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Epistemic Injustice and Scientific Knowledge Distribution

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This paper describes two kinds of epistemic injustice – discriminatory and distributive. The former is provided by Miranda Fricker; the latter is based on David Coady's work which means unequal access to epistemic goods, especially knowledge. I will firstly identify distributive epistemic justice within an epistemic structure of society and discuss its basic principles for distributing knowledge. Then I will argue that there is Fricker's discriminatory epistemic injustice in scientific knowledge distribution. And this kind of epistemic injustice will finally lead to distributive epistemic injustice. The possible way to diminish these epistemic injustices is expanding the diversity in science.

Keywords: discriminatory epistemic injustice, distributive epistemic injustice, scientific knowledge distribution, epistemic structure of society, diversity in science

INTRODUCTION

The term 'epistemic injustice' was introduced to the literature in *Epistemic Injustice: Power and the Ethics of Knowing* (Fricker 2007), by M. Fricker. Fricker's work has been seen as the primary source for the topic of 'epistemic injustice'. The book draws on diverse philosophical materials – chiefly, the epistemology of testimony, virtue epistemology, feminist philosophy, and the method of state of nature. This book 'renegotiates a stretch of the border between' epistemology and ethics, calling for an integrated analysis of these normative fields (Fricker 2007: 2). Here I will review some new forms of epistemic injustice, some critics or extending on Fricker's concepts of epistemic injustice, respectively.

Firstly, some philosophers have proposed new forms of epistemic injustice, which are further basic kinds of epistemic injustice. Coady (2010), Dotson (2012) and Bondy (2010) each present a new kind of epistemic injustice: 'distributive', 'contributory', and 'argumentative', respectively. The 'distributive epistemic injustice' means unequal access to epistemic goods, such as knowledge, expert advice, education and resources for inquiry. The 'contributory injustice' means what a hearer is willfully insensible to the hermeneutical resources being used by the speaker, with the result that the speaker's ability to contribute to shared epistemic resources is failed, and her epistemic agency compromised. The 'argumentative injustice' happens when someone puts forward an argument and its reception is negatively affected by prejudice.

Secondly, others have focused on some critics or extending on Fricker's concepts in different ways. Hawley (2011) extends the concept of epistemic injustice into the domain of practical knowledge, or know-how. Wanderer (2012) argues for a strongly interpersonal strain of testimonial injustice in terms of the wrong of 'rejecting', as opposed to merely 'ignoring' the word of the speaker. Mason (2011) gives a critical discussion of Fricker's notion of 'collective hermeneutical resources', and relates hermeneutical injustice to the phenomenon C. Mills calls 'white ignorance'. Medina (2011) makes a case for regarding prejudicial credibility excess as a form of epistemic injustice. Young, Linda, Orange and Savundranayagam (2019) describe how theoretical models of stigma align with the current model of epistemic injustice through a consideration of the concepts of 'stereotype'. Giladi (2018) provides an account for diagnosing epistemic injustice as a social pathology and also paints a picture of some social cure of structural forms of epistemic injustice.

I will basically focus on the second way – extending on Fricker's concepts in different ways. Fricker's pathbreaking account of epistemic injustice in both testimonial and hermeneutical stresses individual virtue and transactional justice. I shall argue that, just as J. Rawls claimed that justice is a virtue of social institutions, so can we scale up the virtue of epistemic justice to structural size. Social epistemologists have made it possible to ask how considerations of justice bear on epistemic practices and institutions. Anderson (2012) indicates some directions forward on this front, focusing on the need for integration of diverse institutions and persons engaged in inquiry.

Here, I want to introduce D. Coady's work on 'distributive epistemic injustic' which is also accepted by Fricker later (Fricker 2013). Coady describes two concepts of epistemic injustice – distributive epistemic injustice and discriminatory epistemic injustice. This paper will focus on these two kinds of epistemic injustice in scientific knowledge distribution.

In the first part, I will identify distributive epistemic justice within an epistemic structure of society and discuss its basic principles. Based on the conceptual framework, in the second part, I will turn to the two kinds of epistemic injustice existing in scientific knowledge distribution. In the last part, I will suggest that the possible way to diminish the epistemic injustices in scientific knowledge is expanding the diversity of science.

DISTRIBUTIVE EPISTEMIC JUSTICE

Coady began by trying to articulate a conception of epistemic injustice understood as an injustice in the distribution of epistemic goods. It was a precondition of such an account that the epistemic goods involved were distinctively epistemic, in the sense that they could not be identified with or reduced to any non-epistemic value such as happiness. To that end he endorsed Goldman's position that knowledge, understood simply as interesting true belief, is such a distinctively epistemic good. But he admit that he does not have any adequate account of what principles would guide a just distribution. So, I would like to give a specific explanation on this kind of epistemic injustice – understood as an injustice in the distribution of the epistemic good of knowledge.

My central claim is that distributive epistemic justice requires that people have the opportunity to acquire knowledge about matters that they have an objective interest in as individuals. The fact that people's opportunity to acquire knowledge depends on the workings of the epistemic basic structure of their societies explains why a Rawlsian society would need to address its organization. Kitcher (2011) claims that the general structure of public knowledge has been defined by processes of investigation, submission, certification and transmission,

elaborated in different ways in different societies. In fact, the formation process of public knowledge also constitutes a Rawlsian basic structure of society, which is also the institutional design on which we rely when discussing the basic principles of distributive epistemic justice.

Here, being inspired by him, I propose to identify the epistemic structure of a society as a 'system of public knowledge', in which institutions that have the greatest impact on individuals' opportunity to obtain knowledge on questions they have an interest in through their role in the following three processes: knowledge production, knowledge certification and knowledge dissemination:

(a) Knowledge production is directed at acquiring new information, and its working is governed by ideas about what issues are worth addressing;

(b) Knowledge certification responds to the results from the knowledge production process, selecting those claims deemed worthy to inscribe as 'knowledge';

(c) Knowledge dissemination transmits the information that has been certified to the potential users, both through public media and through providing people with the ability to gain access to the formulations in these media.

Knowledge justice has to do with how well and fairly these processes are carried out in the system of public knowledge. So, we can ask how far any person P is from acquiring knowledge regarding the answers to questions that bear on P's life plans. This depends on the following three factors:

(a) Knowledge production: Is there well-ordered research about the questions that P has an interest in?

(b) Knowledge certification: If so, is P entitled to submit reports to the public depository? Which types of knowledge should be written down, which trusted to the memories of P?

(c) Knowledge dissemination: Which parts of the public depository are available to P? How is the public knowledge needed by him or her?

EPISTEMIC INJUSTICE IN SCIENTIFIC KNOWLEDGE DISTRIBUTION

Besides distributive epistemic injustice, Fricker's discriminatory epistemic injustice can also scale up to an institutional level and be applied to knowledge distribution. In this part, I will argue that there is Fricker's discriminatory epistemic injustice in scientific knowledge distribution. And this kind of epistemic injustice will finally lead to distributive epistemic injustice. I want to concentrate on scientific knowledge and the cost of its dissemination. There are several reasons for this. First, science is arguably the most reliable institution of knowledge production in contemporary societies. Second, science provides the epistemic basis that makes possible much of well-conducted research done by diverse institutions and ensures the reliability of knowledge people need in their everyday lives.

Disseminating scientific knowledge takes resources, both funding and human resource. But the fact is that the resources are always limited. We cannot disseminate all the knowledge produced by all scientific projects. Therefore, we have to decide on investments in each respective knowledge distribution activity. Some knowledge distribution activities are allocated more resources and, have a wider reach, while other activities receive fewer resources and have a lesser reach.

Projects with good funding can have their knowledge disseminated more widely and therefore obtain larger social acknowledgment. The disparity featured by knowledge dissemination is inclined for a social bias of the present condition of scientific knowledge. The risk-based bias has been evolved to be unfair in an epistemic way. Overall, there are two

patterns of rather differential conceptions taken for reference when it comes to the epistemic injustice. First, distributive epistemic injustice, that is, whether all the individual persons during the knowledge distribution can be given fair treatment regarding the admission or the allocation to the knowledge. Secondly, Fricker's discriminatory epistemic injustice is of association with testimony and credibility. The injustice of this pattern is derived out of treating some entities in an unfair way for the identification of a knower, which comes from knowledge source, what Fricker depicted to be 'prejudicial dysfunctions unpracticed testimony.'

The eventual source of discriminatory epistemic injustice argued by Fricker belongs to a prejudice sort contrary to certain speakers. The central cases injustice of the both types involved in identifying prejudice or prejudice are opposed to someone for the reason of their social identities. Injustice of this regard is derived out of the conducts of the hearer on the basis of the less proper credibility which the hearer offers to the speaker in the form of a knowledge source. Discriminatory epistemic injustice prejudicially takes on the credibility of the knowledge source; instead of knowledge quality of the resources, it is due to some prejudice-based basis.

Many cases on epistemic injustice have focused on injustice ensuing from negative prejudice, but prejudice is not always negative. Not merely is prejudice damaging the credibility of some subjects in an unjust way, it is also positivity in prejudice, which can be unfairly in the support of the credibility of some subjects. In terms of the change in accessible resources to those scientific institutions, it expresses some prejudice based on some positivity. This credibility goes beyond our concerns.

Scientific projects featured by the best resources are able to set up a fine public profile. In that way, they will have upgraded fame, enhanced recognition and consolidated social establishment. On the basis of the recognition, people will hear better information of the resourced projects so that they will achieve greater credibility from their enhance prominence and the achieved positive prejudice within the social area. It is of special importance while the competition projects will be taken into consideration; or while the in-depth resource distribution is exerting functions.

The injustice comes out of the complicated social tides and constructions which can decide the availability of the resources and funding and their competencies in knowledge competencies based on society. The social constructions and paths leading to unequal resource distribution generating knowledgeable injustice are not being paid attention to. My assumption is that the allocation of resources can be achieved in virtue many kinds of scientific institutions as well as the individual science messengers.

Overall, there are two special cases which have to put up with discriminatory epistemic injustice in the allocation of knowledge: private funding for science and the prominence of nature documentaries. Comparatively, despite that the governments are still taking up the biggest share of scientific funding, a growing volume of resources has gone out of the private sector and made the entry. That leads to some concerns on the epistemic injustice. More or less, the government has allowed the scientific community to decide the to-be-conducted research. Nonetheless, private funding is more proactively shaping the research orientation. This has naturally been affecting the overall aspects of the projects, their allocation included. The reason is that the well-funded projects can be put under a better resource for attributing their knowledge in virtue of benefiting by the larger social acknowledgement, thus giving them credibility excess.

Besides, not all of the science communications and knowledge allocations must depend upon exterior funding. Some of them can create incomes. Documentaries mark the case in which knowledge distribution is influenced by the prospects or possibilities featured by financial returns. Nonetheless, not all of science aspects can render the documentaries based on success or popularity. In fact, documentaries have to be faced with twists to the biology, in comparison to physics, including the concerns that biology can profit by the excessive credibility. It makes the research thesis present a lot more significance compared to that in other scientific area.

We have made the point that unequal resource allocation means that some scientific projects are better resourced and benefit from increased social recognition and the following credibility excess, a form of discriminatory epistemic injustice. As a result, the interests of under-represented groups could be systematically ignored in the further scientific resource allocations. Then we can go back to the principles of distributive epistemic justice we have given in part one. We may find that if the person P comes from these groups, his or her interesting research projects may not get funding or the knowledge from the projects may not be disseminated. For this reason, this discriminatory epistemic injustice in knowledge distribution can finally cause distributive epistemic injustice.

For example, consider research in the supercollider and pneumoconiosis in China. The various participants' capacity to be heard, to be granted credibility, is unequal because the former project benefits from credibility excess as a result of their superior funding and resources, leading to distributive epistemic injustice.

Specifically, there happened a well-known debate on the Chinese supercollider among some top scientists in China. The debate focuses on whether China should build the new generation of supercollider. Later, a large number of relevant scholars, media and social elites joined the debate. Why does this cause such a big social concern? Besides the personal influence of these famous scientists, the main reason is that high-energy physics is so well-known among the Chinese public. The Beijing Electron Positron Collider Lab is open to the public regularly with lots of professional docents. Even a middle-school student from Beijing can point out where the Chinese supercollider is and what it is used for.

By contrast, pneumoconiosis is one of the most common occupational diseases in China. But there are few people knowing what is its effect on human. It is a deadly lung disease caused by the inhalation of large amounts of dust or particulate matter. About six million people from the poor and distant region of China are suffering this terrible disease. To date, these patients have no treatment option under the current condition of pharmaceutical research. Compared to the supercollider, I had asked some of my colleagues, and few of them can tell what exactly pneumoconiosis is. Let alone the fact that there is no effective medicine and most of the patients cannot survive over 60 years old.

So we can easily figure out that high-energy physics is much better resourced and get much more social recognition than this neglected disease. Even if the Chinese government has not yet decided whether to invest in the construction of the new collider and this decision will cost at least 20 billion US dollars, we can suppose that the supercollider will benefit from credibility excess and have a greater chance of getting funding than pneumoconiosis.

DIVERSITY IN SCIENCE

In this part, I will suggest that the possible way to diminish the epistemic injustices in scientific knowledge is expanding the diversity of science.

A process of 'diversity' affects many areas of science today. New forms of knowledge and new sources of expertise are being incorporated into science. Collaboration with diverse extra-academic agents has become common, and researchers in many fields are interested in promoting socially inclusive research practices. Researchers all over academia are coming up with 'citizen science' projects. In many disciplines, as well as in transdisciplinary projects, scientists attempt to build bridges between scientific and extra-academic knowledge systems and to take tacit knowledge, the knowledge of 'experts by experience', and other forms of lay knowledge into account in their work (Smith 1999; Cooke, Kothari 2001).

Specifically, by the term 'diversity of science', I mean diversity of agenda setting and diversity of research. For the former, there are both theoretical efforts, mainly due to P. Kitcher's 'well-ordered science', and practical efforts to increase representation in science policy decision-making. Meanwhile, for the latter, in the phase of research, I will indicate the diversity in scientific community.

The knowledge production in the epistemic structure of a society raises an important issue. Given that resources are limited, how should the priorities for research be set? According to the current state of science, they are determined by scientists and funding, but the interests of less privileged groups of people such as the poor and minorities tend to be neglected in research agendas. On the other hand, epistemically significant projects are sometimes pushed aside because they are perceived by an uninformed public as irrelevant to their practical needs. What is needed, therefore, a diverse participation in allocation of scientific resources. This will benefit to diminish these epistemic injustices we mentioned above.

There are both theoretical efforts, mainly due to Kitcher, and practical efforts underway to address this need. Kitcher's particularly well-articulated theoretical model of 'well-ordered science' presents an ideal of scientific inquiry, according to which ideal deliberators representative of all viewpoints in the society determine research agendas and the allocation of resources among them through deliberative reasoning informed by experts in each field (Kitcher 2001, 2011). As for practical efforts to increase representation in science policy decision-making, several democratic countries have recently adopted a variety of mechanisms to this end: citizens' juries and panels, consensus conferences, public opinion surveys and the like (Bucchi, Neresini 2008). In this way, public participation in science is being more actively encouraged in the hope that research will come to reflect the interests of all.

Both well-ordered science and these practical efforts concerned the social benefits of diversity in science which focus on the phase of agenda setting. I will discuss the epistemic benefits of diversity which focus on research. Several philosophers of science, particularly feminist philosophers of science, have argued that having a diverse community of researchers can help minimize the negative influences of bias in scientific research (Kitcher 2001; Solomon 2006).

I will not claim that diversity can provide epistemic benefits in every research context but in some research contexts. Diversity in research communities can generate new research questions so that expanding the lists of scientific projects for choice. Which research questions are posed and how research problems are framed depend on the particular interests, values and experiences of researchers. Having a diverse community of researchers with different life experiences can thus help increase the pool of research questions proposed. This makes it less likely that certain aspects of scientific projects will be systematically ignored.

Consider, for example, as women started entering the fields of archaeology, anthropology and primatology in the 1970s, they began to ask questions that had not been previously asked by male researchers in these fields. In particular, they began to ask questions such as 'what

activities did females engage?' and 'how did females contribute to social practices and evolutionary changes?' Asking these new questions revealed novel information and had implications for more general theories about evolution and social development (Wylie, Nelson 2007).

Women's contribution to science can enhance the study, find new perspectives worth examining, and shape the discipline, theoretical framework, and questions we ask to get the knowledge we actively seek. Even if we are unable to specifically determine how non-human primates identify in terms of gender or sex, this absolutely does not mean we should be limiting our human primate scientific perspectives in terms of only male and female, but explore what other paradigms are outside of the traditional perspective.

Having a diverse group of researchers, with different gender, life experiences, values and interests can generate new research questions that reveal new facts and contribute to our understanding of scientific phenomena. Diverse research communities, then, are more likely to produce scientific knowledge that engages with a broad range of epistemic interests.

CONCLUSIONS

Theories of epistemic injustice endeavour to explain the emergence, nature and effects of these injustices, while developing accounts for promoting epistemic justice. The study of epistemic injustice is of theoretical and practical significance. While Fricker's focus on individual epistemic virtue is important, we also need to consider what epistemic justice as a virtue of social systems would require. Coady describes two concepts of epistemic injustice – distributive epistemic injustice and discriminatory epistemic injustice. There is Fricker's discriminatory epistemic injustice in scientific knowledge distribution, and this kind of epistemic injustice will finally lead to Coady's distributive epistemic injustice. The possible way to diminish these epistemic injustices is expanding the diversity in science. Specifically, by the term 'diversity in science', which means diversity of agenda setting and diversity of research.

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HUIREN BAI

Episteminis neteisingumas ir mokslinio žinojimo paskirstymas

Santrauka

Straipsnyje apibūdinamas dviejų rūšių episteminis neteisingumas – diskriminacinis ir paskirstymo. Pirmąjį pateikia Miranda Fricker, o pastarasis remiasi Davido Coady darbu ir reiškia nelygią prieigą prie episteminių gėrybių, ypač žinojimo. Pirmiausia identifikuojamas paskirstymo episteminis neteisingumas visuomenės episteminėje struktūroje ir aptariami pagrindiniai principai, pagal kuriuos joje paskirstomas žinojimas. Tada siekiama įrodyti, kad mokslinio žinojimo paskirstyme esama M. Fricker diskriminacinio episteminio neteisingumo. Šios rūšies episteminis neteisingumas pagaliau priveda prie paskirstymo episteminio neteisingumo. Sumažinti tai galima didinant mokslo įvairovę.

Raktažodžiai: diskriminacinis episteminis neteisingumas, paskirstymo episteminis neteisingumas, mokslinio žinojimo paskirstymas, visuomenės episteminė struktūra, įvairovė moksle