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"Knowing Things in Common": Sheila Jasanoff and Helen Longino on the Social Nature of Knowledge[1]

Jaana Eigi

University of Tartu
Ülikooli 18,
Tartu 50090, Estonia
E-mail: jaana.eigi@ut.ee

Abstract: In her analysis of the politics of biotechnology, Sheila Jasanoff argued that modern democracy cannot be understood without an analysis of the ways knowledge is created and used in society. She suggested calling these ways to "know things in common" *civic epistemologies.* Jasanoff thus approached knowledge as fundamentally social. The focus on the social nature of knowledge allows drawing parallels with some developments in philosophy of science. In the first part of the paper, I juxtapose Jasanoff's account with the philosopher Helen Longino's approach. Longino argued that objectivity of scientific knowledge is made possible by the social nature of knowledge production. In the process of community-wide discussion, claims that are not intersubjectively acceptable are rejected and communally acceptable knowledge emerges. Longino called this knowledge-creating critical dialogue *transformative.* I suggest that Longino's account can be seen as providing epistemological support for the civic epistemologies Jasanoff described. They are capable of producing knowledge in the normative philosophical sense of the word to the degree that they are able to support this transformative critical dialogue. In the second part of the paper, I explore in the light of Longino's criteria for effective knowledge-productive dialogue one of the controversies in biotechnology policy that Jasanoff analysed. I suggest that Longino's criteria allow identifying some fundamental obstacles for initiating and maintaining this kind of responsive critical dialogue and that the controversy can be seen as caused by inability to overcome these obstacles. In such a case, the controversy signals an epistemic failure as well as a failure of democratic policy.

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Introduction

In her *Designs on Nature* (2005), Sheila Jasanoff analysed the politics of biotechnology in three countries—Germany, the United Kingdom and the United States—and on the level of the European Union. Her analysis serves the wider aim of understanding the changing relations between science and democracy during the transition to knowledge society, and the consequences of this transition for democracy (Jasanoff, 2005, pp. 4–5). One of the starting points for Jasanoff's analysis is the conviction that it is impossible to understand modern democracy without exploring the politics of science and technology—the ways knowledge is created, disputed and put to use in society (Jasanoff, 2005, pp. 6–7).

In the paper, I explore Jasanoff's approach to knowledge in the light of the social account of objectivity developed by the philosopher of science Helen Longino (1990; 2002). In the first part of the paper, I briefly summarise both accounts. I suggest that the social knowledge practices Jasanoff explored can also be analysed from the perspective of Longino's normative approach that describes conditions for the creation of objective knowledge. If a practice that is seen as knowledge-productive in the given society satisfies these conditions, it can be recognised also as producing knowledge in the normative philosophical sense of the word. In the second part of the paper, I apply some elements of Longino's account—her four criteria for effective critical dialogue—to one of the controversies that Jasanoff analysed. Longino's criteria allow identifying some fundamental obstacles for the social production of knowledge. I suggest that the controversy can be seen as the result of these obstacles blocking an attempt to establish a social practice for creating knowledge.

Jasanoff on civic epistemologies

Jasanoff began her account of the politics of knowledge in modern societies with the observation that in analyses of the increasingly close relations between science and the state the role of the public in knowledge production often remains unnoticed (Jasanoff, 2005, pp. 247–248). Jasanoff (2005, p. 9) attempted to fill in this gap with her notion of 'civic epistemologies'. Civic epistemologies are defined as culturally specific ways of knowing that form part of the local political culture. Civic epistemologies are the shared understandings what reliable knowledge is and how knowledge claims should be presented and defended (Jasanoff, 2005, p. 249).

Jasanoff stressed that the notion of civic epistemology differs radically from the notion of public understanding of science (PUS) that is used routinely when discussing science policy (Jasanoff, 2005, pp. 249–250). PUS relies on the picture of universally valid science the understanding of which among members of the public can be measured—for instance, with the help of questionnaires. If members of the public are not able to give satisfactory answers, it is interpreted as an indicator of insufficient understanding, or ignorance, on the part of the public. Ignorance is in turn understood as the reason of public scepticism or hostility towards science, and attempts are made to fight this ignorance by spreading popularised scientific information.

Jasanoff's constructivist approach means that the conception of science that underlies the PUS approach is no longer taken as self-evidently true—she approaches the authority of science and the presumed universal validity of its claims as something that requires an explanation in the first place. From the point of view of this article, the most important aspect of Jasanoff's civic epistemologies is their other defining feature—the shift of focus from the individual level to the social, communal level. In Jasanoff's own words, the notion of civic epistemology shifts attention from the individual who knows or does not know particular facts to the ways political communities "know things in common" (Jasanoff, 2005, p. 250). According to Jasanoff, the individualist approach that stresses the presumed scientific ignorance of the public is not able to explain the active role of the public in the politics of knowledge and different reactions of the public in different countries (Jasanoff, 2005, pp. 270–271).

Public knowledge in a given society is appraised in accordance with the normative expectations embodied in its civic epistemology. Only the claims that conform to

these norms are accepted as objective and reliable knowledge. At the same time, civic epistemologies do not need to take the form of explicit rules—instead, they usually exist in the form of systematic institutionalised practices (Jasanoff, 2005, pp. 255). Jasanoff suggested distinguishing between six aspects of such practices (Jasanoff, 2005, pp. 258–269):

1. Participatory styles of public knowledge-making: who is involved in the creation and appraisal of knowledge?
2. Public accountability: how is credibility of experts and policymakers before the public established?
3. Demonstration practices: how is credibility of knowledge claims demonstrated to the public?
4. Registers of objectivity: how is objectivity of public decisions demonstrated?
5. Foundations of expertise: what is the basis of experts' credibility?
6. Visibility of expert bodies: how open are the decision-making processes for the public?

On the basis of these six dimensions it is possible to analyse practices of public knowledge production in different countries. In accordance with the aims of Jasanoff's analysis, they allow one to demonstrate differences between the countries and to show the interconnectedness of the politics of biotechnology in these countries with their peculiar political cultures.

Longino on the dialogue-based creation of knowledge

Longino also rejected as inadequate the individualist approach to knowledge, and, similarly to Jasanoff's account, hers also departs radically from the assumptions of an influential approach in her area of work. Jasanoff contrasted her account with the tradition of PUS; Longino's social account of knowledge opposes epistemological approaches that treat social interests and values as having no place in knowledge creation. For her, the starting point was the problem of underdetermination (Longino, 1990, pp. 40–48; 2002, pp. 124–128). There is always a logical gap between the evidence and the hypothesis—the evidence does not dictate unambiguously the hypothesis that would explain it; different

hypotheses are possible on the basis of the same evidence. Longino pointed out that filling in this gap, and thus evidential reasoning, inevitably require that one rely on some background assumptions. They allow seeing the evidence as relevant for the hypothesis. Some of these assumptions are value-laden—they reflect particular aims, values and interests. Thus, evidential reasoning is never fully screened from social influences. Accordingly, the problem of justification of background assumptions is highly relevant for Longino's account. How is it possible to sustain objectivity of a community's knowledge claims and to avoid the influence of subjective biases and idiosyncrasies on publicly recognised knowledge? This problem is made worse by the fact that background assumptions are usually not explicitly formulated—they are often tacit, invisible to their bearers.

Longino (2002, p. 128) claimed that it is the individualist approach in epistemology that blocks attempts to solve this problem, and that a social account of knowledge provides such a solution. Presenting a dialogue-based account of objectivity, Longino (1990, pp. 66–76) argued that the process of knowledge production is social: it requires cooperation between individuals and individuals' claims become an element of publicly recognised knowledge only after discussion, criticism, testing and application by community. The critical discussion in community helps to modify the initial claims so that they become intersubjectively acceptable as part of public knowledge. On the one hand, this discussion ensures that the evidence and the research methods conform to the community standards. On the other hand, in the collision of different points of view, the dependence of reasoning on background assumptions becomes evident. Once these background assumptions are explicated, it becomes possible to discuss them from the perspective of intersubjective acceptability. So, communal critical dialogue plays an essential role in creating knowledge—in Longino's words, it is *transformative*.

Similarly to Jasanoff's community-level approach to knowledge, Longino approached objectivity as emerging on the social level. The better the communication in a community allows for explication, criticism and modification of background assumptions, the more objective the community is. Objectivity requires that this communal dialogue be free and reflect all relevant points of view. Its participants are supposed to take seriously the duty both to provide criticism and to react to it. Longino (1990, pp. 76–81; 2002, pp. 129–135) suggested the criteria that help to judge a community's ability to support such a dialogue—in Longino's terms, to support effective transformative criticism. Accordingly, these criteria allow judging the community's objectivity.

These criteria are:

- recognised public venues for presenting criticism;
- shared standards that allow judging what criticisms are relevant and what reactions to them adequate;
- community's responsiveness to criticism;
- (tempered) equality of intellectual authority among community members.

Longino's account provides an epistemological justification for communal practices of knowledge production—it shows that the emergence of objective knowledge is possible on the basis of social interactions and that these interactions are in fact essential for sustaining objectivity. I suggest that accordingly it can be seen as providing philosophical support for Jasanoff's notion of civic epistemology. One may suppose that civic epistemologies inevitably are epistemically suspicious. As civic epistemologies are intimately connected with the local political cultures, one may suspect that they produce what only counts as knowledge for the given political community and cannot be called knowledge in the normative sense of the word. To counter such a suspicion, I suggest that civic epistemologies can be seen in the spirit of Longino's account of the social nature of objectivity. Civic epistemologies are practices for public presentation, criticism and justification of knowledge claims—thus, they can in principle support the kind of critical dialogue Longino described. To the degree civic epistemologies actually enable transformative criticism in accordance with Longino's criteria, their results count as objective knowledge in the sense that Longino discussed in her normative philosophical account.

I suggest that the possibility to juxtapose Jasanoff's and Longino's accounts in a philosophically interesting way is open due to the fact that alongside with similarities between the two accounts there are also important differences in their respective focuses. Jasanoff's approach is descriptive and analytical—the aim is to describe, analyse and compare civic epistemologies in different political cultures. Longino's approach, while "socialised", retains the traditional philosophical interest towards normativity. Longino's aim is to develop an account that recognises the social nature of knowledge and yet allows dealing with its normative aspects (for example, its connections with the normative notions of truth and objectivity). Longino's solution is to show that objectivity is the result of social practices—she argued that such practices are simultaneously social and rational, and accordingly susceptible to normative treatment. Particular practices in a

community can be more or less successful in achieving objectivity. Accordingly, the aim of her criteria is not a description of the main features of a practice. Rather, it is a normative judgement as to whether the practice supports transformative criticism and so whether the community counts as producing objective knowledge. I suggest that therefore one can apply Longino's analysis to the civic epistemologies Jasanoff described in order to argue that these epistemologies can in principle produce knowledge in the normative philosophical sense of the word. It also allows making a normative judgement whether a particular practice is capable of producing such knowledge. At the same time, Jasanoff's analysis allows one to demonstrate how these social processes of knowledge production are realised in the context of a particular political culture so that their results can be recognised in that political community as valid knowledge. Juxtaposing the two accounts thus allows for a new perspective on each of them.

The petunia controversy

Longino's criteria help to identify some fundamental problems that can block the emergence of intersubjectively acceptable knowledge in community dialogue. Accordingly, these criteria can be used for analysing failed attempts to establish new practices for the creation of such knowledge. I suggest that one of the biotechnological controversies Jasanoff (2005, pp. 103–106, 114–117) described can be seen as such a failed attempt.

The German Genetic Engineering Law of 1990 contained the requirement to engage the public in the discussion of questions related to genetic technology. According to the law, public hearing was a necessary requirement for making decisions about the establishment of facilities for genetic engineering and about the release of genetically modified organisms into the environment. The first project to undergo such a public hearing involved planting some genetically modified petunias in an open field. As it turned out, the proponents of the project were not prepared for the way the public hearing developed. Instead of focusing on the scientific significance of the project and particular risks and benefits—the issues the researchers were ready to discuss—environmental activists seemed to use every opportunity to prolong the discussion and to prevent the approval of the project. Nonetheless, the petunia project was approved. The requirement of public hearings was withdrawn several years later. According to their critics, the experience of these hearings had demonstrated that the public primarily used

them for trying to block the projects under discussion. From their point of view, the public used the law improperly.

This German initiative to increase public engagement with biotechnology policy can be seen as an attempt to create the possibility for inclusive critical dialogue in society. As public hearings were a requirement of the law, it created an official venue for presenting criticism and reactions to it, and made it a duty for those initiating genetic engineering projects to be responsive to public criticism (presumably, there was also the expectation that the public should be responsive to scientific information). The conditions of public hearings thus conformed to two of Longino's criteria for effective dialogue. However, the petunia controversy demonstrated some fundamental failures of communication between the researchers and the public. I suggest that these failures can be explained with the help of Longino's remaining criteria. They concern some of the central issues for the social process of knowledge production—the questions of shared standards, the membership in community, and the authority of members.

The question of shared standards is intertwined with the question of membership. On the one hand, as Longino argued, the more points of view are involved in the dialogue, the better it is at sustaining objectivity. An attempt to engage the public in science and technology policy can be seen as an attempt to widen the dialogue: in addition to researchers, representatives of the industry, and policymakers, members of the public are also seen as belonging to the relevant community and capable of providing relevant perspectives. On the other hand, an effective dialogue is not possible without some shared standards. In order to be recognised as relevant, criticisms have to conform to some norms that all participants acknowledge. As Longino (2002, p. 130) pointed out, such norms are usually available when criticisms are exchanged within a certain community (e.g., a particular scientific subcommunity)—the existence of shared norms is one of the features that define a community. However, if there are several subcommunities involved in the discussion, there may be no common norms, and an additional effort may be required to create a shared basis for communication. The petunia debate demonstrated this lack of common ground in the dialogue of the researchers and the public. The environmental activists did not abide by the expectations that the proponents of genetic engineering had about the proper development of the discussion. For the activists, these expectations were not acceptable, as they did not allow for the questions that were crucial for the activists—the necessity and justifiability of genetic engineering in principle (see

Jasanoff, 2005, p. 116 for the summary of one analysis of the controversy that did recognise these needs of the activists).[2] For the proponents, the principled opposition to any possibility for biotechnological research was not an admissible position; for them, the aim of the discussion was weighing the risks and benefits of particular projects. Accordingly, they perceived the environmental activists as sabotaging the debate rather than contributing to it in a rational way (see Jasanoff, 2005, pp. 104–105, 115 for some examples of the attitudes of the proponents).[3] Given the radical differences of the initial positions and the lack of shared basis for compromise, simply bringing the opposing sides together in the situation of public hearing was not enough for the emergence of mutually acceptable knowledge claims.

Thus, there exists a considerable tension between the requirement of inclusiveness and the requirement of shared norms; realising the former without addressing the problems connected with the latter threatens the success of dialogue. A similar tension characterises the relation between inclusiveness and the ways of establishing authority. Even if members of previously excluded groups are included in community, they may be seen as having less authority and their contributions to the dialogue as deserving less attention, particularly if they do not have the scientific and technical expertise others do. This situation endangers the effectiveness of the dialogue as its objectivity suffers when a single perspective dominates the dialogue. In order to address this problem, Longino (2002, pp. 133–134) suggested distinguishing between cognitive and intellectual authority. While cognitive authority depends on the individual's specialised knowledge, intellectual authority reflects the individual's general abilities for analysis and rational discussion. Longino's criterion of tempered equality is meant to describe this general intellectual authority, and, accordingly, community is not supposed to distribute authority on the basis of technical expertise alone (although, as Longino pointed out, technical expertise remains highly relevant and finding the balance between the two kinds of authority is a complex issue).

[2] In an analysis of the German controversy over the genetic engineering facility for producing insulin, Rosemary Robins (2001) argued that the local activists who among other actions also employed official legal mechanisms for expressing their opposition, were drawn into technical debate concerning particular risks (the very kind of approach to genetic technology they would like to challenge) while they wanted to express more general social and ethical concerns about the project. If taking part in official resolution procedures "by the rules" worked against the activists' aims, it may be understandable why they often chose the tactic of resistance during public hearings.

[3] In an analysis of the legal rationale for public participation, Alfons Bora (1998, pp. 124–126) described the way hearings under the Genetic Engineering Law often unfolded, with activists trying to swamp them with lists of objections and complaints about the procedure. In such a situation, it may be understandable why someone who saw the aim of public hearings as a substantial discussion over particular risks of particular projects did not see the opposing side as rational partners in the dialogue.

From the point of view of this distinction, the German attempt to involve the public in biotechnology policy can be seen as an attempt to raise the importance of intellectual authority in the public sphere. Cognitive authority—the specialised scientific and technical knowledge—of the public may be smaller than that of experts. Yet the requirement of public hearings implied that intellectual authority of members of the public, their ability to take part in public discussion, is also relevant. However, the petunia debate and the subsequent abandonment of public hearings demonstrated that the recognition of the public as a part of the relevant community and acknowledgement of the intellectual authority of members of the public were neither unambiguous nor permanent. The contribution of the public was seen as a desirable, but not a necessary, element that could be abandoned, if its effectiveness was considered lower and its cost higher than expected. However, according to Longino, inclusion of all relevant perspectives is a requisite for the creation of objective knowledge. The "residual traces of illegitimacy" (Jasanoff, 2005, p. 106) that according to Jasanoff characterised the closure of the petunia debate, thus signalled a failure to create publicly acceptable knowledge both in the political and the epistemological sense.

I have suggested that Longino's criteria allow for a helpful perspective on the causes of the failure to initiate a knowledge-productive public discussion. Accordingly, these criteria can provide a focus when discussing the problems that can prevent political initiatives to establish this kind of dialogue from functioning, epistemically and politically, as planned. In particular, these criteria bring to the fore the issues of the establishment of shared standards (and the willingness of participants to do so), the roles of the public and the experts in the debate and the assignment of different kinds of authority between them.

Longino's criteria by themselves do not solve these problems. Decisions about a community membership and members' authority ultimately depend on the community. However, I suggest that Longino's account reveals a possibility for influencing these community decisions. An important aspect of Longino's account is that objectivity is seen as a matter of degree (Longino, 2002, p. 134). Communities (or the same community at different times) can conform to the criteria for transformative criticism more or less closely and thus be more or less objective. Accordingly, the inclusiveness of dialogue is also a matter of degree—there is no single ultimate list of relevant perspectives that community has to accept whole or to abandon the claim to objectivity. Generally, it can be suggested that a failure of objectivity is greater if alternative perspectives are readily available, and community members are aware of them and can recognise

their relevance for the discussion. The more evident this ignoring of available perspectives is, the greater is the failure of objectivity and the more pressing is the community members' duty to improve the situation. In order to do so, the community's members who recognise some marginalised perspective as relevant could attempt to influence the community's judgements by making this perspective more visible and presenting it in the way that helps other community members to see its relevance.[4] Any changes of this kind in the community's decisions about relevant perspectives are likely to be case-specific. Nonetheless, such decisions can in turn influence the community's future decisions and the norms that form the basis for decision-making. Such increases in objectivity, however, are not absolute, and objectivity of community will always remain a matter of degree.

Conclusion

In the paper, I briefly summarised Sheila Jasanoff's account of civic epistemologies and suggested that Helen Longino's social account of objectivity can serve as the basis for justifying, in the tradition of normative philosophical approach, objectivity of knowledge created by civic epistemologies. According to Longino, objectivity is possible thanks to the dialogical process of knowledge production. Free critical dialogue allows moulding individuals' claims into intersubjectively acceptable public knowledge. Thus, a civic epistemology is capable of producing objective knowledge to the degree it is capable of sustaining this kind of dialogue. In the second part of the paper, I argued that one of the controversies Jasanoff analysed—the petunia controversy that followed the German Genetic Engineering Law of 1990 with its requirement of public hearings—can be seen as an attempt to create conditions for inclusive public dialogue of this kind. Longino's criteria for the effectiveness of dialogue provide a perspective on the causes of the failure of this attempt and focus attention on the issues that can interfere with success of similar attempts.

[4] Those who are not recognised as the community's members could similarly attempt to point out, and help to repair, the community's failures of objectivity; however, they may be less likely to succeed due to the familiar problem of the distribution of authority between the members and non-members, and the lack of mutually acknowledged norms.

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Jaana Eigi, MA is studying for PhD in Philosophy and working as a research assistant at the University of Tartu. She specialises in philosophy of science and her areas of interest include social aspects of science, science policy, public understanding of science, the philosophy of Helen Longino and Philip Kitcher.