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Why the Many Are Smarter than the Few and Why It Matters

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Why the Many Are Smarter than the Few and Why It Matters

Abstract

This paper presents the foundations of a systematic epistemic case for democracy as a collective decision-rule and explores the implications of this epistemic claim for normative justifications of democracy, scientific explanations of its empirical success, and policy reforms. As far as the epistemic case is concerned, the paper proposes an account based on the concept of “democratic reason,” or the collective intelligence of the people in politics. The paper argues that, counter-intuitively, democratic reason is more a function of the cognitive diversity of the individuals taking part in the decision than of their individual ability. As an account of democracy’s epistemic benefits, the argument from democratic reason supplements procedural accounts based on fairness and equality to provide a complete functionalist explanation of democracy. Finally, the argument supports policy reforms increasing citizens’ participation in the collective decision-process.

Keywords

democracy, epistemic democracy, collective intelligence, rule of the many, cognitive diversity, participation, deliberation, judgment aggregation

The idea of collective wisdom—that is, the view that many heads can be smart and are in general better than one—is at least as old as Aristotle’s *Politics*.¹ One might argue that this idea is at the core of any collective endeavor, perhaps any society. People flock together because they know they can achieve more as a group than they could on their own, and they make decisions collectively because they believe that the expected quality of such decisions will be, on average, smarter than the expected quality of those that only one of them would make on their behalf. The opposite view, however, which denounces “the madness of crowds” (Charles Mackay 1841) and claims that “too many cooks spoil the broth” is just as established. In political science, from Plato to contemporary elitist democrats, the view of the many as incapable of self-rule, let alone any kind of smart decision-making, is arguably dominant.² This is paradoxical given the otherwise widely held belief that democracy is the only legitimate form of government (and not just the worse one except all the others).

In recent years, however, the idea of group intelligence applied to societies has been revived by publications such as Howard Rheingold’s (2003) *Smart Mobs*, James Surowiecki’s (2004) *Wisdom of Crowds: Why the Many are Smarter than the Few and How Collective Wisdom Shapes Business, Economies, Societies, and Nations*, or Cass Sunstein’s (2006) *Infotopia: How Many Minds Produce Knowledge*. In parallel, and independently, democratic theory has seen a small group of self-labeled “epistemic democrats” reconnect, generally within the more mainstream paradigm of “deliberative democracy,” the idea of democratic authority and the ability of democratic institutions to produce good collective decisions (e.g., Estlund 1997 and 2008, Goodin 2003 and 2008). All the while, formal theorists had rediscovered the Condorcet Jury Theorem and both literature quickly connected about the question of its relevance for democracy (see the debates in Grofman, Feld, and Waldron 1989 for example). Most recently Josiah Ober has argued that Ancient Athens had epistemic properties that made it capable of aggregating and processing information more efficiently than rival city-states such as Sparta (Ober 2010).

There has thus been a revival of the old Aristotelian argument that many heads are better than one, coming from different perspectives. Using and connecting these different literatures, as well as concepts developed in psychology and cognitive sciences, I have myself proposed a sustained epistemic defense of democracy based on the idea of collective intelligence (Landemore 2008, 2012a and 2013 (Forthcoming)). In that work I make the claim that democratic institutions such as inclusive deliberation and majority rule with universal suffrage combine their epistemic properties to turn the lead of individual citizens’ input into the gold of “democratic reason”³ and give democracy an epistemic edge over any variant of the rule of the few. This claim improves on David Estlund’s modest conjecture that democracy does epistemically better than random, that is, is more likely to get to the truth than a random procedure such as a coin flip when the choice is between two options (Estlund 2008). It also prolongs an earlier argument made by John Stuart Mill in favor of the superiority of representative government over both

¹ See Waldron 1995 for an extensive commentary of what he has happily labeled the “doctrine of the wisdom of the multitude” or DWM.

² For a recent version of this old Platonician theme see Caplan 2007.

³ This is the label I propose to give to the collective intelligence produced by democratic institutions.

aristocracies and monarchies (Mill 2010 [1861], Chapter Five).⁴ Finally, it can be seen as a more general version of Ober's knowledge-aggregation thesis

This paper aims to accomplish two things. One is to present in a condensed form, and defend, the theoretical connection that I argue exists between the phenomenon of "collective intelligence" or "collective wisdom" and the principle of democratic collective decision-making. On my view, the reason why the many can be expected to be smarter than the few is because of a plausible correlation between inclusive decision-making and the presence of an ingredient recently shown to be key to the emergence of collective intelligence, namely "cognitive diversity" (Hong and Page 2001, 2004 and 2009; Page 2007). To the extent that including more people specifically increases this type of diversity, all things equal otherwise (that is, controlling for a number of interfering factors like communication costs), more is bound to be smarter (Landemore 2012a, 2012b, and 2013).

Second, the paper considers the positive and normative implications of the idea of collective intelligence as an argument for democracy. On the positive side, I argue that the idea of "democratic reason"—or the collective intelligence of the people in politics—provides a conceptual umbrella for a lot of empirical research in political science and economics, at least the kind that tries to identify correlations between certain valued outcomes and democratic decision-making. I also argue that the idea of collective intelligence of the people provides a framework in which a lot of public opinion research results can be reinterpreted in a less dispiriting way than is currently the case. On the side of normative democratic theory, I propose that the argument from collective intelligence may not only add to the toolbox of arguments for democracy but invites us to question the status of these other arguments. The conclusion presents a few thoughts on the potential policy-implications of the argument from collective intelligence. I suggest that where feasible and properly applied, efforts to make the collective decision-making process more inclusive and participatory should result in not just fairer but overall smarter collective decisions.

1. *Democratic reason: the argument from collective intelligence*

Let me start with a rough definition of the idea of collective wisdom or collective intelligence that I apply to democratic politics under the name of "democratic reason." I define democratic reason as a certain kind of emergent phenomenon by which a people turns out to be smarter or wiser than individuals within it. This paper uses indifferently the terms "intelligence" and "wisdom," even though the concept of wisdom is richer than the concept of intelligence, including notions of experience, time-tested knowledge, and more generally diachronic intelligence that are certainly part of democratic reason but that won't be explored here.⁵ The only diachronic aspect of democratic reason that this

⁴ Mill thought that the real challenge for democracy or, as he called it, representative government, was not the comparison with the rule of one or the rule of the few but the comparison with a bureaucracy. To be fair, his understanding of the functioning of representative government (and particularly representative assemblies) is somewhat distinct from our modern conceptions. For example, he did not think the function of representative assemblies should be to make laws but simply to select the experts in charge of this task.

⁵ For a more extended study of those notions, see for example D. Andler in Landemore and Elster 2012.

paper touches upon is that introduced by the institution of representation, which creates some temporal mediation between the input of citizens and its translations into actual policies.

The sustained epistemic case for democracy that I propose in relation to this idea of democratic reason boils down to the simple following claim: democracy is a good collective decision-making procedure because, among other things and all things equal otherwise, it maximizes our collective chances to make the right choices.⁶ Further, the reason why democracy has this epistemic superiority over less inclusive decision-making procedures is because of an essential connection between more inclusive decision-making and what has been shown to be a key element of collective intelligence, namely “cognitive diversity.”

Without simplifying too much, one can say that the phenomenon of collective intelligence is a function of two factors. One factor is the ability or sophistication of the individual members of the group, which can be expressed by an average ability. Let’s call it their “IQ.” This factor is a property of an idealized “average” or “representative” group member. The other factor is “cognitive diversity” or, roughly, the existence within a given group of different ways to see the world, interpret it, and apply predictive models in it. More technically, cognitive diversity denotes a diversity of perspectives (the way of representing situations and problems), diversity of interpretations (the way of categorizing or partitioning perspectives), diversity of heuristics (the way of generating solutions to problems), and diversity of predictive models (the way of inferring cause and effect) (Page 2007: 7; see also Stich 1999). Notice that cognitive diversity is a property of the group itself, not any individual within it.

What Hong and Page show is that individual ability and cognitive diversity play a different role in different contexts, an intuition that we all easily understand but that they establish as mathematical truths. In problem-solving situations, what matters most to the quality of the collective answer, is not so much how smart individuals are but how cognitively diverse they are (Diversity Trumps Ability Theorem). For a brief, stylized illustration (developed at length in Landemore 2012a and 2013), think of the problem solving that goes on in the movie “Twelve Angry Men.” As individuals, all the jurors initially convinced of the guilt of the defendant would have stuck with a mistaken verdict. Even the dissenting juror (played by Henry Fonda) would not have been able to go beyond his vague intuition that the guilt was not beyond reasonable doubt. It is only after collectively brainstorming the available information and arguments and putting them through the many filters and lenses of the group that the jury members can unanimously reach an assured verdict of non-guilty.

The general point illustrated in the movie is that what matters more for problem-solving of the kind involved in a jury situation is how diversely thinking the group is, rather than how smart the individuals in the group are.⁷ After all, initially, 10 out of 11 jurors were wrong—setting a very low threshold of collective IQ if you will. And yet by the virtue of one initial dissenting perspective on the problem (expressed by Juror 8), which sets off a discussion about the reasons each juror has to defend a guilty verdict,

⁶ Leaving aside for now the difficult philosophical question of what counts as a “right” choice, accept that there exist such a procedure-independent standard of correctness (as required by any epistemic approach to democracy, see Cohen 1986).

⁷ For a different example borrowing from local politics see Landemore 2012b.

different perspectives applied to the problem bring out new elements and, ultimately, the jurors are able to guide each other toward the right answer. A minimal amount of cognitive diversity, in other words, can compensate for a lot of individual incompetence.

In other contexts, however, cognitive diversity simply matters as much as individual ability (Diversity Theorem). These contexts correspond to situations where judgments are simply aggregated into a collective answer, with no possibility to weed out the bad input from the good, unlike what happens in diachronic, deliberative problem-solving of the kind illustrated by the jury situation (Diversity Trumps Ability Theorem). In purely aggregative contexts, in other words, there is a strict trade-off between the two components of collective intelligence. Without going into the detail of why judgment aggregation in a group can yield more accurate judgments and predictions than any individual judgment or prediction, let me just say that according to Hong and Page's account, the reason why the aggregation of predictive models can do such a great job at producing correct decisions comes from the existence of negative correlations between voters' predictions.⁸ The good thing about negative correlation of this type is that it guarantees that where one person makes a mistake, another is more likely to get it right and vice-versa. In the aggregate therefore, mistakes cancel each other in a systematically advantageous way. As a result, the 'average' mistake of the group (that is, the resulting collective mistake in cases where its computation can be performed, as in the predictions of quantities) will be less than the average mistake of a randomly selected individual, and in fact all the lesser as the difference between the predictive models used by those individuals is greater (i.e., as there is more cognitive diversity in the group).

To illustrate the phenomenon, consider the way people make predictions about who is the best potential president out of two candidates. Some of us will base our judgment on how competent on social issues he is likely to be. Others will make a prediction based on both how fiscally conservative he is and the presumed state of the economy in the coming years. It is likely that there will be negative correlations between the predictions of someone who focuses only on the candidate's competence on social issues and someone who focuses solely on the candidate's competence on fiscal issues. As a result, the collective judgment produced by an aggregation of such diverse predictive models will tend to yield more accurate predictions than any individual predictive model on its own. In other words, we are more likely to elect the right president when we aggregate Democratic and Republican predictive models than if we made predictions based solely on either one of them.

Now, one may ask, where do these negative correlations come from? They come from the fact that when looking at different candidates, different individuals do not look at the different dimensions of a same quality (or in Page's vocabulary "perspective"), here competence for office. One person focuses on competence on social issues, another focuses on competence on economic issues. This produces what Page calls "non overlapping projection interpretations," that is interpretations of the candidate's competence that do not contain any of the same variables or dimensions (in this case competence on social issue or on economic issue).⁹

⁸ I leave it to the reader to go back to the actual mathematical demonstration of the more general theorems (Diversity Theorem and Crowd Beats Average theorem) in Page 2007 (Chapter 8).

⁹ Page formalizes "the Projection Property" as follows: "If two people base their predictive models on different variables from the same perspective (formally, if they use nonoverlapping projection

Notice that the emphasis in Hong and Page’s account is not so much on the existence of a large number of people as the cognitive diversity that this number can bring. In fact the beauty of the explanation proposed by Hong and Page is that judgment aggregation can produce amazing results even with a small number of people involved.¹⁰ On Hong and Page’s account, you do not need to have an infinity of voters for majority rule to guarantee 100% predictive accuracy. This is a great advantage over ‘law of large numbers’ types of account of group intelligence, such as the Condorcet Jury Theorem (Condorcet 1785) or the Miracle of Aggregation (Converse 1971). Because cognitive diversity can exist as soon as there are more than one person making the prediction, the magic can work for as small a group as three people and is substantially increased for any addition of a person with a sufficiently diverse predictive model to the group (whereas in the CJT model, the major payoff of majority rule is at the limit, for an infinity of people, and adding one person to the group does not make much of a difference).

This account, it should be said, is no more immune to the problem of systematic biases than the CJT or the Miracle of Aggregation are. If citizens share a number of wrong views—racist prejudices or the systematic biases diagnosed by Bryan Caplan in economic matters (2007)—majority rule is simply going to amplify these mistakes and make democratic decisions dumber, if anything, than the decisions that could have been reached by a single randomly chosen citizen. On Hong and Page’s account, however, the risk of systematic mistakes by the crowd can only happen if the group lacks both individual predictive accuracy (people are really too dumb) and diversity in the way they make predictions. Assuming minimally sophisticated voters relative to the questions at hand¹¹ and a liberal society encouraging dissent and diverse thinking, however, one might argue that Caplan’s worst case scenario of a situation in which the average error is high and diversity low—the condition for the worst case scenario of an abysmally stupid majority decision—is not very plausible.

Now, you may ask, how exactly is all this relevant for the epistemic argument for democracy? Why does the existence of something like collective intelligence emerging in problem-solving contexts and judgment aggregation contexts matter? I argue that problem-solving aptly describes the task that deliberation is supposed to accomplish

interpretations), then the correctness of their predictions is negatively correlated for binary projections” (Page 2007: 203).

¹⁰ A caveat needs to be added, lest the result seem too optimistic. You cannot have an infinity of variables or dimensions associated with a given perspective (say, competence for office). As the number of voters grow very large, the number of variables that people use to make a prediction may remain proportionally quite small (on top of social and economic issues, voters may look at personal charisma and foreign policy variables but they might disregard variable such as dog type or sense of humor). To avoid positive correlations as the number of people in the crowd becomes larger, people must either use cluster interpretations or they must base their interpretations on different perspectives. The interpretation of a voter combining considerations for competence on social issues and considerations for competence on financial issue is an example of cluster interpretation.

¹¹ Questions could be the equivalent of what Lippia (2001) calls “big choices” (general policy orientation questions of the kind put on referenda) but also more complex and even technical questions such as economic issues or the reform the electoral system, provided citizens are, prior to voting, given the time to deliberate amongst themselves, since this can considerably improve the quality of their opinions at least in terms of their informational content (see Fishkin’s Deliberative Polls for empirical evidence, e.g., Fishkin 2009).

while collective prediction aptly describes the task that majority rule is best suited for. One can indeed plausibly defend that in democratic politics collective decision-making consists of a deliberative phase where problems are identified and solutions proposed, followed by a voting phase, where majority rule is used as a way to determine which of the proposed options is the best one. If so, then the combination of the results presented above supports a strong case for democratic intelligence or, as I call it “democratic reason.”

For each procedure, deliberation or voting, cognitive diversity proves either as important as, or more important than, the factor of individual ability. In the cognitive system “deliberation + majority rule,” therefore, the crucial epistemic component is cognitive diversity. Individual ability matters too but only secondarily. What is now the simplest way to maximize cognitive diversity in a group? My contention is that the cheapest, simplest way to ensure great cognitive diversity is by including more people in the group of decision-makers. This claim remains valid, I further argue, even if including more people means dumbing down somewhat the ability of the average member. In other words, if the choice is between making the decision-making more participatory or reducing the pool of decision-makers to a handful of “best and brightest,” the safer bet is, counter-intuitively no doubt, to go with numbers.

This is so because numbers will naturally increase cognitive diversity. I say “naturally” on the (I think) plausible assumption that cognitive diversity is normally present in any typical group of human beings, since different people come into the world equipped with different cognitive toolboxes (see theories of “multiple intelligence,” e.g., Gardner 1985, Sternberg 1985, Salovey and Meyer 1990). Maybe the distribution of those types of intelligences varies from society to society but it seems reasonable to assume that no human society is monolithically constituted of people who are hardwired to see the world in exactly the same way. In any case, even similarly hard-wired people would develop over time, on the basis of idiosyncratic experiences, unique cognitive tools, mental frames, perspectives, and heuristics. All in all, I think it is safe to assume that on the long run, given the chance to develop freely distinct native abilities, different people will end up seeing the world and approaching problems in it in very different ways.

By contrast, trying to increase the “IQ” of the average member of the decision-making group by picking a certain type of people is likely to reduce cognitive diversity (people trained in the same school and trade tend to think more alike). Most importantly, even if making the decision process more inclusive reduces the average ability of the members of the group, this loss can be more than offset by the gain in cognitive diversity. Conversely, however, the gain in average individual ability will not necessarily offset the loss in cognitive diversity. This is so, again, because cognitive diversity matters *more* than individual ability for the emergence of collective intelligence in collective decision-making. In other words, it is often better to sacrifice a little bit of average ability to gain an equal amount of cognitive diversity than the reverse.

An objector might point out that including more people sounds promising but surely there is a feasibility threshold. Whereas voting in the millions might be feasible, deliberation involving all members of a very large group is not practical. Past a certain numerical threshold, deliberation turns into a chaotic mess, in which case the epistemic superiority seems to go by default to deliberation involving a smaller number of people,

and there one might prefer to gather the smarter or more educated ones. This point can be granted, but only partially. There is certainly a cutoff point beyond which involving more people in the deliberation has diminishing returns for purely practical reasons. Societies, luckily, have long found a solution to this threshold problem: representation. What the theory of collective intelligence suggests is that the best method for selecting representatives, from an epistemic point of view, is not necessarily classical elections but, rather, lotteries. If it is the case that preserving cognitive diversity matters more than elevating the average individual ability of the decision-makers, then pure random selection, rather than election, seems more conducive to smart results.¹²

To repeat the main point: if cognitive diversity is key to collective intelligence, then, all things equal otherwise, more is smarter.¹³ I thus propose to generalize Hong and Page's "Diversity Trumps Ability Theorem" into a "Numbers Trumps Ability Theorem," by which what matters most to the collective intelligence of a deliberating group, and more generally democracy, is the number of people in the group. This assumption that cognitive diversity correlates with numbers will not always be verified but it is more plausible than the reverse assumption that fewer people are more cognitively diverse.

2. Implications of the argument from collective intelligence

Let me now turn to the implications of the argument of collective intelligence. Perhaps the many are, indeed, smarter than the few, but why does it matter? And for whom? After all, democrats are already convinced that democracy is a good thing, so the collective intelligence argument might confirm their conclusions but comes somewhat after the battle. Justifications based on equality, justice, consent, or freedom, have already done the work.

It is certainly the case that the argument from collective intelligence comes too late to help the case of democracy. Many people already died in the name of equality, consent, justice, and freedom. Historically speaking, appeals to such values were more effective than an epistemic claim that had no theoretical, let alone empirical support at the time, in justifying moving from traditional monarchies towards more democratic forms of government. But today social sciences are equipped to test the claim that democracies are relatively smart regimes, for example by establishing a correlation between democracy and peace, at least with other democratic regimes (Weart 1998) or democracy and the avoidance of famines (Sen 1999). We now also have the concepts (of collective intelligence among others) and the technologies (mass media, the Internet, etc.) to make sense of the idea that many are smarter than few. From a normative as well as a social scientific point of view, the argument from collective intelligence needs to be taken seriously for a couple of reasons.

¹² Of course, it is possible, though unlikely, that selection by election preserves the cognitive diversity of a given group. An alternative to pure random sampling might also be stratified random sampling, that is, random selection performed among a priori defined pools of individuals standing for a certain type of diversity. I'm skeptical about the latter solution, in part for reasons that have to do with the difficulty of defining the categories on the basis of which stratified random sampling would have to be performed. For an in-depth exploration of these questions, see Landemore Forthcoming.

¹³ Notice that to the extent that (and if it is the case that) cognitive diversity is correlated with other forms of diversity, such as gender or ethnic diversity, the argument suggests that positive discrimination is not just a good thing on fairness grounds but also for epistemic reasons.

First, the argument from collective intelligence offers the possibility of a functionalist explanation of democracy's legitimacy, both in ancient times and over the last two hundred years. A functionalist explanation consists of showing how the unintentional epistemic effects of democracy contributed over the long run to reinforcing it, without the actors involved being aware of it, as a privileged collective decision-making procedure after it was first tried for non epistemic reasons (such as, for example, reasons based on fairness).¹⁴ In other words, the argument from collective intelligence supplements intrinsic arguments based on fairness, justice, consent or other democratic value to explain why, after democracy was first sought and established in the name of those values, it was kept around as a viable ideal. The argument from collective intelligence may even account today for the fact that in the West at least, we seem to be transitioning to even more democratic forms of governance, with what critics derogatorily call the rise of “audience democracies” or “democracies of the public” (Manin 1997), which are arguably more direct, inclusive, and possibly even smarter forms of representative democracies. The functionalist account made possible by the argument from collective intelligence may not yet be complete (as more work certainly needs to be done on the functioning of the “mechanisms” of democratic reason) but it is a beginning.

Second, as part of such a functionalist argument for democracy, the argument from collective intelligence offers a theoretical umbrella for a lot of what historians and political scientists do when they try to establish correlations, if not causal links, between democracy and development (e.g., Przeworski 2000), democracy and peace (e.g., Weart 1998), democracy and famine avoidance (Sen 1999), democracy and human rights or low infant mortality, or democracy and knowledge aggregation and production (Ober 2010). Development, peace, low infant mortality, knowledge and generally correct information about the world, these are all procedure-independent standards of the kind presupposed by an epistemic approach to democracy. If it can be empirically demonstrated that those standards are better approximated by democracies than oligarchies or dictatorships, then this would provide empirical support for the argument from collective intelligence, which in turn theoretically unifies these different empirical endeavors.¹⁵

Finally, on the positive side of political sciences, the argument from collective intelligence invites us to question the validity of the conclusions reached by public opinion researchers about the incompetence of the public at large.¹⁶ Public opinion research is perhaps good at measuring the ignorance of individuals (assumed to be equivalent to their political competence), but it is not equipped to measure what is an even more crucial component of collective intelligence, namely cognitive diversity. Compelling conclusions regarding democratic incompetence can not be reached on the basis of measurements that take into account at best only one factor in the collective intelligence equation. Unless public opinion research can prove that the lack of individual ability fails to be offset by the presence of sufficient cognitive diversity, the case against

¹⁴ For a definition of functionalist explanations see Hardin 1980 and Elster 2007.

¹⁵ The argument from collective intelligence, incidentally, also invites bridging the gap not just between different types of literature in democratic theory (normative and empirical roughly) but between political science and other disciplines as well. Political sciences generally take their cue from economics, but there is a whole other range of disciplines that should be of interest to the study of voter's behaviors or democratic institutions, including cognitive sciences and information theory.

¹⁶ I include in this the literature on enlightened preferences such as Althaus 2003 and Caplan 2007.

democratic decision-making remains shaky.

The implications for normative democratic theory are at least threefold. First, the argument from collective intelligence invites us to reassess the validity of traditional arguments for democracy based on ideas of individual consent, freedom, justice or equality. While the argument from collective intelligence need not make those other arguments superfluous, it provides a more compelling story of the value of democracy for people who do not already believe in the value of consent, freedom and equality, that is anyone who does not already share in, to a degree, the “democratic faith” (Deneen 2005). The advantage of the argument from collective intelligence is that it tells you why it is instrumentally good to include more people in the decision-process rather than demand of you that you just accept it as a matter of fairness, justice or any other value. In that sense, the argument from collective intelligence supports the conclusions reached on the basis of purely intrinsic defenses of democracy, but gives them a more utilitarian/instrumental/rational foundation than a belief in justice, equality, consent or freedom. One open question is whether these different arguments operate in parallel or depend on each other, and in the latter case whether they reinforce or undermine each other. I have suggested above that the argument from collective intelligence can combine with intrinsic arguments to form a complete functionalist account of democratic legitimacy.

Another normative implication of the argument from collective intelligence is that it rejects the classical divide between aggregative and deliberative democrats because the conception of democracy on which it relies does not fall neatly in either category. The argument from collective intelligence does not make deliberation the centerpiece of democratic reason, since deliberation is seen as just one mechanism of the larger democratic cognitive system. In particular the argument from collective intelligence acknowledges the value and task-specificity of an aggregation mechanism like majority rule as a way to turn a multiplicity of individual judgments into accurate collective predictions, rather than merely a second-best of deliberation. Similarly, the argument from collective intelligence is distinct from the view commonly associated with aggregative democracy that politics is only about aggregation of interests and preferences. The argument from collective intelligence is premised on the view shared by deliberative democrats that politics is also, if not essentially, a collective search for answers to collective problems and the question of justice. If there must be aggregation, it is primarily an aggregation of judgments and predictions, not interests.

Finally, the argument from collective intelligence shields epistemically sensitive accounts of political authority from what David Estlund calls “the risk of epistocracy.” Indeed, according to this author, “if some epistemic standard exists, then it would follow that some know better and that the knowers should rule, as in Plato’s elegant and repellent Republic” (Estlund 1997: 181). In the same way that opening up the possibility of discussing the voter’s competence may invite restrictions on the franchise, assuming that a certain amount of epistemic success is necessary to political authority may suggest delegation of political choices to a caste of “knowers”—Plato’s philosopher kings or any other type of universal knower.

If the argument from collective intelligence is true, however, there is no such risk because for most political questions the group is more likely to be smarter than any a priori defined subset of its members. In a nutshell: the reason why epistocracy is not a

tempting option is not because we can never know who the knowers are, or because there are no knowers whose expertise is beyond other citizens' reasonable objections (Estlund's own answer to the challenge of epistocracy) but because the more reliable knower is actually the group as a whole, as opposed to any particular individual or group of individuals within it. Even if different subsets of experts might know best on distinct issues, all things equal otherwise the group will generally know better across the board. That is why, regardless of all the other reasons we may have to value democracy, democratic decision-making is a safer bet than versions of the rule of the few.

Conclusion

Let me conclude on the political implications that the argument from collective intelligence, if true, may and should have. I already mentioned that if the goal of representation is to improve the quality of collective decision-making on a manageable scale, the selection of representatives should be concerned more with preserving cognitive diversity and less with raising individual competence of the representatives, however counterintuitive that may seem. An objector might point out that there are perhaps smarter ways to increase cognitive diversity than by using random sampling, for example by using quotas of experts taken from different subcategories. This is true only if you assume that the kind of expertise required in politics can be known in advance. Here I would like to rehearse the Sophist Protagoras' classical and compelling answer to the problem of political knowledge. Explaining to Socrates the rationale for "isegoria"--the equal right of Athenians to speak in the assembly, Protagoras remarks that if the issue is to build a public edifice or a military ship, Athenians only let the carpenters and the engineers speak and shame into silence the ignorami. However, when the question is about the public good, that is, the general political orientations of the polity, there everybody is invited to speak. My interpretation of the Sophist's answer and the practice of isegoria is that the Athenians acknowledged that on some questions there are no expert who can be a priori identified except the group itself.

Another obvious conclusion is that where feasible collective decision-making should be more inclusive and participatory than it currently is. The question of feasibility is of course a major constraint on the argument, especially in societies characterized by a massive division of the cognitive labor between professional politicians and regular citizens. Town hall meetings may no necessarily be the most promising possibility anymore but new forms of participation such as those offered by the recent Open Government initiative offer new avenues for experimentation. We have yet to explore the immense iceberg of collective intelligence in politics.

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