This is a post-peer-review, pre-copyedit version of an article published in *Synthese*. The final authenticated version is available online at: https://doi.org/10.1007/s11229-016-1077-1.

Different motivations, similar proposals: objectivity in scientific community and democratic science policy

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Abstract: The aim of the paper is to discuss some possible connections between philosophical proposals about the social organisation of science and developments towards a greater democratisation of science policy. I suggest that there are important similarities between one approach to objectivity in philosophy of science—Helen Longino's account of objectivity as freedom from individual biases achieved through interaction of a variety of perspectives—and some ideas about the epistemic benefits of wider representation of various groups' perspectives in science policy, as analysed by Mark Brown. Given these similarities, I suggest that they allow one to approach developments in science policy as if one of their aims were epistemic improvement that can be recommended on the basis of the philosophical account; analyses of political developments inspired by these ideas about the benefits of inclusive dialogue can then be used for understanding the possibility to implement a philosophical proposal for improving the objectivity of science in practice. Outlining this suggestion, I also discuss the possibility of important differences between the developments in the two spheres and show how the concern about the possible divergence of politically motivated and epistemically motivated changes may be mitigated. In order to substantiate further the suggestion I make, I discuss one example of a development where politically motivated and epistemically motivated changes converge in practice—the development of professional ethics in American archaeology as analysed by Alison Wylie. I suggest that analysing such specific developments and getting involved with them can be one of the tasks for philosophy of science. In the concluding part of the paper I discuss how this approach to philosophy of science is related to a number of arguments about a more politically relevant philosophy of science.

Keywords: Objectivity; science policy; socially relevant philosophy of science; democratic representation; Helen Longino; Mark Brown; Alison Wylie

Contemporary philosophy of science is characterised by growing interest in the social aspects of science and the ways its social organisation has epistemic and practical consequences. Some of these philosophical accounts also contain proposals how science should be reorganised—Justin Biddle's (2014) discussion of patents in research on genetically modified seeds, James Brown's (2008) proposal to socialise biomedical research, Philip Kitcher's (2001 and 2011) well-ordered science, Janet Kourany's (2003; 2010) socially responsible science and Miriam Solomon's (2001) proposal to take her social empiricism into account when planning and funding research are some examples of this trend.

Once such a philosophical proposal is made, questions about the possibility to implement these epistemically motivated changes in the organisation of science arise quite naturally. In the paper, I suggest that responding to these questions should not ignore recent developments in relations between science and society. Over the recent decades, there have been numerous attempts to make science and science policy more socially relevant, accountable, democratic and legitimate or to improve its epistemic quality by involving in science policy various representatives of the public, in addition to the traditional participants (such as experts and policymakers); numerous experimental forms of democratisation—technology assessments, citizen juries, polls, public consultations, consensus conferences etc.—have been tested.[1] In the paper, I discuss why, how, and with what results philosophical proposals for the social organisation of science may be brought into contact with these developments.

One existing attempt to bring the two in touch is Maxence Gaillard's (2013) case study that compares the recommendations of Kitcher's well-ordered science with the actual development of French public debates on nanotechnology. In my paper I similarly attempt to bring into contact a philosophical proposal and discussions of science policy. However, instead of discussing particular science policy developments in light of a ready-made philosophical model, I suggest going down to a more general level and instead discussing certain common ideas that underlie both the philosophical proposal and the proposed changes in science policy. So, I discuss certain crucial similarities between one approach to objectivity

[1] Pleas for public participation in science policy have been around since at least J. D. Bernal; they greatly intensified—together with actual public participation—in the late 1960s and 1970s and have by now become an important feature of science policy in many countries, especially in Europe and Great Britain. An overview of the state of the field is given by Simon Joss (1999) in the introduction to a special issue of *Science and Public Policy*. Martin Lengwiler (2008) provides another overview, including a history of public participation beginning with the second half of the 19th century, in the introduction to a special issue of *Science, Technology & Human Values*.

in philosophy of science—Helen Longino's (1990; 2002)—and some ideas about objectivity in discussions of representative democracy as analysed by Mark Brown (2009).

I suggest that these similarities allow one to approach developments in the political sphere *as if* one of their aims were epistemic improvement that can be recommended on the basis of the philosophical proposal. Given the existence of important conceptual and motivational differences and given the political, institutional and cultural context that defines the development of a science policy initiative in practice, one should not expect a complete realisation of the philosophical ideal. As Gaillard's analysis demonstrates, this is what happened in the French nanotechnology debate—both the development and the results of the French experiment were different from what Kitcher's model of well-ordered science demands. Taking this into account, I suggest that philosophical proposals should be approached as a starting point, as a set of general ideas and approaches that take a more definite form in a specific context. Science policy analyses can then be seen as useful for learning about such specific contexts and the obstacles and possibilities inherent in them, helping to understand how philosophers of science could become involved with science policy.

In order to substantiate the proposal I make, I discuss in the second part of the paper a development that can be seen as the realisation in practice of the possibility I have outlined—I discuss the changes in the practices and disciplinary identity of American archaeology as analysed by Alison Wylie. Wylie's (1996; 1999; 2000; 2015) analysis shows how the greater involvement of the public and a more collaborative practice in archaeology, initiated for mostly ethical and political reasons, have resulted in important epistemic benefits. Accordingly, I take her analysis as support for my argument about the possible convergence of epistemically motivated and politically motivated proposals and about the possibility to gain information that is relevant for philosophical proposals from an analysis of actual developments.

I conclude the paper by discussing the relation of my proposal to several existing arguments about doing a more socially and politically relevant philosophy of science, such as Heather Douglas's (2010) "applied philosophy of science in context", Anna Leuschner's (2012) political approach to ensuring pluralism and objectivity and Biddle's (2014) "non-ideal system design".

Longino (1990; 2002) puts the notion of objectivity, understood as freedom from subjective bias, at the centre of her discussion of science. This approach stems from her

approach to evidential reasoning (Longino 1990, 38–61; 2002, 103–107 and 124–128). Longino begins by pointing out that although scientific hypotheses are based on empirical evidence, they are underdetermined by it. Hypotheses usually include concepts that are not used in description of the data taken to support them and thus cannot be simply derived from it. There cannot be a simple one-to-one relation between evidence and a hypothesis. Something else is always necessary to connect particular evidence with a particular hypothesis, some beliefs about the relation between this state of affair and the hypothesis that it could be used to support. Longino calls this necessary component background assumptions. Background assumptions enable evidential reasoning. At the same time, background assumptions are not themselves a part of empirical evidence specified when justifying the hypothesis. They may be explicated and ultimately justified by appealing to some empirical evidence, shared methodological rules or epistemic values. However, worryingly, they may also involve individual or shared biases or wishful thinking that remain hidden during the presentation of hypotheses and supporting evidence. This possibility raises doubts about objectivity of hypothesis acceptance.

Longino argues that social processes of criticism are what can prevent the uncritical acceptance of problematic assumptions; these processes make objectivity possible (Longino 1990, 62–82; 2002, 128–135). Hypotheses offered by individuals do not acquire the status of recognised knowledge automatically—before being integrated into the community knowledge store they are subject to criticism, replication, modification and extension by other members of community. In this process background assumptions may be exposed and their justification or modification may be required as a precondition for community acceptance of the hypothesis. As the result of these collective practices, individual biases can be prevented from entering community knowledge. Having established the central role of this collective criticism, Longino also describes the conditions that are necessary to enable effective criticism: public venues for criticism; uptake, or responsiveness to criticism; existence of shared norms; and tempered equality of intellectual authority among the participants. She also stresses the importance of a wide variety of perspectives in critical discussion, so that commonly shared assumptions would not remain invisible.

Objectivity—in the sense of being non-subjective—is thus inseparable from intersubjective criticism. Ultimately, openness to vigorous criticism is the only way a community can justify its claims to objective knowledge:

> For the only non-question-begging response to challenge must be: "We are open to criticism, we do change in response to it, and while we may not have included all possible perspectives … we've included as many as we have encountered (or more than others have)". (Longino 2002, 174)

Longino remarks that objectivity of science in this sense is not in principle different from objectivity in other spheres, such as philosophy (Longino 1990, 75). Elsewhere, she makes an even more general claim, characterising her account of objectivity with its criteria for transformative criticism as "an explication" of what objectivity means (Longino 2002, 173–174).

While the aim of my paper is to argue that Longino's conception of objectivity captures certain widespread ideas about it, it is important to acknowledge that it is "an" explication rather than the full explication of the meaning of objectivity. For example, Douglas (2004) proposes to distinguish eight different senses of objectivity that describe different aspects of individual's thought processes, human-world, and human-human interactions. While some of these senses, in particular interactive objectivity, overlap with what Longino's account describes, Douglas argues that these senses are interconnected but ultimately irreducible. And Longino herself recognises that, besides objectivity as intersubjectivity, there is also the traditional notion of objectivity as truthfulness to the fact (Longino 1990, 62). Similarly, the notion of objectivity that Longino describes may not be timeless. For example, Lorraine Daston (1992) describes how the understanding of objectivity as escape from a particular perspective and elimination of idiosyncrasies only emerged in the late 18th century in moral philosophy and aesthetics and gradually came to dominate natural sciences in the middle of the 19th century, as important changes in the social organisation of science were happening.

Longino's account of objectivity thus only attracts attention to one, albeit important (according to Douglas) or even currently prevailing (according to Daston) understanding of objectivity. I suggest that despite incompleteness, the focus on just this sense of objectivity—elimination of subjective bias that becomes possible thanks to interactions of diverse perspectives—may be helpful for establishing a contact between Longino's epistemically motivated philosophical account of science and some developments in science policy. If it is possible to show that Longino's associations between objectivity, absence of subjective bias and inclusive critical discussion are also recognised in the political sphere, developments in the political sphere based on these ideas may have important implications for philosophical

ideas about improving objectivity in practice. In particular, if the ideas about the importance of inclusive discussion for objectivity constitute one of the reasons to recommend a wider public involvement in science and science policy, developments attempting to increase public participation may be discussed from the point of view of their epistemic consequences even if it is recognised that these developments are also associated with different, non-epistemic motivations. In turn, analysing these developments may be highly relevant for understanding how an attempt of epistemic improvement would fare in practice—for understanding, for example, whether there may be political and public willingness to initiate such a change and whether it can be epistemically and politically successful.

In order to demonstrate the existence of an overlap between the discussion of objectivity and inclusiveness in philosophy of science and political science, I draw on the ideas that Mark Brown (2009, 201–237) develops in the context of his analysis of representation in science and democracy. Discussing democratic representation, Mark Brown distinguishes its five crucial elements and discusses practices and institutions that enable realisation of these different senses of representation. The elements in question are authorisation and accountability of the representatives, public participation and deliberation, and resemblance between representatives and those being represented. It is the fifth sense—representation as resemblance—that introduces the themes related to the idea of objectivity as the result of critical discussion from multiple points of view.

Mark Brown proposes to think about resemblance in terms of "social perspectives" (M. Brown 2009, 229): making representatives resemble their constituents better can be understood in terms of making social perspectives present among the public also present among those representing the public—for example, among experts and policymakers making science policy decisions. A social perspective grows out of certain shared experiences and provides basis for shared concerns and questions, although it does not necessarily result in one particular shared opinion. These experiences may be common for some social group—for example, women or members of a racial minority—but there may be different perspectives within a group and no perspective common to all its members. Such a perspective is essentially open—specifying its relevance to the issue at hand and attributing it to a particular group is always open to challenge. Neither is such a perspective fixed—it may change in the process of deliberation and this very changeability is important for the possibility of productive deliberation. Nevertheless, such perspectives provide something deliberation may start with.

Mark Brown argues that there is a number of benefits associated with the increase in resemblance and the involvement of a wider spectrum of social perspectives in deliberation. First, it may improve what Brown calls the "deliberative validity"—understanding of a problem may be expected to improve when it is approached from various perspectives. As Mark Brown writes in the passage strongly reminding of Longino's approach to objectivity, "[t]he more perspectives involved, the more likely that errors and biases will be identified and corrected" (M. Brown 2009, 230–231). Elsewhere he adds, writing this time in terms of "epistemic quality", that persons who have been long involved with particular issues, including technical experts, "tend to develop blind spots" (M. Brown 2009, 235), which may be remedied by including new perspectives. Longino attracts attention to the same benefit of inclusive discussion when she writes about the invisibility of shared assumptions within a community. Second, Mark Brown points out that it may improve public credibility of the decisions made, as it makes them more responsive to concerns of all groups potentially affected by them. Third, it may help to diminish the sense of alienation with respect to politics, including science policy—to the degree members of a social group identify with a perspective, its representation in various institutions helps members of this group to feel symbolically represented, reducing the alienation they may feel.

Mark Brown offers a general analysis of representation in science policy; in addition to that, there are also analyses of actual institutions and policies that show the existence of a similar understanding of objectivity in science policy. In her comparative analysis of politics of biotechnology in several countries, Sheila Jasanoff (2005) shows, similarly to Douglas and Daston, that there exist several understandings of the way to ensure objectivity, or to enable knowledge claims and decisions that are "untainted by bias and independent of the claimant's subjective preferences" (Jasanoff 2005, 264). In particular, Jasanoff distinguishes the approach that relies on the application of quantitative analysis for demonstrating objectivity, the approach that sees the individual's qualifications—the "capacity to discern the truth" (Jasanoff 2005, 266) as an essential element for making objective judgements, and finally the approach that stresses the crucial role of inclusiveness and interaction of different perspectives —judgements made are expected to be objective "not only by virtue of the participants' individual qualifications, but even more so by the incorporation of all relevant viewpoints into the output that the collective produces" (Jasanoff 2005, 267). So, the empirically based analysis of specific policies and institutions also uncovers the connection between inclusion and objectivity: in Jasanoff's words, in some institutions "[t]he appearance of a view from

nowhere is achieved by resolutely embracing ... the views from everywhere (or everywhere that matters for the issue at hand)" (Jasanoff 2005, 267). Jasanoff's argues that different political cultures tend to have relatively persistent preferences for the method to ensure objectivity—in particular, this collective approach to objectivity is prominent in Germany. Still, her analysis may be taken more generally to confirm that there indeed exist successfully functioning institutions and practices that embody this view of objectivity. (It may also be possible to create new practices on this model and I later discuss one example; Jasanoff (2005, 15 and 291), however, cautions against excessive optimism about the possibilities of transferring and remaking institutions and practices.)

Both Mark Brown's and Jasanoff's arguments show that increasing the number of perspectives involved in deliberation may be seen as having epistemically beneficial consequences—decreased bias and increased objectivity—in the sphere of science policy. However, in the political sphere the main interest is more likely to be directed at other consequences seen as beneficial for a democratic society. As Mark Brown (2009, 235) writes,

> Efforts to increase the diversity of social perspectives in public deliberation aim in part to remedy long histories of systemic discrimination against socially disadvantaged groups. They also seek to provide symbolic representation of these groups, in part to encourage political engagement by group members. These justifications for the representation of diverse social perspectives do not apply to scientific disciplines.

So, even if changes in the political sphere lead to the increased number of perspectives and improved critical discussion that philosophers of science would recommend, they are likely to be initiated for non-epistemic considerations and these considerations may in turn pull in the directions different from those philosophers would prioritise (for example, it is possible that a perspective whose inclusion is necessary to address the most pressing cases of alienation will not be the most fruitful epistemically).

I acknowledge the importance of this concern. Yet I want to point out two considerations that allow seeing the two kinds of developments as less different than Mark Brown's quote describes them. First, the efforts to fight discrimination and marginalisation of certain social groups may ultimately be relevant for the ideal of objectivity that Longino describes for scientific community. In order to improve this kind of objectivity, there should be inclusive opportunities for participation in knowledge production, unhampered by lack of resources on part of the marginalised or neglect of their perspectives; to ensure them, political attempts to address various inequalities in society may be necessary. Longino makes this point

when she discusses the criticism of the failure of scientific community to include perspectives of the marginalised groups: "[a]lthough epistemological in character, such a critique is political in effect, being directed at structural features that are political in origin (and must be fixed by political action)" (Longino 1997, 119). So, the politically motivated and politically consequential efforts that Mark Brown describes may have epistemically relevant consequences for scientific communities after all.

Second, I want to stress that broadly the same recommendations—greater public involvement and inclusiveness—can be supported by similar epistemic considerations (albeit given different relative importance) in philosophy of science and analyses of science policy; as I have shown, both Longino and Mark Brown describe similar epistemic benefits. Accordingly, primarily politically motivated changes in science policy may still be close enough to what an epistemically motivated proposal, such as that inspired by Longino's account, would recommend. In this case, one may approach certain developments in science policy *as if* one of their aims were epistemic improvement that can be recommended on the basis of the philosophical account.

I thus suggest that these differences may not be threatening for a productive contact between philosophy of science and developments in science policy (I return to another aspect of such a contact at the end of the paper). In order to support this suggestion with a specific example I now turn to the discussion of a development in science policy that I take to demonstrate the possibility of an ultimately epistemically beneficial politically motivated change.

In a series of papers, Wylie (1996; 1999; 2000) analyses the changes in the practices and self-understanding of American archaeology in the last decades of the 20th century. Wylie shows how these changes may be seen as a response to a series of challenges that were making the traditional practice of archaeology increasingly problematic. Changing patterns of archaeologists' employment (the overwhelming majority of archaeologists were now employed outside of academia working with a wide variety of publics) and concerns about the destruction of archaeological evidence (archaeological sites were under unprecedented threat from both construction projects and looting) made new questions about archaeologists' duties and responsibilities prominent. Simultaneously, archaeologists' right to work with archaeological material was challenged by groups who had a different claim on it. Using a variety of tactics, legal and political, including direct activism, indigenous peoples and descendant communities might demand that the archaeological material be respected as a part

of their cultural tradition and that their right to have some measure of control over it be acknowledged. The rights of the indigenous peoples to control their heritage were also increasingly recognised by the law—for example, the Native American Graves Protection and Repatriation Act (NAGPRA) became the federal law in 1990. In addition to this external pressure, there was also a growing recognition among archaeologists themselves about the necessity to pursue a more culturally sensitive and respective approach to archaeology. As a result of these developments, archaeologists had to take into account a variety of new demands. For example, representatives of descendant groups might require that a burial ground or a sacred site be respected as such rather than approached as an archaeological resource, which in turn might limit or block archaeologists' possibilities to excavate it, to undertake certain kinds of investigations or to exhibit and publish the resulting material. Requirements of organising consultations, obtaining informed consent and communicating results might become a part of archaeologists' practice.

The response of the archaeological profession to the pressures that Wylie describes took the form of the new ethical guidelines that the Society for American Archaeology (SAA) adopted in 1996. The notion of stewardship takes the centre stage in these guidelines. Archaeologists are seen as stewards of archaeological material for the rest of society. In this role, they have responsibilities before other groups that have interest in this material and, with them, also duties of communication, cooperation and accountability. The second of the Principles of Archaeological Ethics reflects this new understanding of archaeology's role:

> Responsible archaeological research, including all levels of professional activity, requires an acknowledgment of public accountability and a commitment to make every reasonable effort, in good faith, to consult actively with affected group(s), with the goal of establishing a working relationship that can be beneficial to all parties involved. (Society for American Archaeology 1996)

While there has been some opposition to this new disciplinary orientation, Wylie argues that American archaeologists nowadays do generally recognise the duty of accountability to other groups and try to communicate and collaborate with them, often going beyond the legal requirements (as an example of this lasting change of attitude on part of archaeologists Wylie refers to the series "Working Together" published in the SAA Bulletin and documenting archaeologists' experience with this more collaborative practice).

As a result of these changes, some degree of public participation and a wider representation of different perspectives when making decisions about archaeological research

are now a part of the practices of American archaeology. These changes may be seen as primarily motivated by the considerations of legitimacy and inclusion that Mark Brown describes. The duty of consultation before, during and after the completion of a project may be seen as a way to improve legitimacy of the decisions made (and possibly to prevent the parties consulted from using whatever opportunities they have for blocking the project); the duty of communication more generally may be seen as a way to address the alienation of a social group and to redress the past injustices against it. The motivations behind the new principles of practice thus seem to be pragmatic, political and ethical—after all, it is in the form of principles of ethics that they have found an expression.

In addition to that, however, Wylie argues that this collaborative practice sometimes is, and has the potential to be, epistemically productive: "[w]hile the impetus for these collaborations is often, in the first instance, moral and political—they arise from demands for respect, reciprocity, consultation—increasingly they are also robustly epistemic" (Wylie 2015, 189). Wylie discusses one example of such a successful collaboration, the study of human remains found in British Columbia in 1999, where the questions of interest for the local indigenous people turned out to be of relevance for the traditional archaeological questions as well.[2] So, the involvement of the public affected by research or standing in some relationship to the research material, which can be motivated by ethical and political considerations, may also be recommended on the epistemic grounds, as this public may also possess relevant local knowledge or perspectives. Wylie uses it as the starting point for discussing the possibility of a more collaborative and pluralistic practice in archaeology—in particular, the possibility of what she calls dynamic pluralism. Dynamic pluralism characterises research practice that takes the knowledge claims and perspectives of non-scientific communities seriously and seeks to interact with them. For Wylie, doing this kind of pluralistic practice allows realising more fully the commitment to being open to criticism that she sees, similarly to Longino, as central for science.

Wylie's analysis thus shows that a development in science policy initiated for ethical and political reasons may lead to changes that can be recommended also on the epistemic grounds—the grounds that Longino describes when she writes about the importance of inclusive criticism for uncovering background assumptions or that Mark Brown describes when he writes about the possibility to fill in experts' blind spots with the help of wider representation of perspectives. Such a convergence is especially important given the potential differences between epistemically motivated and politically motivated changes that I have

[2] Hebda et al. (2011) offers an overview of the framework of the research project, its course and findings.

previously discussed.[3] I thus take Wylie's analysis as a support for my suggestion that the politically desirable and the epistemically desirable may sometimes be close enough in practice.

I have suggested that such developments may be seen *as if* one of their aims is epistemic improvement. Now I want to propose that once such a connection is established, the political developments can be used as a kind of test-case for the philosophical proposal: how is it possible to change decision-making in science and science policy so that to involve a wider variety of perspectives and what are the consequences of such a change? Science policy analyses can be helpful for understanding how an increase in public participation may be made possible in a specific political and cultural context and what the epistemic and political consequences of this change are in this context. So, Wylie's analysis of the changes in American archaeology shows how the possibilities for a more epistemically pluralistic practice may be opened by changes in researchers' ideas about the appropriate research practice but also by specific laws and regulations (such as the NAGPRA) and changes in the ethics code of the discipline; these changes in turn may be a response to a variety of developments in the wider political and cultural context of the discipline, where actions (and activism) of various groups may play a role. Wylie's analysis also shows that at least in some cases these changes may result in relatively stable, politically and epistemically successful new forms of research organisation and practice.

I suggest that analysing developments in the organisation of research and science policy from the point of view of opportunities for more pluralistic and objective practice may be one of the tasks for philosophy of science. As I stressed in the beginning of the paper, the philosopher's contribution in this case should not be taken as a ready-made model of the desirable change. Instead, the general ideas, such as Longino's account of objectivity, can serve as the starting point for exploring more specific norms and regulations that emerge in particular contexts. I thus suggest to approach Longino's ideas about objectivity as underdetermined: while they capture some necessary conditions for objectivity and as such may be used for identifying possibilities and obstacles an attempt to improve objectivity may face in practice (I attempted such an analysis in Eigi 2013), they are not in themselves sufficient. It is still necessary to analyse specific legal and institutional arrangements, specific

[3] It may also be an important example from the point of view of analysis of science policy. As Lengwiler (2008, 187) points out, in most cases the public involvement is limited to the level of science policy; public involvement in actual research practices is rarely attempted or even called for. Wylie's analysis can then be taken as an example that the involvement of the public in science policy decisions (e.g., whether to pursue a specific project) sometimes may lead to successful participation of the public in research-related questions (e.g., how to proceed with the project).

research communities and their relations with their publics and their wider context in order to understand what form these general principles may take in specific context. Such a philosophical analysis may help to understand the epistemic consequences of ongoing or proposed changes—for example, in case of specific proposals in the general trend of democratising science policy—and possibly indicate ways of their epistemic improvement.

The opportunities offered by the approach I describe may sometimes be limited by the possible divergence of epistemically and politically motivated changes (although I have attempted to mitigate this concern discussing the possibilities of mutual relevance and convergence of different developments). At the same time, I suggest that working with non-epistemically motivated developments may offer an important opening for the philosopher precisely because of the ubiquity of non-epistemic reasons. Returning to the questions posed in the beginning of the paper, one may wonder whether there exists political will to implement changes proposed on epistemic grounds by philosophers. Yet the persistence of the trend for democratisation of science policy shows that there exists robust interest on part of various stakeholders in making science and science policy more inclusive. To the degree these changes may be similar enough to those proposed by philosophers for epistemic reasons (and in the paper I have discussed both a theoretical analysis of democratic representation and an analysis of actual science policy development to support this possibility), the very domination of non-epistemic motivations may serve as a resource for the philosopher of science. By focusing on these developments and working with those promoting them, the philosopher may attempt to add epistemic motivations to existing political ones and to help the epistemic improvement of these experiments in science policy instead of trying to initiate an epistemic change from the ground up.

I thus propose an approach to philosophy of science that focuses on the analysis of specific forms of more inclusive organisation of science and science policy brought about by primarily political considerations. Such a proposal can be related to a number of other recent proposals about a more applied or practically relevant philosophy of science.[4]

One possibility of a more socially engaged philosophy is the application of philosophy of science's conceptual tools and analytical skills in the context of specific socially relevant

[4] In the text I only discuss several examples to which my own position is the closest. The field of "socially relevant" or "socially engaged" philosophy of science is not exhausted by these examples. In addition to the arguments listed in the opening paragraph or the paper, see the introduction to a special number of *Synthese* by Carla Fehr and Kathryn S. Plaisance (2010) and the introduction to a collection of paper in *Erkenntnis* by Francis Cartieri and Angela Potochnik (2014) for an overview of themes, examples and rationales.
Discussing the contrast between my Longino-inspired approach that focuses on specific forms of organisation and Kitcher's well-ordered science is one of the central themes in a larger project I am working on.

issues. Douglas (2010) recommends such an approach with her "applied philosophy of science in context". Douglas proposes to use the philosopher's skills at conceptual analysis in the context of particular problems that the cooperation with expert groups working on these problems helps to see. Philosophy on this view is less about solutions and more about a particular style of approaching problems with particular tools and conceptual resources. In this paper (and earlier in Eigi 2013) I suggest that Longino's account of objectivity can be such a resource for thinking about the changes in science policy.

The focus on specific developments in science policy makes my approach somewhat different from Douglas's and brings it closer to a number of other arguments. My interest in the political measures that may enable a more pluralistic scientific practice shares some important similarities with the proposal Leuschner (2012) makes. Leuschner argues that Longino's conception of objectivity involves a circularity (in order to decide what perspectives have to be included in an objective community, one needs objective criteria to be already there). She suggests that a way to break this circularity is to make political decisions about specific expert communities on case-by-case basis and she discusses the Intergovernmental Panel on the Climate Change as an example of such a pluralistic body whose membership and norms are established by a political decision. While I share Leuschner's position about the relevance of political decisions for making pluralistic communities possible, I maintain that there are also other, non-political ways to overcome the circularity she identifies (see Eigi 2013 for a discussion of one possibility); free from this inherent contradiction, Longino's criteria can be a useful guide when thinking about specific institutions.

The suggestion I make in the concluding part of the paper about the possibility for a philosopher to make proposals about epistemic improvement of ongoing developments also shares some similarities with Biddle's (2014) non-ideal systems design. Biddle's approach starts with analysing an aspect of an actual form of organisation of research in a specific field and showing its implications for the production of knowledge; a specific proposal for change is made and its consequences analysed; the process can then be repeated. Unlike Biddle, I do adopt a philosophical framework that can be considered "ideal", but I see no contradiction between adopting the framework of Longino's approach to objectivity and exploring specific forms of the organisation of science. As I suggested before, Longino's norms of objectivity are essentially underdetermined: they take a definite form in specific organisational arrangements and specific knowledge-producing communities. Analysing these arrangements

and their potential problems (and steps for their improvement that would be, as in Biddle's proposal, gradual, local and iterative) can then be a task for philosophy of science. In turn, Longino's criteria may be useful for such analysis, helping to see arrangements that have emerged as a result of specific legal and institutional arrangements in terms of possibilities for greater objectivity and to analyse obstacles for the realisation of this promise.

Thus, my proposal joins a number of already existing models for philosophical engagement with science policy. What I have attempted to show is that Longino's discussion of objectivity and inclusive critical discussion provides a particularly convenient point for bringing the two spheres—epistemic and democratic—together.

Funding: This paper was supported by national scholarship program Kristjan Jaak, which is funded and managed by Archimedes Foundation in collaboration with the Ministry of Education and Research.

Acknowledgements: I would like to thank the audiences of the PhD Seminar/Colloquium at the Department of Philosophy, University of Tartu and the conference "Objectivity in Science" at the University of Tilburg in June 2015, and the two anonymous reviewers for helpful feedback.

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