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Mitigation and Linguistic Epistemic Tolerance as Requirements for Linguistically Inclusive Science: A Dialogue with Vitaly Pronskikh

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In our paper “How to Fight Linguistic Injustice in Science: Equity Measures and Mitigating Agents” (2023), we discuss the challenges that non-native English speakers face in communicating their scientific findings. We explored several obstacles they/we encounter, with the most severe leading to epistemic injustice. In his critical reply “Do Scientists Need Mitigating Agents and Who is Responsible for Providing Them? Musings on Vučković and Sikimić’s ‘How to Fight Linguistic Injustice in Science’”, Vitaly Pronskikh raises several riveting questions that need further exploration, which inspired us to approach this topic once again and to further explore the consequences of the solutions we propose.

Linguistic Injustice

Hermeneutical injustice transpires from the speaker's inability to find the appropriate language to explain their discoveries due to those discoveries being somewhat unconventional and unexpected (Fricker 2007). Testimonial injustice refers to situations when someone's assertions are dismissed due to them belonging to a marginalized group (Fricker 2007). We explored both types of epistemic injustice in the case of Harald zur Hausen's team's discovery of HPV viruses being the lead cause of cervical cancer. As the members of his research team were not particularly fluent in English and the discovery itself was relatively unexpected, they faced—as we argue—both the linguistic testimonial and linguistic hermeneutical epistemic injustice. We explored several solutions based on the principle of equity and proposed the inclusion of mitigating agents who are both native English speakers and experts in a given field. We argue for the importance of mitigating agents when it comes to fighting the linguistic epistemic injustice in science. These agents should ideally speak both languages and be ready to mediate the scientific discussion. Already from psychology, we know that expressing understanding for all groups is fruitful when it comes to overcoming polarization. This leads us to the assumption that mitigating agents are particularly helpful in scientific debates.

One of the topics that Pronskikh discusses is the way the constant translations from native language to *lingua franca* drains the mental energy of international researchers. While we mostly focused on the time and additional resources needed for this type of endeavor, the psychological effects of the extra labor of reading, writing, and presenting in a foreign language must not be overlooked. While some studies seem to suggest a higher prevalence of imposter syndrome among ethnic minorities (Ahmed et al. 2020, Nadal et al. 2021), it is yet to be established which, among the many, factors affect the marginalized groups in which way. The inability to express oneself in a mother tongue, along with the continuous efforts put into translation, certainly plays an important part in the psychological pressure that international researchers face. In our response, we elaborate on the role and epistemic responsibility of the mitigating agents and emphasize the importance of linguistic epistemic tolerance of the privileged group. A synergy of these two approaches brings us closer to the ideal of inclusive science. We appreciate very much the contribution from Pronskikh to this important discussion and by continuing the dialog with him we hope to reach a better understanding of the role of mitigating agents.

The Importance of Professional Translation and Mitigation in Overcoming Hermeneutical and Testimonial Injustice

Perhaps a more demanding, yet justified and inspiring, question that Pronskikh raises is a matter of fairness and practicality in the processes of translation and mitigation. If the mitigating agents are scientists, then the extra effort they put into helping their non-native peers will lead to them having less time for their own research. Moreover, the mere introduction of mitigating agents will not suffice in overcoming linguistic testimonial injustice, as the prejudice towards less fluent researchers will persist. After all, testimonial injustice refers to how we are perceived, not whether we are eventually understood or not. For this reason, Pronskikh suggests that the scientific community invests in a stable “linguistic infrastructure” at the conferences, which will consist of professional translators. In this way, *one* translator can help *many* conference participants, which is more practical than having many scientists assist their colleagues.

While professional translators certainly play a necessary part in making live communication between native and non-native speakers as accessible as possible, we believe there are certain limitations to their service. Occasional events—such as conferences and research presentations—most of the time do not require much more than a fruitful conversation and additional help from translators. However, one has to wonder whether it would suffice in situations like the one with zur Hausen's team. Would the audience be more inclined to accept their results if the translators came to the rescue? It is possible, as the discussion would have gone much smoother. However, the problem of hermeneutical injustice may persist, as the discovery was rather unexpected. They were not ready to hear about infectious diseases causing cancer, and there is a chance that even proper translation would not have changed their mind. Perhaps they would shift the blame for misunderstanding from a research team to a translation team, and, in that case, their discovery would still remain unnoticed and underappreciated.

While we cannot be certain of their reaction, we believe that in extreme cases, professional translation is not sufficient to overcome hermeneutical injustice. Moreover, professional translators cannot be sufficiently familiar with different jargon from different fields. For instance, in Serbian—that is our native language—there is the word *dub*, which can be translated to English as both *mind* and the *spirit*, with the latter being more common outside of philosophy. When professional linguists take the task of translating our certificates to English, 'philosophy of mind' very often turns into 'philosophy of spirit'. This issue happens through no fault of a professional translator, as they are simply using 'spirit' as a more common word. However, were someone familiar with philosophical jargon to translate this particular chain of letters, they would have known that the 'mind' is a more appropriate translation. When it comes to translating philosophical books into Serbian, the ones who do it are typically philosophers themselves, and one can guess it is due to limitations that come with assigning professional translators to this mission. This example makes us wonder about the subtleties that get lost in translation when the translator is not an expert in a given field.

Hermeneutical injustice—as we come to understand it—thus may not occur *only* when a researcher does not have a proper linguistic apparatus to express herself but also when a translator chooses a word that may not fit in a given context. Therefore, while we believe that the vast majority of misunderstandings at oral presentations may be avoided through the engagement of professional translators, there are still borderline cases when it would not suffice.

Moreover, Pronskikh makes an excellent point in noticing that the problem of testimonial injustice does not miraculously disappear once we provide the initial mitigating assistance. As prejudice regarding international researchers can be deeply rooted in some scientific circles, sometimes even a name or an accent can point to non-native origins and, thus, lead to a dismissive attitude towards a researcher (Pronskikh 2018). For this reason, in the paper, we stressed the importance of fostering epistemic openness and linguistic tolerance in science. Moreover, we prefer to think of mitigation as a long-term process concerning broader contexts of scientific socialization rather than short-term linguistic support. Mitigation has to act in synergy with the emancipation of the privileged group. A good step forward is to organize some orientation courses that would help newcomers better navigate their new research facility, along with the optional presentations of other cultures, if the non-native researchers are interested. While these measures have already been applied in various research facilities, they ought to become more common and provide a continuous cultural exchange.

Therefore, it pleases us to learn of a good practice that has been established in CERN. As Pronskikh points out, it is a requirement for each group that finalizes the publication text to have at least one native English speaker who helps produce linguistically nuanced publications. We acknowledge this practice as a quality example of well-planned mitigation, such that it alleviates non-native speakers from additional linguistic dilemmas without overly burdening native English members. However, we agree with Pronskikh's recognition of the lack of understanding of a technical (not natural) language as the central source of misunderstandings in physics. This brings us to the varying levels of importance of *lingua franca* fluency in different fields. While having a native English speaker as a team member should suffice in STEM, non-native researchers in humanities may require further assistance in translating large portions of written material, as social science lacks the universal technical language.

What Motivates the “Motivators”: Why Should Someone Decide to Become a Mitigating Agent?

While both professional translation and further mitigation have their advantages and shortcomings in relieving hermeneutical and testimonial injustice, the matter of responsibility remains. We may all agree that something needs to be done and yet remain uncertain about *who* needs to be the one to do it.

When it comes to teams that entirely consist of non-native English speakers, we proposed that one of the team members—who is also a professional in a given field—puts in extra

effort in perfecting her knowledge of English so that she can help the rest of her team (Vučković and Sikimić 2023). However, Pronskikh is justified in noticing that such a responsibility may be unfair to the one researcher that is chosen for this task. The problem is that the more time someone invests in improving their language skills, the less time they have for their professional research.

Another issue is how willing someone will be to instill their effort into improving their language knowledge just so they could help others. Over time, they may even start to feel less like a scientist and more like an administrative worker in their team. (Pronskikh does not make a comparison this harsh, but it is one of the consequences of the work and responsibility not being equally distributed between team members.) When we learn something new, we usually do it because we believe we can benefit from that knowledge, not simply because we want to be (perceived as) a convenient asset to our team. We argue that no one should be forced to act as a mitigator within a team, but only supported by a research institution if there is a wish to pursue such a role.

When analyzing the role of mitigating agents, their responsibility is mainly epistemic, i.e., in seeking the truth and the honest representation of the work of their peers. It is not a legal responsibility and it should not come with any sanctions. If someone has the epistemic capacity to provide the appropriate mitigation one should feel invited and encouraged to do so. In turn, the effort of the mitigating agents has to be appropriately acknowledged and awarded by the rest of the community, e.g., by keeping in mind the necessary representations at conferences, funding their participation, language courses, and additional efforts.

While ethical and epistemic responsibilities may overlap in some of the situations during research, our focus was not on the question of whether helping international colleagues is the *morally* right thing to do. Instead, we wish to emphasize that the whole research team would *epistemically* benefit if some of its members decided to become mitigating agents. Therefore, while the concern about whether the role of mitigation may be overwhelming is legitimate, another equally valid question we wanted to pose is: How much do we sacrifice if we do not help international team members? If non-native English speakers are—due to their lack of proficiency—sidelined in their research teams, the whole team will bear losses due to the lack of their contribution. On a global scale, if we are focused mainly on scientific insights from the Global North, we may miss out on some important breakthroughs that are achieved in the Global South.

Furthermore, as in a previous section, we believe that some dissimilarities between natural and social science apply to their methodology too. While research in natural science is generally conducted in large teams that are further compartmentalized, so that each compartment does its separate share of the work, teams in social science are typically smaller and more compact. In the same vein, lines between different research roles in social science might not be as strict as lines in natural science. Distinct pre-existing modules of work distribution may lead to varying degrees of openness to further compartmentalization. The manner in which we have organized our workplace in the past may strongly influence the team roles we wish to include in the future. For this reason, we argue that dissimilar working

environments will require different mitigation plans. In the more compact working places, where the researchers are used to working together every day and sharing their ideas with their colleagues, the process of mitigation has probably already been put to use. Over time and through a better understanding of the international researchers' needs, we can expect that this kind of collaboration will continue to grow stronger. However, we believe that mitigation is possible even in the more scattered research environments, where colleagues do not meet each other regularly. In circumstances such as these, additional pre-planning and encouragement may be needed, but epistemic benefits should eventually justify this effort.

In a broader context, mitigating agents should mainly serve as “horizontal” mentors, meaning that they should provide additional support and advice on research, environment, and occasionally translation dilemmas without becoming full-time translators. We believe that one of the main reasons why the scientific community may be skeptical about the idea of mitigating agents while simultaneously remaining supportive of (“vertical”) mentoring practice has more to do with the current social climate than the idea of mitigation as such. Mentorship has its roots in Ancient Greece, where knowledge was pursued purely for the sake of it, while in contemporary science many other factors need to be taken into account. However, since the practice of mentorship has managed to survive even in the most highly competitive scientific environments, we can reasonably hope that the same future awaits mitigating agents. Moreover, as the scientific community has, over time, become broader and more global than ever before, the needs of scientists have expanded and changed as well; and this expansion of requirements warrants the elaboration of support systems. Today not only early-career scholars are the ones who need additional support, but many other marginalized groups likewise, with international students among them. However—similarly to the more traditional mentoring scenarios—the long-term goal is not to make international researchers reliant on continuous help but to use that help until they become more independent and fully included in the scientific community.

Is There a Collective Responsibility for Mitigation?

Another principle issue that Pronskikh points out concerns whether collective responsibility for mitigation exists and to whom it should apply. In our paper, we have advocated for the international redistribution of resources for mitigation in a way that wealthy countries invest in developing regions. More specifically, we argued, they should help the advancement of multiculturalism and promotion of publications in languages other than the *lingua franca*. The main idea behind it is to ensure inclusion, as opposed to mere integration, meaning that not only should non-native speakers adapt to an English-speaking research environment, but the scientific community should become more multicultural.

As Pronskikh accurately observes, the choice of *lingua franca* is not arbitrary. (This is something we agree upon, so the word we should have perhaps initially used is “contingent” rather than “arbitrary”.) Political and social circumstances have an important part in the process of establishing the *lingua franca*. Furthermore, whole countries and communities put in a substantial amount of cultural and financial effort to promote their language and even enable non-native speakers to participate in broader scientific communication. Hence, when

we speak of the promotion of languages other than the *lingua franca*—as Pronskikh observes—national institutes of the countries where those languages are spoken bear responsibility for promoting them.

This general sentiment is something we agree upon, and in many countries—ours being one of them—the vast majority of scientific research and promotion already gets finance through the government. However, even with significant support from the state budget and collective funds, native speakers of languages from smaller communities and/or impoverished countries are bound to be at a disadvantage. Naturally, the representation of a language should be proportional to the size of the community in which that language is spoken. As we originate from a relatively small country, it is not likely that our mother tongue will ever become the *lingua franca* or even have a huge representation within the global scientific community.

Nevertheless, there are occasions when a language is disproportionately underrepresented despite having many native speakers. A good example is Hindi, which—according to the available data—is in fourth place in terms of the number of native speakers¹ and third² in terms of the total number of all speakers. As Hindi is native to India and Nepal—which are both developing countries—their governments lack resources to invest in scientific research, let alone in language promotion. It is a vicious circle—a country cannot become globally recognized in terms of scientific research without language promotion, yet at the same time, researchers have difficulties excelling if their native language is on the margin. Even the most welcoming research facilities with a developed support system for non-native speakers—such as CERN—have relatively high standards for candidate applications, so those who lack language proficiency may not be able to enter those facilities. While developing countries face many more substantial issues than linguistic injustice, this example goes to show that sometimes even with the best intention, a lack of monetary resources may prevent language promotion.

To sum up, in order to increase linguistic justice in science it is not sufficient to burden the minorities with responsibilities, but also to teach the members of the dominant group to be less superficial. However, any collaboration and assistance should be encouraged, but not enforced, as productive results can be achieved only through synergy and voluntary cooperation. This brings us closer to the paradigm of inclusive science.

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¹ <https://www.translateday.com/most-spoken-languages-in-the-world/>.

² <https://lingua.edu/the-20-most-spoken-languages-in-the-world-in-2022/>.

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