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DEBATTE

Does Diversity Trump Ability?

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Does Diversity Trump Ability? Introduction

Peter Niesen

The idea that diverse groups of ordinary citizens will "outperform" expert panels has become something of a totemic conviction in democratic theory. The "diversity trumps ability" (DTA) theorem, first formulated by the economists Lu Hong and Scott E. Page (2004), asserts that under certain conditions, diverse assemblies will find better solutions to complex problems than homogeneous groups of the best experts. This result has been taken up with much enthusiasm by political theorists, some of whom have taken it to prove the epistemic supremacy of democratic decision-making over its competitors (Landemore 2013). In debates with defenders of expertocratic and epistocratic, let alone autocratic, modes of decision-making,

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democratic theorists have pointed to the fact that modern societies are diverse by nature. Far-reaching conclusions have been drawn from this observation. Sortition-based assemblies, insofar as they hold out the promise of maximising diversity, would thereby seem to enhance decision-making quality (Manin 1997; Landemore 2020), while representative assemblies, somewhat less naturally in sync with diversity (Elsässer and Schäfer 2023), would have to be improved along these lines.

Vindicating diversity on its epistemic merits is different from vindicating it on other grounds, such as increasing efficiency, equality, fairness, participation, or overall legitimacy, and Hong and Page are not the first authors to attempt to do so. But the discussion of their work has so far bypassed the fact that participatory and deliberative theorists have long drawn on diversity as a cognitive resource in democratic theory (Young 1997; Bohman 2006; Schubert 2023). Rarely has the effort been made to connect the diversity-based arguments from other branches of democratic theory with the technical debate on Hong and Page's theorem. This is unfortunate, since it seems that distinct but similar DTA arguments have been developed separately in heterogeneous camps of democratic theory, which may indicate possible points of agreement between those camps. However, similarity in results would seem superficial if the respective justifications for DTA turned out to be incompatible with each other. One reason grounding this suspicion is that Hong and Page seem to demand maximising independence, not deliberation, in order for people to recognise the best options by an external standard of correctness, while most deliberative theorists tend to favour maximising inclusive argumentative exchanges to reach intersubjectively well-founded decisions. That participation and deliberation have merit under the DTA theorem is no foregone conclusion.

On the other hand, as Kai Spiekermann argues below, Hong and Page's model shows that decision-making processes may profit from participants coming together from different starting points, since their contributions will cover a more complete terrain of potential solutions to collective problems. This may not amount to a vindication of standpoint perspectivism, but rather to valuing input from different social locations as outlined by Frieder Vogelmann. It can also bolster Lisa Herzog's call to broaden our sense of who should count as an "expert" in democratic decision-making, since different experiences and positionalities will add to the reach of collective wisdom.

Our discussion thus focuses on the credentials of the DTA theorem, the appeal of the model on which it is based, and the various alternative cognitive potentials promised by diversity in collective decision-making, and it balances those against its contribution to other benefits of democracy such as inclusion, equality, or fairness, here represented by Charles Girard. In this, we continue a debate on diversity that the DVPW Association for Political Theory and the History of Ideas, *Theoriesektion,* has engaged in in the past two years. In the process, the Association has crowdsourced and adopted a strategy to enable greater diversity at its conferences and has dedicated an academic conference to "Struggles over Diversity" (for both, see the association website: https://www.dvpw.de/gliederung/sektionen/politische-theorie-und-ideengeschichte). But the *epistemic* benefits of diversity have not been addressed head-on so far, which makes diversity-oriented agendas in democratic theory vulnerable to output-oriented criticism. Given that contemporary challenges

demand reliable modes of problem-solving, and that autocratic regimes claim to "outperform" democratic ones in fighting poverty, fending off infectious diseases, sustaining economic growth, and facilitating technological progress, making a case for democracy in terms of justice and inclusion may no longer be good enough. One need only look at the performance evaluations in the recent COVID-19 pandemic to see that epistemic advantages of autocracies over liberal systems, if genuine, will count for something (Gerhards and Zürn 2021; Börzel and Risse 2021). Similarly, growing concerns over "political deference" vis-à-vis expert influence (Peter 2023) seem to show that a robust defense of lay citizens' political authority would have to draw on epistemic grounds.

One reason why the DTA theorem has gained so much attention in recent years was the claim that it could be mathematically derived, i.e., proven to be true. As a mathematical theorem, it has encountered much criticism that it is trivial or redundant (Thompson 2014), but it is not clear whether this matters much to its application in democratic theory. From the perspective of democratic practices, it is relevant whether a useful interpretation can be given to its construal of diversity and of its substantive argument for its alleged epistemic superiority. This *PVS Debatte* therefore starts with an explanation of the DTA theorem's rationale and underlying model—the combining of diverse heuristics in cooperative search processes. Kai Spiekermann, to whom we owe the first book to spell out what the Condorcet jury theorem may mean for real-life political situations (Goodin and Spiekermann 2018), argues that the DTA model shows that, while deliberation is not always beneficial, adding new ideas is never obstructive. Lisa Herzog, author of *Citizen Knowledge* (2023), defends the need to broaden our understanding of expertise such that diversity and ability will no longer seem opposites, and to provide for lasting epistemic infrastructures. In contrast to Spiekermann, she locates beneficial uses of diversity in agenda-setting, and not so much in the finding of unique solutions to political problems. Charles Girard rejects Herzog's qualified optimism that diversity in deliberation will bolster epistemic quality. He defends the unorthodox lessons of his book *Déliberer entre Égaux* (2019) in arguing that diversity in deliberation will increase equality and fairness among participants. Finally, Frieder Vogelmann approaches the topic from the history-of-science perspective of his recent book, *Die Wirksamkeit des Wissens* (2022). He affords some limited historical corroboration to DTA from the perspective of feminist epistemology, but he rejects prioritizing the epistemic dimension of collective decision-making altogether. While class-, gender-, or work-based differences in perspective illustrate the potential epistemic worth of diversity, they do not, Vogelmann insists, insure against unfounded generalisations.

How (Not) to Model Diversity

Kai Spiekermann

Do diverse groups make better decisions? Many have argued that there is *something* epistemically beneficial about diversity.[1] However, making this claim precise is harder than it first seems. There is, in fact, significant diversity in how one can think about the diversity of groups. This brief piece aims to show the importance of distinguishing carefully between different notions of diversity. The core focus is on Scott Page and Lu Hong's (Hong and Page 2004) model of diversity, while also pointing out that the literature could benefit from transcending the restrictions of that particular setup.

I will distinguish between the objects of diversity ("What is diverse?") and the epistemic setup ("What is the task, and which procedure is used?"). Objects of diversity can be votes; evidence or sources; and perspectives, heuristics, or models. This list is not necessarily exhaustive but should cover the key objects of diversity in the political realm.

The different epistemic setups are harder to list comprehensively. Here, I consider three: search, deliberation, and voting. In *search*, the problem is finding the correct solution from a set of options. The set may be large and structured in different ways. The solution may be hard to find or recognise. But once the solution is found, everyone agrees that the search is over. In *deliberation*, individuals talk to each other in order to solve a problem. In contrast to search, it is less clear how the deliberative procedure ends and whether it ends successfully. Possible end points are consensus or exhaustion. Finally, *voting* is an electoral mechanism that consists of some voter input, typically from a fixed choice set, and an aggregation of that input, which leads to a social choice.

With these distinctions in mind, we can approach different types of diversity and different mechanisms leading from diversity to epistemic advantage.

Diversity of Votes and Sources

One of the most obvious forms of diversity is a diversity of votes. A natural measure of this diversity is negative correlation between the votes. The advantage of negative correlation is the cancellation of errors. Put roughly, if votes are arranged such that errors cancel out, then majority voting is more likely to be correct than it would have been if votes had been statistically independent (given the state of the world).

Consider an extreme example. Imagine there are three voters. Whenever one voter votes incorrectly, the other two voters vote correctly, always countering the error. In that case, the group is always correct even if individuals are frequently wrong (Goodin and Spiekermann 2018, p. 102). However, such scenarios are not very likely because there are few systematic reasons why voters would be negatively correlated.

[1] In what sense are decisions "better"? I adopt an epistemic framework that identifies some choices as correct or better and others as incorrect or worse. Decision procedures are assessed based on their tendency to find correct or better alternatives.

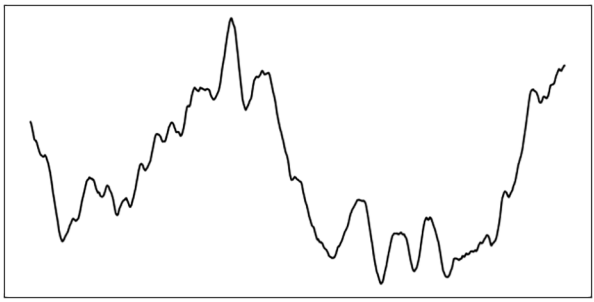

Fig. 1 A rugged landscape

Much more plausibly, voters and their votes are positively correlated due to common causes influencing all voters in the same way. This could be shared evidence, models, theories, the influence of opinion leaders, and so on. More fundamentally, it remains unclear in what sense a negative correlation of *votes* is a representation of diversity. When we speak of diverse groups, we do not typically mean a nicely choreographed balancing of errors.

A more plausible approach is to take evidence as the object of diversity, combined with a voting or deliberation setup. If individuals have more diverse sources of evidence, then this tends to reduce statistical dependence between opinions. And a reduction of statistical dependence tends to increase the benefits of aggregation. Vice versa, if many individuals are influenced by the same sources, this can be epistemically disadvantageous, especially if these sources are not reliable (Dietrich and Spiekermann 2022).

Diversity as Distributed Search

Let us now turn away from voting and towards a search setup. Search usually involves many options, possibly arranged in some sort of structure. Searching agents can inspect different options. Once an agent finds the correct option, the search concludes successfully. A search problem gets interesting when the ability to search is constrained such that not all options can be inspected and compared.

Imagine a group of individuals facing the task of finding the global maximum in a rugged landscape, as in Fig. 1. But let's further assume that the individuals are constrained in the area they can search. For instance, one could imagine that each individual has a limited search radius due to time or resource limitations. This could be interpreted as diversity in epistemic standpoints (see Frieder Vogelmann's contribution below) or as diversity of expertise (see Lisa Herzog's contribution). Or one could assume that individuals stop at local maxima and end the search once they have climbed the first peak. In such a setting, a bad social search strategy would be for all individuals to start at the same point. A much better strategy would be for each individual to start at a different point and then to report back about the highest point they found. This simple insight may base an argument for experimentation in political institutions or for ensuring diversity in standpoints or expertise. In a nutshell, a diversity in search strategies can lead to a more efficient division of epistemic labour and thus better results.

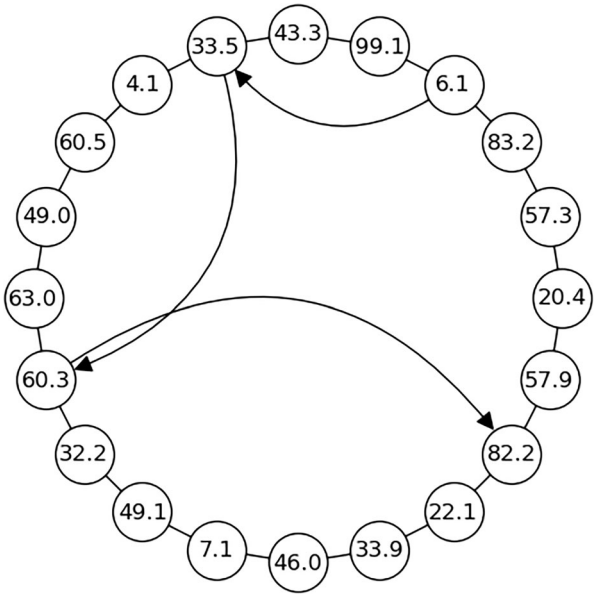

Fig. 2 Heuristic (3,5,7) searching on ring of size $n = 20$

The advantage of diversity in search is exemplified in Hong and Page's (2004) model. It demonstrates that a diverse group of individuals typically outperforms a similar-sized group of the best individuals. The object of diversity in this setting is search heuristics, and the epistemic setup is a search for a numerical maximum.

The technical details of the theorem have received significant critical attention from mathematicians in recent years (Thompson 2014; Romaniega 2023), with corresponding replies (e.g, Kuehn 2017) and further analysis (Grim et al. 2019). In my view, the *theorem* is of great technical importance,[2] but for the substantive discussion of the epistemic benefits of diversity, it is more fruitful to think about the features and limitations of Hong and Page's *computational model*. In doing so, we gain an intuitive understanding of what Hong and Page mean by diversity and why diversity can beat ability in one specific sense.

Hong and Page's search problem is simple. Just as in the previous section, individuals are tasked to find the maximum in a search landscape. Here, the landscape is a ring of nodes, 1, ... ,n. Each node has a value in the interval [0,100]. A small example ring with $n = 20$ is shown in Fig. 2.

Each agent has a search heuristic, telling the agent which nodes they will inspect relative to their current position. Search heuristics contain a fixed number of possible steps, constrained by a maximum step length (we assume there are three step numbers with maximum step size 12). For instance, if an agent has search heuristic

[2] In addition, what Hong and Page call the "diversity-trumps-ability theorem" gained significance because, somewhat unfortunately, the theorem has been referred to extensively in the nontechnical literature as a supposed proof of the superiority of diversity, often stretching the interpretation much beyond the mathematics. Thus, even after fixing mathematical errors, I doubt that a repaired theorem can bear the weight these interpretations heap on it.

$(3, 5, 7)$, then she will first inspect the node 3 steps away. If this node has a higher value, she will move there. Next, she inspects nodes 5 and 7, steps away, and then loops around to try a step of 3 again. She moves and updates her position each time she finds a node with higher value. This ends when no step in the heuristic leads to a further improvement. Figure 2 shows an example for heuristic $(3, 5, 7)$. Here it starts at the node of value 6.1 and makes steps 3, 5, and 7 to end at the node of value 82.2. This is a good outcome, but not the global maximum of 99.1, which the heuristic $(3, 5, 7)$ cannot reach from that starting point.

Hong and Page then score heuristics based on the value of the highest nodes they find, averaged over all possible starting positions and for a sample of rings. This gives them the basis for creating a group of the most "able" individuals, i.e., those with heuristics that individually find the highest-valued nodes on average. They then proceed to compare this group of individual high scorers with a group randomly chosen from the set of all possible heuristics.

How do teams search on the ring? Hong and Page set this up as a pass-the-baton process. The first heuristic searches until it gets stuck, then the next heuristic continues, then the next, until no heuristic in the team can bring about further progress. This creates the ground rules for comparing the most able individuals (the heuristics with the best individual performance) with a more diverse team (a random set of heuristics). Hong and Page find that diverse teams clearly outperform teams of individually best agents. In a replication of the model, I have found the same qualitative results.

To understand the causes of this result, it is worth looking at the sort of teams that are individually best. Here is one team of the 10 best heuristics (from a run of my replication):

$$(3, 10, 11)\,, (7, 9, 3)\,, (9, 7, 3)\,, (3, 11, 10)\,, (5, 3, 11)\,,$$
$$(10, 3, 11)\,, (11, 3, 7)\,, (3, 11, 7)\,, (7, 3, 9)\,, (3, 9, 7)$$

The group is of striking homogeneity, a permutation of only six step numbers. By contrast, a random selection of heuristics is quite likely to contain all or at least most of the possible step lengths. Seen like this, it is not that surprising that a more diverse random team outperforms the team of best: The individually best are simply too alike to do well in a collective search. This, of course, is precisely the point of Hong and Page's exercise.

One can always criticise simple models for their simplicity. Here are some such critiques: (1) Diversity in simple heuristics is not necessarily representative of what most people mean when they talk of diverse groups; (2) individuals are much more than a vector of numbers; (3) a maximisation problem on a ring is unlike any problem that groups would face in the real world. However, such critiques are a little uncharitable. In my view, the simplicity of the computational model is useful. The model shows how a specific object of diversity (search heuristics) can do more or less well in a certain epistemic setup (a search). More concerning is the use of the Hong–Page model to make statements about other objects of diversity or about other epistemic setups without realizing this shift. Despite claims to the contrary, the model has nothing to say about aggregation by voting (for voting, Hong and

Page 2009 and Hong and Page 2012 are much more pertinent) and does not model deliberation at all. In fact, the use of the 2004 model for political processes is limited: Much political decision-making is not like a maximisation problem with one best answer that is immediately recognised once it is found (see Lisa Herzog's debate contribution below).

Engineering Diversity?

We have seen that diversity can often have a positive effect on the epistemic performance of the group. This raises the following question: Can one intentionally engineer diverse groups? Some of the simple models and setups considered above suggest that one can. For example, in the Hong–Page model, instead of drawing a random sample of heuristics, one could enter heuristics that collectively cover all possible steps for maximum search effectiveness. Indeed, in my replication, this strategy tends to do even a little better than random diverse groups.

Unfortunately, what looks deceptively simple in such models will likely be much harder in reality. While we can immediately see whether a set of heuristics is more or less diverse, we have no such transparency when putting together real-world groups of decision-makers. Instead, there is a serious risk that hand-selected groups are more positively correlated in their evidence, heuristics, and votes, due to unknown common causes influencing all these individuals. One option is to make groups large in order to increase the total number of traits. But large groups typically need to *vote*, and diversity will lead to better votes only when different viewpoints are distributed in an epistemically conducive way: They need to be present in the right proportions.

When promoting diversity, a more promising route is to aim for participatory and inclusive processes, protect and highlight minority opinions, and encourage nonconformism to prevent the early onset of conformity pressure. Diversity, it seems, is the sort of good that is best promoted indirectly.

Democratic Theorists, Bring Your Own Arguments!

Lisa Herzog

Twenty years ago, Hong and Page (2004) published what they called the "diversity trumps ability" (DTA) theorem: a mathematical theorem that shows that under certain assumptions, more diverse groups are more successful in solving problems than groups of experts are. This seemed a boon for democratic theory; a number of epistemic democrats, notably Landemore (2013), drew on this theorem to argue for the epistemic benefits of inclusive deliberation. The DTA theorem seemed to offer a perfect justification for involving normal citizens, with all their diverse backgrounds and perspectives, in public deliberation—or even to replace elections, which tend to lead to relatively homogeneous groups of representatives, with lottocratic mechanisms to include more diverse perspectives (Landemore 2020).

One does not have to be an "epistemic democrat" in the sense of defending democracy *on epistemic grounds* to care about this question. One can also defend democracy on a principled basis, as expressing the fundamental moral equality of individuals, and yet worry about the epistemic quality of democratic decision-making matters (Herzog 2023). From that perspective, it is important that one can assume that democracy can function *reasonably* well, epistemically speaking, and that improvements are possible. For this project, the potential of the DTA theorem still matters: It could provide an important argument for why democratic deliberation and participation are likely to deliver good epistemic results. But can democratic theorists so easily rely on this mathematical result? There have been serious doubts about the strength of the theorem and about how to interpret it. Let me briefly present two such criticisms.

Grim et al. (2019) point out that the modelling of "expertise" in the Hong–Page theorem is very specific: It means to perform well on *one* problem. If one changes the understanding of expertise to good performance on *many* problems of the same type, then the results change. Other changes in the setup of the model, e.g., the methods of group work and the number of problem-solving methods, can similarly change the outcomes. The authors' point is not to deny that in real life diversity may sometimes trump ability, but rather to show how much depends on the definition of the parameters. As they write, "The variety and sensitivity of our results show that the pervasive uncritical applications of the Hong–Page result are risky. … moving from formal results to real world applications is a long, laborious, and, most importantly, empirical process" (2019, p. 121).

This conclusion is one that Romaniega (2023) would agree with, but his criticism is even sharper—he calls the application of the theorem to issues of democratic decision-making a "misuse of mathematics" (2023, p. 3). The core of his critique is that the theorem models "experts" as "clones" of the best problem solver, and that by bringing in an infinite number of random problem solvers (from a group that also contains the "best" problem solver), it is more likely to get a good result—because there is also the assumption that once the "best" problem solver has given it a try, another problem solver can bring improvements. For Romaniega, this is a trivial application of the law of large numbers, and he shows that one can just as easily develop a theorem in which "ability trumps diversity."

What should democratic theorists say about these criticisms? Whatever exactly one makes of the mathematical details, the critics teach us caution about the ways in which mathematical theorems get applied to real-life contexts (and there is probably also a sociological lesson here about the authority that mathematics enjoys among academics in other fields and in broader public discourse). This point should be no surprise to those familiar with discussions about the use of formal methods in economics and the question of how to make sure that the assumptions of models are anchored in social reality (e.g., Spiegler 2015). A key question for the Hong–Page theorem, for example, is what one means, conceptually, by someone being an "expert," and whether this is a plausible model for how real-life expertise functions.

All of this amounts to saying that democratic theorists need to develop their own arguments if they want to defend the epistemic benefits of diversity (whether or not they then use mathematical models for undergirding these arguments is a logically

secondary question). Such arguments have indeed been made long before the DTA theorem was published, and I will present some examples below. But they always face a specific challenge: If they are meant to be used in *democratic* theory, they need to show that not just a small group of *diverse experts,* but *all citizens* should be involved in decision-making, at least in principle.

A first move that one can make for facing this challenge is to say that for many political issues, we do not know *who the experts are*; sometimes this point is combined with the claim that political issues are, or at least involve, normative issues, and it is not clear what normative expertise is and how we can reliably discover it. The problem with this move is that while it may seem plausible if one formulates "political problems" at a level that is sufficiently broad and general, it is less plausible for concrete political issues. First, for input on certain types of facts (e.g., on climate change), there can clearly be experts who have better access to certain basic facts (though not necessarily to their interpretation), based on their research methods and the deliberations within their epistemic communities, than average citizens do. And second, for certain types of decisions about how to *implement* the outcomes of decisions, there can also be specific expertise, and it is not so difficult to find it. To put it bluntly: Once the political decision about building a certain train line has been taken, the details *can* be left to planning bureaus and specialised construction experts.

If one accepts these arguments, then the scope of the questions that are genuinely "political"—and for which one should therefore rely on diverse input from all citizens, rather than decision-making by experts—becomes somewhat narrower. But this need not be a problem; it simply reflects the reality of differential expertise on many nonpolitical issues. And of course, managing the interfaces between (groups of) experts and citizens and their representatives has always been an important task for democratic societies. In the last decades, these interfaces have sometimes been the target of attacks by interest groups, e.g., the tobacco industry or the fossil fuel industry. Protecting them against such interferences is a task that expert communities and societies need to take on together (Herzog 2023, Chap. 8).

But what about the political decision-making processes that are indeed genuinely political, that come *after* the input of certain types of facts and *before* the technical implementation, as it were? Can one make epistemic arguments based on diversity here, or does one have to fall back to other arguments for involving citizens (e.g., arguments about legitimacy)? My key argument here is that diversity is crucial for determining *what questions to ask* in politics and *how* to ask these questions. This is an argument that has been brought forward in different ways in the debate, but let me first note how different it is from any formal model in which there is a clear "task" and different groups of experts or laypeople need to find the "correct" answer. Many real-life issues are not like this, and finding out what the questions are and how to formulate them is a first crucial step. Once this has been achieved, one can sort out which aspects of the question are such that specialised expertise might be relevant, and which ones are irreducibly political and require diverse input.

Let me draw on two lines of reasoning that have argued for diversity along similar lines. Mansbridge (1999) provides various arguments for "descriptive representation" (of women by women, of Black individuals by Black individuals), some

of which are explicitly epistemic. The one I here want to focus on is what she describes as "innovative thinking in contexts of uncrystallized, not fully articulated, interests" (1999, p. 628). Her example is the context of sexual harassment and the need for women to be part of the discussion, along with the need to reflect the internal diversity among the group of women (so it would not be enough to have *one* woman at the table). This point connects to Fricker's (2007) concept of "epistemic injustice" and in particular her concept of "hermeneutic injustice," which describes the absence of terms and concepts for describing the experiences of certain groups. Fricker's focus is very much on how this is an *injustice*—but it is, of course, also an epistemic deficit that has implications for how certain questions are formulated and discussed in politics. A critic might hold that in all these discussions, one finds an assumption that demographic diversity can serve as a proxy for diversity of perspectives. This is an imperfect proxy, to be sure—but it is more plausible than the opposite view, namely that *nondiverse* agents are more likely to bring in a diversity of perspectives.

A related argument comes from the pragmatist tradition. Serrano Zamora (2022) has recently developed a Deweyan argument for diversity and maximal inclusion based on the need to *articulate* social problems. "Articulation" is a different process than "finding solutions," which is what the debate has so far mostly focused on. It has a hermeneutical and a practical dimension, and it typically happens gradually in the political process, with different perspectives being taken up by others. In such processes, by coming to understand problems, citizens in part shape them—and therefore, it is important that these processes be "inclusive" and "domination-free," Serrano Zamora argues. They must not be conducted exclusively by privileged groups who can impose their worldviews onto the rest of society because they possess more hermeneutical resources, thereby shaping the practical possibilities of how to understand and deal with problems.

To summarise: By focusing on the crucial role of *questions* rather than answers, democratic theorists can provide their own arguments for the importance of diversity and inclusion. For so many political issues, we do not have access to a god's-eye view that would tell us what exactly the problem is. So our best strategy against error is to listen to each other, taking on board as many and as diverse perspectives as possible. We do not need mathematics for defending this claim.

Diversity and Equality in Democratic Deliberation

Charles Girard

In recent years, democratic theory has focused on the epistemic value of diversity in collective decision-making. Obviously, there are *nonepistemic* reasons—relating, in particular, to political equality—for rendering democratic decision-making procedures inclusive and open to a wide range of ideological viewpoints or social perspectives, even if the yardsticks by which this "diversity" is to be assessed are subject to dispute. Over the last 20 years, however, some democratic theorists have invoked the *epistemic* benefits of cognitive and social diversity to demonstrate the superi-

ority of particular political arrangements over others and of democracy over other regimes. More diverse groups are said to make better political decisions—assuming that there are indeed good and bad decisions in politics, or at least better or worse ones, according to some independent standard (such as social welfare, justice, the common good, etc.). Some authors have even argued that diversity is the most important feature of political procedures from an epistemic viewpoint, outweighing other factors such as individual competence. Are such claims convincing?

Other contributors to this debate focus on the significance and validity of the claim that diversity trumps ability (Spiekermann), reflect on the different kinds of arguments that can be brought to bear to assess the importance of diversity (Herzog), or show how democratic theory could learn from feminist philosophy of science (Vogelmann). For my part, I will consider the epistemic value of diversity from the point of view of a particular procedure that lies at the heart of democratic politics: collective deliberation (Girard 2019).

In this brief intervention, I put forward the following claims. While there are good epistemic reasons to engage in collective deliberation and to promote cognitive and social diversity in deliberative groups, they should not lead us to assume that deliberation among a diverse group always leads to better decisions. Diversity, however, is relevant not only to the epistemic *quality* of collective decision-making but also to epistemic *equality*, since unequal access to the variety of existing reasons, opinions, and perspectives means unequal resources for reaching deliberate political judgements. While the epistemic value of collective deliberation may vary, one of its constant effects is to make "internal diversity" less unequally distributed and thus to make the decision-making process less unfair.

The Epistemic Virtues and Vices of Collective Deliberation

Philosophical accounts of collective deliberation, and of democratic deliberation in particular, have long acclaimed diversity as one of the main factors that make deliberation necessary and fruitful. Diversity of some sort—of opinions, reasons, beliefs, perspectives, identities, etc.—is what makes it worthwhile to have some sort of adversarial debate and not just to engage in internal deliberation before reaching a collective decision. It is only because members of a given group hold a variety of views that it makes sense to collectively weigh the pros and cons of competing options before voting (or using some other decision-making procedure).

To focus on "cognitive diversity" or "social diversity" indeed helps to explain the epistemic value often attributed to collective deliberation. Three general mechanisms can be invoked to argue for its epistemic value; they all refer to diversity in some way.

a. *The pooling of information*: Open debate involves exchanging information among the participants (Elster 1998, pp. 21–24, 45–49).
b. *The division of argumentative labor*: Adversarial debate enables participants to rely on reasons expressed by others, without having to identify all relevant considerations by themselves (Nino 1996, pp. 49–52).

c. *The combination of rational capacities:* The encounter between different thinking styles or social perspectives may produce new reasons or options that would not have been identified by a series of separate internal deliberations (Landemore 2013, pp. 97–103).

This suggests that deliberation among a diverse group can sometimes improve its ability to reach a good decision. A minority opinion that is more informed or sound than others might sometimes prevail over the majority opinion, as in the heroic scenario of the oft-cited teleplay*Twelve Angry Men*.

So, there are good epistemic reasons to deliberate collectively and to promote various forms of diversity within deliberative groups. That is not to say, however, that deliberation among a diverse group is always beneficial epistemically. In fact, the same mechanisms explain why it may also have negative effects:

a. *The pooling of information* can help to spread false information or lies if they appeal to existing opinions or are presented in a particularly convincing way.
b. *The division of argumentative labor* can mean that some decisive arguments are overlooked because attention is focused on less relevant ones (Manin 2011).
c. *The combination of rational capacities* can generate false beliefs or spurious reasoning that would not otherwise have emerged (Sunstein 2006, pp. 75–102).

A minority opinion that is *less* informed or sound than others can thus also end up convincing the majority. A reverse *Twelve Angry Men*, in which a lone dissenter manages to convince all his peers to mistakenly convict an innocent person, is quite easy to imagine and would arguably make as plausible a plot.

As a consequence, while there are good epistemic reasons to promote deliberation among a diverse group before coming to a decision, the goal should not be to increase "diversity" in general (whatever that may mean) and at all costs in deliberative groups (renouncing, for instance, concerns about knowledge or expertise). Rather, it should be to distinguish between various sorts of diversity and to understand how they interact with other factors to increase or decrease the likelihood of making a good decision at the end of the deliberation.

Experimental Evidence and Epistemic Quality

One could object that the epistemic superiority of (cognitively or socially) more diverse deliberative groups over less diverse ones (as well as over nondeliberative groups) can be defended on an *experimental* basis. (It certainly cannot be directly defended on the basis of the DTA model, which does not model collective deliberation.) Some empirical studies have shown that, under certain conditions, deliberating before voting improves a group's ability to solve coordination problems or to answer a factual question correctly—for instance, when trying to guess the height of the Eiffel Tower (Navajas et al. 2018). Other studies have tried to assess whether social diversity within a deliberative group improves the quality of its decisions, for instance in a jury setting (Bergold and Bull Kovera 2022).

Whatever effects are observed empirically, they are likely to be highly context dependent because many factors are at play. Even if we assume that greater cognitive or social diversity enhances a group's ability to make good decisions *all things being equal,* a more diverse group might also be one where average competence regarding a given issue is lower, where mistaken beliefs are more widespread, or where a given opinion is more dominant, making group polarisation more likely (Sunstein 1999).

More decisively, experimental results about factual questions and coordination problems are not directly transferable to political decisions, which involve normative, as well as factual, considerations. In political matters, "epistemic quality" is a complex notion because the forms of reasoning that apply to facts and to values are different. (The main difference, of course, is that on normative matters, there is no decisive proof or objective certainty as to who is right and who is wrong—even if we assume that there are, indeed, political decisions that are objectively better or worse, relative to some independent standard.) This makes it hazardous to ground claims about the epistemic value of political procedures on experimental results.

From Epistemic Quality to Epistemic Equality

Diversity, however, is relevant not only to the epistemic quality of collective decision-making but also to its fairness, as it is one of the factors that make the conditions for political judgement unequal. A person's ability to engage in internal deliberation and to reach an autonomous, well-considered judgement admittedly depends on their natural abilities, educational background, and cultural resources. But it is also determined by the degree to which they are exposed to other people's views and perspectives, which varies greatly across society. Individuals have access to a more or less diverse pool of information, reasons, and opinions, which affect their understanding of the issues involved in, for instance, sexual harassment, nuclear power, or health care. Individuals are also variously inclined to consider conflicting opinions on these subjects from a critical rather than a dogmatic standpoint, depending on whether they initially believe those opinions to be indisputable, questionable, or downright unacceptable, but also depending on whether they are able to seriously consider opposing views simultaneously.

As a consequence, access to a greater variety of ideological views, thinking styles, and social perspectives is in itself an advantage. And that access—let's call it "internal diversity"—is distributed unevenly across society.

Admittedly, more "internal diversity" might not always lead to better individual decision-making, in the same way that more "external diversity" does not always lead to better collective decision-making. By gaining access to a greater variety of views, one might also be more exposed to misleading claims. There is, however, another way in which greater internal diversity is intrinsically advantageous: Access to a wider range of reasons, opinions, and information makes it less difficult to weigh up the pros and cons internally. Such weighing up is difficult: It presupposes both a move away from the evidence of already accepted opinions and a critical questioning of familiar reasons, which can only be done by pitting them against different and contrary ideas. As Mill's famous defence of freedom of discussion made clear, only exposure to diverse, adversarial viewpoints can prevent blind dogmatism:

Those who cannot "thro[w] themselves into the mental position of those who think differently from them and conside[r] what such person may have to say" cannot make judgements of their own (Mill 1996, p. 245).

The Fairness of Collective Deliberation

An important, if little noted, effect of public deliberation is that it reduces this particular form of inequality (Girard 2019, pp. 162–168). It does so first by pooling information: relevant facts, opinions, data, testimonies, narratives, etc., which are accessible only from certain ideological or social positions, are made accessible to all. It also does so by sharing out the argumentative labor: This relieves each individual participant of the need to identify and critically assess all relevant considerations on their own. In the give and take of adversarial debate, options and ends are identified, reasons are offered, and objections are raised, and—however sincere or whatever the motivations of participants—anyone can take advantage of these argumentative resources to conduct their own internal deliberations. This is specific to deliberation, understood as both a cooperative and conflictual adversarial process in which reasons for action are ranged against each other.

A potential objection is that the sharing of information and the division of argumentative labor will most benefit those who are already the best positioned epistemically, notably because they already have access to a greater variety of views (Cozic 2022, pp. 541–543). As a consequence, epistemic asymmetries caused by the unequal distribution of internal diversity would not be attenuated but aggravated. However, it seems plausible that a law of diminishing marginal utility applies here: Additional access to the views of others is all the more valuable when one's initial access is more limited (Girard 2022, pp. 586–587).

This should prompt us to reconsider the overall fairness of collective deliberation. It is often said that it is not a fair procedure, since an individual's ability to convince others in an adversarial debate depends not only on the merits of one's views but also on morally and epistemically arbitrary factors, such as one's rhetorical skills or social authority (Christiano 1996, pp. 231–236). Fairness, however, should be assessed not only from the point of view of the participants as speakers but also from the point of view of participants as listeners and, ultimately, as voters. From this second point of view, collective deliberation reduces the inequalities in internal diversity and thus makes the conditions under which participants end up making a political judgement less unequal. To this extent, it renders the decision-making process fairer.

Taking seriously the epistemic importance of diversity in collective deliberation thus leads to the following insight. If we have good reasons for deliberating collectively before making decisions, it is not just because we can hope, without being sure, that this will help us make better decisions; it is also because this will enable us to make them as equals.

Epistemic Diversity: A Negativist Appraisal

Frieder Vogelmann

Why do we value diversity, and which kind of diversity do we value? A prominent attempt to answer both questions centres on epistemic diversity and tries to show that cognitively more diverse groups are better at solving problems than less diverse groups are. The "diversity trumps ability" theorem (see Kai Spiekermann's reconstruction above) has excited a group of political theorists working on epistemic democracy yet remains highly contested. Charles Girard, Lisa Herzog, and Kai Spiekermann all make excellent, nuanced contributions to this debate, highlighting various strengths, limits, and pitfalls. My humble suggestion will be to argue what political theorists should not do: They should not ignore the much more extensive discussions of epistemic diversity in other fields, they should not discuss epistemic diversity in abstraction from social and historical contexts, and they should not reify and reduce epistemic diversity to identitarian conceptions of "viewpoint diversity." Perhaps it is apt to characterise my position as a negativist appraisal of diversity: Its epistemic advantages become clear when looking at the many social practices that lack diversity.

Diversity in Feminist Philosophy of Science

While diversity is an important topic in many different social sciences and humanities, even having led to the institutionalisation of "diversity studies," I will draw on philosophy of science to demonstrate what political theory could learn from other disciplines. Two specific reasons motivate my choice: First, and unsurprisingly, diversity in philosophy of science has been debated with a strong focus on epistemic diversity and its (potential) epistemic advantages. Second, the history of feminist epistemology and feminist philosophy of science itself demonstrates the epistemic advantages of diversity. Following Kristina Rolin's (2020) concise overview of the debate about diversity in philosophy of science, but interpreting it slightly differently, I argue that the development of the three major positions shows an interesting relation between *cognitive* (or *epistemic*) and *social diversity*.

The first position is that of Philip Kitcher (1993, Chap. 8), who focuses exclusively on cognitive diversity as the pursuit of different theories within an epistemic community. He argues that cognitive diversity is beneficial for epistemic communities because we can never know beforehand which theory will turn out to be a breakthrough. Disagreement and the resulting diversity are therefore not just rational in face of the underdetermination of theory choice (Longino 2002, pp. 124–128), but they are epistemically beneficial even if the individual choices of researchers are guided by purely personal motives. That some (especially younger) researchers favour riskier theories, because succeeding with them will boost their careers considerably, may be individually irrational but highly beneficial for the epistemic community as a whole. In his original contribution, Kitcher comes closest to the Hong–Page theorem in philosophy of science, and he too gives a formal argument for it (almost ten years before Hong and Page). Like them, he does not investigate the relation

between cognitive and social diversity, which gains importance in the other two major positions.

The second and probably most prominent position is Helen Longino's critical contextual empiricism, in which cognitive diversity means a plurality of perspectives on the research questions and objects. As can be learned from the interventions by feminist scientists since the 1960s, cognitive diversity is strongly connected to social diversity because the plurality of perspective often (although not necessarily) arises from differences in social locations, identities, and experiences. It is against this background of actual historical development in the sciences that Longino argues that the discourse of epistemic communities must meet four conditions in order to produce objective knowledge: "the provision of venues for the articulation of criticism; uptake (rather than mere toleration) of criticism; public standards to which discursive interactions are referenced; and equality (or tempered equality) of intellectual authority for all members of the community" (Longino 2008, p. 80; already developed in Longino 1990). Although Longino qualifies her fourth condition—equality of intellectual authority—to "tempered" equality, because people have different expertise in different domains of knowledge, she retains her commitment to the basic principle that the inclusion of more perspectives will lead to better (i.e., more objective) knowledge. Cognitive diversity can be achieved through social diversity, and under her four conditions it will produce better—more objective—scientific results.

At least one criticism is obvious and has been raised early in the debate (see, e.g., Rolin 2020, p. 62; Kourany 2010, pp. 58–62; Hicks 2011): Should we really consider all perspectives equally, including, for example, sexist and racist perspectives? While few seem willing to answer in the affirmative, it has proven extremely hard to argue for their exclusion from within Longino's critical contextual empiricism.

Feminist standpoint theories (see Harding 2004 [1996]), the third important position that Rolin mentions, therefore assume from the start that cognitive diversity is not automatically furthered by including each and every perspective. Social diversity helps to achieve cognitive diversity only if one includes *marginalised standpoints* because they offer potential epistemic advantages over socially dominant standpoints. However, social locations or identities are not automatically standpoints, for a standpoint needs to be achieved by critical, collective reflection on one's social location and identity as well as on their relationship to the scientific knowledge in question (Wylie 2012, pp. 61–63). Such reflections of actually marginalised standpoints—and not of "felt marginalisation" as used often in contemporary authoritarian and neofascist movements—must include a nuanced analysis of the power relations in contemporary society, which is sensitive to intersectional intertwinements of these power relations (Kerner 2009, Chap. 4; Collins 2019).

Diversity in Actual Epistemic Communities

Limited as it is, my overview demonstrates that cognitive and social diversity raise complex questions that have been intensively discussed in feminist philosophy of science for at least four decades. It thus would seem prudent for political theorists not to ignore this debate but to learn from it. A first lesson is that one should not resort

to abstract models of epistemic communities to investigate the potential epistemic benefits of diversity when the actual history of scientific communities offers strong arguments for the epistemic advantage of social and cognitive diversity. In fact, feminist epistemology and feminist philosophy of science came into being because of the epistemic success of feminist interventions in the sciences and humanities that increased the diversity of the relevant scientific communities. This success put into question traditional philosophy of science that could not account for the fact that political interventions for more social diversity in epistemic communities should have any epistemic consequence at all. Let me point out just three examples (drawn from Wylie 2012, pp. 48–55):

a. *The periodisation of history*. As Joan Kelly-Gadol (1976, p. 811) wrote, "There was no 'renaissance' for women—at least not during the Renaissance." The progressive changes for which the age got its name are nonexistent for women—because of the very changes that were progressive for men, Kelly-Gadol argues. A history that aims to be not just a history of men would have to use different periodisation. In this manner, feminists' intervention into history clearly helped to form more accurate accounts of certain periods, as well as to critically revise the periodisation.
b. *Human evolution*. The classical model of "man the hunter" versus "woman the gatherer" was revealed to be thoroughly biased (Longino 1990, pp. 104–111; Wylie 2012, pp. 47–76). Partly, this was due to explicitly androcentric classifications:

   "Ethnographers who had turned their attention to the roles and activities of women 'gatherers' learned that, in sub-tropical, desert, and temperate regions, their foraging activities provide small game and plant resources that account for as much as 70 percent of the dietary intake of the group as a whole. Indeed, they found that when women captured small game it was described as having been 'gathered' or collected, whereas it was recorded as 'hunting' when attributed to men [...]." (Wylie 2012, pp. 52–53)

   While the debate is ongoing, feminist interventions have at least made clear that contemporary sex/gender roles, even those observed in today's foragers, must not be projected onto evolutionary history.
c. *Sociological concepts*. Patricia Hill Collins has trenchantly demonstrated how categories, concepts, and theoretical assumptions in the sociology of work and in the sociology of the family perpetuate everyday racism and classism:

   "For example, labor theories that relegate Afro-American women's work experiences to the fringe of analysis miss the critical theme of the interlocking nature of Black women as female workers (e.g., Black women's unpaid domestic labor) and Black women as racially-oppressed workers (e.g., Black women's unpaid slave labor and exploited wage labor). Examining the extreme case offered by Afro-American women's unpaid and paid work experiences raises questions about the adequacy of generalizations about work itself" (Collins 1986, p. 528).

Thanks to such experiences, sociology as a discipline affords Black women only a place as "outsiders within," Collins argues: "Afro-American women in academia are frequently struck by the difference between their own experiences and sociological descriptions of the same phenomena. For example, while Black women have and are themselves mothers, they encounter distorted versions of themselves and their mothers under the mantle of the Black matriarchy thesis" (Collins 1986, p. 528). Again, a politically engaged critique of sociological concepts, categories, and theories can lead to better research.

These are but a few examples of the rich history to which feminist epistemology reacted. They suggest that it would be naïve to assume that cognitive diversity can be achieved without social diversity. Furthermore, using knowledge about actually existing epistemic communities to discuss the advantages and disadvantages of diversity guards against unreflected assumptions about them that might shape formal models of scientific communities or "problem solvers." Perhaps the point is strongest when formulated negatively: Histories of actual epistemic communities illustrate the epistemic worth of diversity by showing the epistemically problematic consequences of homogeneous scientific communities.

There is a second lesson to be learned that I can only hint at here. It seems to me that the history of feminist epistemology provides an interesting safeguard against one of the pitfalls of diversity, namely aiming simply at an accurate representation of all perspectives from a given society. Yet as the debate about diversity in feminist philosophy of science shows, the epistemic advantage of diversity cannot be reaped by including more representatives of ever finer circumscribed social groups, nor by simply including every conceivable cognitive perspective. Such an attempt amounts to a retreat to a supposedly "neutral" position that does not dare to judge perspectives as unfit to be included, a position that invariably will end up supporting the dominant perspectives. And while they are occasionally right, a principle to support the powerful seems wrong to me.

Author Contribution Peter Niesen: Does Diversity Trump Ability? Introduction; Kai Spiekermann: How (Not) to Model Diversity; Lisa Herzog: Democratic Theorists, Bring Your Own Arguments!; Charles Girard: Diversity and Equality in Democratic Deliberation; Frieder Vogelmann: Epistemic Diversity: A Negativist Appraisal

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