources* of knowledge. In the words of Mills,

> [the colonial/racial epistemic norming of space] implies that in certain spaces real knowledge (knowledge of science, universals) is not possible. Significant cultural achievement, intellectual progress, is thus denied to those spaces which are deemed (failing European intervention) to be permanently locked into a cognitive state of superstition and ignorance" (Mills 1997, 44)

The philosophical frameworks we have just discussed, especially *normic* frameworks, end up reproducing this colonial pattern by (i) assuming (unintentionally) a *diffusionist* model of science, (ii) describing science as an epistemic practice proper of high-income and privileged regions, and (iii) assigning *other valuable* ways of knowing to low-income/subaltern regions. Even if this norming of space is now *non-hierarchical,* the main idea remains: science is *not* done*,* or cannot be done *freely*, in those places that have been conceptualized as "non-Western", "non-European," or "non-*white*." This, I believe, is an extremely limited account of the epistemic agency of the regions in the "Global South."

Epistemic exoticization. Finally, highlighting and encouraging *mainly* the "non-Western" or "non-academic" contributions from epistemic communities in the "Global South" is a form of *testimonial injustice* (Fricker 2007) caused by a *prejudicial credibility excess*

(PCE) (Davis 2016).[7] This results in what I call *epistemic exoticization*. Following Davis, credibility excesses caused by "positive" stereotypes can yield unjust and harmful situations when speakers from a marginalized social group are assigned high credibility *exclusively* in those areas where the hearer believes the speaker is an expert. Consequently, these "positive" prejudices end up defining the position of any member of that social group within an epistemic community and *truncating* their epistemic agency (Pohlhaus 2014).[8] In those cases where the speaker is conceptualized as *the Other* or as *deviant* from the dominant group, their agency is limited to that which the hearer conceptualizes as *different* from their own dominant frameworks. In other words, the admission to an epistemic community depends on whether the speaker adopts "the voice of distinction" (490):

> it is only because a marginalized speaker possesses what dominant others perceive to be socially and epistemically distinct that she is acknowledged at all. The problem with PCE is […] that one is only permitted (and expected to) contribute in ways that are considered "unique" and "distinct." (Davis 2016, 490)

Epistemic exoticization occurs when the available philosophical frameworks *condition* (or limit) the contributions and participation of epistemic communities in the "Global South"

[7] This differs from Fricker's original account of testimonial injustice as a *credibility deficit* caused by negative identity prejudices.

[8] This is what Pohlhaus (2014) calls "epistemic derivatization."

to that which is "exotic," "non-Western," or radically different (that cannot be *derived* from dominant perspectives). For instance, I highlight this passage from Harding in which she discusses the integration of "Southern" contributions to "Northern" sciences, claiming that "[it is] precisely *some of the elements of Southern cultures most incompatible with modern sciences and their philosophies that would be valued*" (2018, 53, emphasis mine).[9] This, I believe, is particularly harmful when many members of epistemic communities in the Global South do not fit this image. Hence, it is legitimate to ask, "Where do we come in?" (Táíwò 2022, 87).

These three consequences, besides being morally wrong, can be epistemically detrimental. If we wished to use such philosophical frameworks to guide our scientific practice and design measures for increasing geographic diversity, we would be in danger of encouraging active ignorance and epistemic vices. On the one hand, the *scientific* contributions of the Global South would be further concealed or truncated, hampering potential criticism and creativity. On the other hand, scientific communities in the Global North may become

[9] I think the calls for "delinking" in decolonial frameworks also share this problem: it seems as though separating from "the West" is the only path for gaining epistemic autonomy and freedom (Castro-Gómez and Grosfoguel 2007; Mignolo 2007b; 2009). Ironically, this truncates one's epistemic agency and limits it to disobeying the hearer's expectations.

more arrogant and narcissistic (increasing their sense of self-sufficiency and scientific superiority).

4. Conclusion

In this paper, I argued that current value-laden ideals of science are conceptually inadequate and yield unacceptable consequences when considering a *geographic* dimension of diversity. Consequently, they are limited for showing us the way to having a *geographically diverse science* –i.e., science produced by scientific communities located in different regions of the world and which are structurally situated in a *world-system*.

However, this is necessary for science to fulfill its epistemic and social aims at a global level, especially if we take into consideration the current dynamics of global science, mostly characterized by a *hierarchical* division of cognitive labor and an unequal distribution of epistemic, material, and economic resources. Under such conditions, scientific communities in the "Global South" have little say in global research agendas and the application of knowledge because of the unequal distribution of funding, their tasks remain mainly limited to data gathering and systematization and, moreover, they are systematically excluded from the choice and development of conceptual frameworks, methodological designs, the implementation and use of the results (Feld and Kreimer 2020; Kreimer 2006; 2019; Rodríguez Medina 2014; Vessuri 2006). The result of these global asymmetries is a global science that mainly serves the values of the most privileged locations at the expense of the

needs of the most vulnerable regions (Fernández Pinto 2019; 2022; García Carrillo et al. 2022; Yegros-Yegros et al. 2020).

Thus, in order to address this challenge, we need to develop philosophies of science beyond egalitarian and current normic ideals. These new philosophies of science should guide us in developing what Leonelli calls "judicious connections" (2023) among geographically diverse scientific communities. To achieve this, we must explicitly acknowledge and address the structural inequalities among *scientific* communities across the globe. Consequently, such normative value-laden frameworks must adopt a *normic* sense of diversity, where *oppression* and *inequality* are put at the center of the analysis. However, and in contrast to the available proposals, such a framework (i) should radically abandon the diffusionist model of science and, moreover, (ii) not address geographic diversity as mainly an issue of *cultural difference*.

Hence, an adequate *global* philosophy of science must adopt a politics of *positional* difference (Young 2007): it must address epistemic communities in diverse geographic locations not solely as *cultural groups* but also as *structural groups* defined by their positions of privilege and disadvantage when participating in the production of scientific knowledge. When doing so, many aspects that are in urgent need of philosophical analysis can come to light.

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