Deliberation, cognitive diversity, and democratic inclusiveness: an epistemic argument for the random selection of representatives

Hélène Landemore

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Abstract   This paper argues in favor of the epistemic properties of inclusiveness in the context of democratic deliberative assemblies and derives the implications of this argument in terms of the epistemically superior mode of selection of representatives. The paper makes the general case that, all other things being equal and under some reasonable assumptions, more is smarter. When applied to deliberative assemblies of representatives, where there is an upper limit to the number of people that can be included in the group, the argument translates into a defense of a specific selection mode of participants: random selection.

What if, instead of electing our representatives, we selected them by lot, as Ancient Athenians selected some of their officials, as James Fishkin today selects the participants to his Deliberative Polls, or as some countries select the members of Citizens' Assemblies[1]? Sortition has received a lot of support as of late (e.g., Barnett and Carty 2008; Carson and Martin 1999; Leib 2005; McCormick 2011; Stone 2010, 2011; Sutherland 2008) but, aside from the common charge of utopianism, it is hampered by several worries. A central one is that an assembly of randomly selected representatives would not be sufficiently competent. The randomly selected representatives would be necessarily of average intelligence and competence, while the election system in

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[1] To be perfectly accurate, the selection of participants in Citizens' Assemblies is only nearly random, because of elements of self-selection in the process and some degree of discretion in the way the Chair can pick additional members to increase minority representation (Warren and Pearse 2008, p. 10).

H. Landemore (✉)
Department of Political Science, Yale University, 115 Prospect Street, New Haven, CT 06511, USA
e-mail: helene.landemore@yale.edu

theory allows for the selection of the best and brightest. In this paper, however, I provide reasons to embrace random selection over election of representatives in the name of the greater collective intelligence that can result from having a more diverse and inclusive pool of representatives.

My specific contribution to the topic of this volume—the epistemology of inclusiveness—is to argue in favor of the epistemic properties of inclusiveness in the context of democratic deliberative assemblies and derive the implications of this argument in terms of the epistemically superior mode of selection of representatives. I make the general case that, all other things being equal and under some reasonable assumptions, more is smarter. Thus, a more democratic, in the sense of more inclusive, deliberation process can be expected to produce smarter results than a less inclusive one, such as a deliberation process restricted to allegedly smarter people. I make this case by building on results by Lu Hong and Scott Page (Hong and Page 2001, 2004; Page 2007) on the components of collective intelligence in problem solving contexts. These results show that in groups of problem solvers it is often more important to maximize cognitive diversity—i.e., a diversity of ways of seeing and interpreting the world—rather than individual competence. When applied to deliberative assemblies of representatives, where there is an upper limit to the number of people that can be included in the group, I show that the argument translates into a defense of a specific selection rule for choosing participants: random selection.[2]

A caveat is in order here: the argument presented here is purely a priori and based on an ideal type of what democratic deliberation means and involves. For the argument to translate to real life democracies, more would need to be said than space here allows on whether, and under what conditions, the assumptions can be expected to apply to the real world. That said, I believe one could derive implications for policy reforms in a model democracy whose conditions would approximate these assumptions.

The first section of the paper introduces the concept of cognitive diversity. The second section lays out the key argument connecting cognitive diversity, inclusiveness of the deliberation process, and the epistemic properties of deliberation, illustrating it with the model of a deliberating group of citizens in New Haven, Connecticut. The third section of the paper then shows how the argument translates to groups of representatives and raises the question of how best to select them in order to maximize the cognitive diversity of the group. This section argues that the best way to maximize the cognitive diversity of the group of representatives is through descriptive representation as achieved through sortition. The fourth section answers a series of objections, including the objection that if maximizing cognitive diversity is the goal, we would

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[2] See also the working paper by Goodin and List (2009) on the epistemic aspects of representative government. They similarly emphasize that the epistemic gain entailed by what they call the selection effect (the choice of representatives based on their alleged competence) is probably relatively small compared to other effects so that it is unclear that much epistemic performance would be lost by resorting to selection methods other than those based on individual competence. Goodin and List consider different mechanisms that may increase or reduce the epistemic competence of representatives, including the selection effect, the deliberation effect, and the Condorcet Jury Theorem. My own focus in this paper is strictly on the deliberation effect, which I agree is probably mostly responsible for any epistemic function representation may fulfill.

be better off oversampling deviant perspectives rather than reproducing the cognitive diversity of the larger group in the smaller group of representatives.

1 What is cognitive diversity?

Cognitive diversity, in Hong and Page's model, refers to a diversity of ways of seeing the world, interpreting problems in it, and working out solutions to these problems. It denotes more specifically a diversity of perspectives (ways of representing situations and problems), diversity of interpretations (ways of categorizing or partitioning perspectives), diversity of heuristics (ways of generating solutions to problems), and diversity of predictive models (ways of inferring cause and effect) (Page 2007, p. 7).[3]

That there exists something like cognitive diversity among human beings is rendered plausible by the fact that individuals come equipped with different cognitive toolboxes (see theories of "multiple intelligence," e.g., Gardner 1983; Sternberg 1985; Salovey and Mayer 1990). The specificity of individual cognitive processes is a property that can be more generally assumed to be determined by multiple factors, from genetic makeup to cultural factors and life experiences, and can thus vary greatly from one individual to the next, and perhaps even for the same individual over his lifetime. Cognitive differences thus need not be hard-wired. People may simply have different predictive models about the world because of where they stand geographically in it.[4]

Cognitive diversity is conceptually distinct from both some of its causes (e.g., gender, ethnicity, or, more fundamentally, genes) and some of its symptoms (e.g., differences in viewpoints and opinions). It is easy to confuse cognitive diversity with either its causes or manifestations, because cognitive diversity is likely correlated with gender, ethnic, economic, and sociological diversity, as well as cultural, value, and opinion diversity of the kind usually celebrated by liberals and deliberative democrats.[5]

The kind of diversity at stake in this paper is thus very specific. Many theorists have argued that diversity is useful, even necessary, to ensure the quality of deliberation in a representative assembly. John Stuart Mill thus famously advocated the representation of various interests and opinions in the representative assembly. He specifically argued that this assembly, which he also called a "Congress of Opinions," should be "a fair sample of every grade of intellect among the people" rather than "a selection of the greatest political minds in the country" (Mill 2010 [1861],

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[3] Hong and Page (2004) sometimes call cognitive diversity "functional diversity" in distinction from "identity diversity".

[4] For example, when asked to predict the size of a given American city like Milwaukee, people who live in Chicago, a bigger city, will tend to overestimate the right figure. Conversely, people who live in smaller cities will tend to underestimate it. This difference comes from the fact that people "anchor" their guesses in what is familiar to them (the size of Chicago or the size of Green Bay). See Thaler and Sunstein (2008, p. 22).

[5] Note also that the definition of cognitive diversity that I use in this paper is, on the face of it, compatible with the definition used in epistemology since Steven Stich's seminal paper (1988). For Stich, cognitive diversity is the diversity in "cognitive processes" among various individuals and across species. Stich defines cognitive processes as "a cover term whose extension includes our own reasoning processes, the up-dating of our beliefs as the result of perception, and the more or less similar processes that occur in other organisms" (1988, p. 392).

pp. 74–75). Many contemporary theorists similarly insist on the existence of a plurality of opinions and enough social heterogeneity for the quality of group deliberation, in particular to protect collective decisions against the risk of group polarization (e.g., Sunstein 2002, 2003). Bohman (2006) argues for a trichotomous diversity of opinions, values, and perspectives as a means to support the epistemic benefit of deliberative democracy. Outside of the democratic theory literature, similar claims have been made, on the basis of empirical evidence, with respect to the problem solving abilities of culturally diverse groups compared to those of more culturally homogenous groups, provided that communication barriers have been overcome (Watson et al. 1993).

These arguments and empirical findings supporting the importance of "diversity"— in the loose sense of a diversity of values, interests, opinions, perspectives, and socioeconomic backgrounds—fail to identify what it is, exactly, that does the epistemic job of improving group performance. Lu Hong and Scott Page provide in my view a much more fine-grained and specific account of the kind of diversity that matters for group competence (see also Ober (2008), who similarly mentions Page's results to support his defense of the epistemic superiority of the direct form of democracy at play in Ancient Athens).[6] The diversity that really matters is not primarily a diversity of opinions, values, perspectives (as end-results rather than processes), or even a diversity of social and economic backgrounds (as in the social heterogeneity defended by Sunstein). What matters is a more fundamental *cognitive* diversity, defined as the internal, psychological property that determines how each individual sees the world, interprets its problems, and makes predictions in it. I now turn to the specific connection between cognitive diversity and group intelligence and show how it can be usefully applied to deliberative democracy.

2 Cognitive diversity, inclusiveness, and the epistemic properties of deliberation

Lu Hong and Scott Page have shown that in the context of problem solving, the presence of cognitive diversity in a group actually matters more than the average ability of its individual members for the group's collective competence (Hong and Page 2001, 2004; Page 2007).[7] This result, labeled the "Diversity Trumps Ability Theorem," specifically states that, under some conditions, a randomly selected collection of problem solvers outperforms a collection of the best individual problem solvers (Hong and Page 2004, p. 16388; Page 2007, p. 163).

A problem-solving situation consists of identifying or constructing a solution to a problem. In some instances of problem solving, no answer exists at the time the problem is posed and it must be built from scratch. In other instances, many potential

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[6] Even though he claims indebtedness to Page in several passages, Ober stresses in a more general way the centrality of diversity of "thought and culture" in the ability of the democratic institutions of Ancient Athens to aggregate the distributed knowledge of its citizens and to solve various public action problems (e.g., Ober 2008, pp. 30–31).

[7] They also show that for predictive tasks, cognitive diversity matters as much as individual ability (this is the Diversity Prediction Theorem, Page 2007, pp. 205–208). I will ignore here this part of their work. For a combination of both claims as forming a general epistemic argument for democracy, see Landemore (2007, 2012a,b); see also Landemore and Page (2011).

solutions exist and the challenge is to select the best from among them. In this latter case, if the values of these solutions (i.e., how they rank compared to each other and in absolute terms) are not known, problem solving appears to be similar to prediction. Individual problem solvers possess perspectives and heuristics that they apply to search parts of the set of possible solutions (Page 2007). Any proposed solution can be evaluated accurately at a minimal cost. This latter assumption amounts to assuming the presence of an "oracle," that is a machine, person, or internal intuition that can tell us the value of proposed solutions. The self-evident nature of some solutions in the deliberative context can be thought of as akin to what Habermas calls "the unforced force of the better argument" (Habermas 1984).

To give a first, quick, and intuitive example of the surprising logic of problem solving, consider that if the problem is, for example, to crack a complex code, a group is more likely to succeed if it includes individuals with diverse cognitive skills, like a crossword puzzle specialist, a mathematician, a poet, and a computer scientist, rather than one homogenous group (say, five mathematicians), even if the members of that group are very smart indeed. This is so because the best problem solvers tend to be similar and a collection of them performs only a little bit better than any single one of them (Page 2007, p. 137). By contrast, the more cognitively diverse group may outperform them all.[8]

Each of the four conditions for the theorem to apply seems fairly reasonable. The first one requires that the problem be difficult enough, since we do not need a group to solve easy problems. The second condition requires that all problem solvers are relatively smart (or at least not too dumb). In other words, the members of the group must have "local optima" (a technical term referring to the solutions to the problem that each member arrives at after duly thinking about it) that are not too low (solutions that are not too bad) otherwise the group would get stuck far from the global optimum (the best solution). The third condition simply assumes a diversity of local optima such that the intersection of the problem solvers' local optima contains only the global optimum. In other words, the participants think very differently, even though the best solution must be obvious to them all when they are made to think of it. Finally, the fourth condition requires that the initial population from which the problem solvers are picked must be large and the collection of problem solvers working together must contain more than a handful of problem solvers. This assumption ensures that the randomly picked collection of problem solvers in the larger pool is diverse, and in particular more cognitively diverse, than a collection of the best of the larger pool—which would not necessarily be the case for too small a pool relative to the size of the subset of randomly chosen problem solvers, or for too small a subset of problem solvers in absolute terms.[9]

The Diversity Trumps Ability theorem is a profoundly counter-intuitive result and has, I believe, important and no less counter-intuitive implications when applied to deliberative politics. In what follows, I take for granted that problem solving

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[8] Of course, in this bare-bone example, the more diverse group is not truly random (I identified participants by traits that seem relevant to the nature of the problem) but the idea is that for larger groups, a random draw would be more likely to yield the necessary variety of cognitive skills than a selection of the best code-crackers.

[9] For more on this, see Hong and Page (2004, pp. 16387–16388) and Page (2007, pp. 159–162).

aptly describes at least an essential part of what the deliberations among citizens or representatives in parliamentary assemblies are supposed to achieve.[10] Rather than focus on controversial and overly complex examples of deliberations in the American Congress, however, let me try to convey the force of the Diversity Trumps Ability theorem with two different and slightly idealized examples. The first is a deliberation among a mini-group of *députés* (French congressmen). The second example is inspired by a real-life case of local problem solving among citizens of a small neighborhood in New Haven, Connecticut.

First, imagine that the French government is choosing a city to experiment with a new program. Three *députés* are deliberating, one from Calvados, one from Pas de Calais, one from Corrèze. They are aware of different possible solutions (the cities between parentheses below), which each have a different objective value for the experiment. On a scale from 0 to 10, a city with value 10 has the highest objective value for the experiment. We can formalize the situation this way: Each of the cities that a given *député* can think of counts as a local optimum. The goal is for the group to find the global optimum, that is, the city with the highest objective value.

Calvados: (Marseille (7), Caen (10))
Corrèze: (Paris (8), Grenoble (9), Caen (10))
Pas de Calais: (Grenoble (9), Caen (10))

Let us assume that each *député* has a higher probability of getting stuck at his lowest optimum than at his highest one. Thus, even though Caen is the better choice, the *député* from Calvados is not likely to think of it first, because he thinks that only big cities like Marseille will work, or perhaps because he is subconsciously prevented from thinking of the capital of his own *département*. Similarly, suppose that the *député* from Corrèze is pushing Paris, which has a value of 8, over his other two local optima, Grenoble and Caen, and that the *député* from Pas de Calais is pushing Grenoble (9) over his other optimum, Caen. For whatever reasons, none of the *députés* thinks of his highest optimum first. Here is where deliberation in a cognitively diverse group can help.

The *député* from Calvados might start by saying: "This program should be implemented in a big city, so I say Marseille (7)." The *député* from Corrèze says: "Good idea, but then Paris (8) is better." The *député* from Calvados has to agree (the forceless force of the better argument obliging). Then the *député* from Pas de Calais interjects: "Actually, Paris is really expensive for the project, we would be better off applying it in a moderately sized city, which will be just as good a testbed. How about Grenoble? (9)." The *député* from Corrèze agrees, but the senator from Calvados then says: "Fine, but as far as moderately sized cities go, Caen (10) is even better than Grenoble (9), and less polluted, too." In the end, they can only end up at Caen.

Deliberation among those three people has epistemic properties that deliberation among less cognitively diverse people would lack. The pool of information was enlarged, as the *député* from Calvados, who only knew about two local peaks (Marseille and Caen), ends up knowing about the qualities of Paris and Grenoble

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[10] Deliberation also involves prediction, but I won't touch on this aspect here. See instead Landemore (2012a,b) and Landemore and Page (2011).

as well. The *député* from Corrèze learns about one other local peak (Marseille), and the *député* from Pas de Calais about two others (Marseille and Paris). Notice that even if the information gained is sometimes of lesser objective quality than that which the person already held, it is nonetheless only by acquiring it that the members of the group can reach the highest local optimum with certainty. The *député* of Calvados might never have considered an option he knew about, Caen (10), if he had not been spurred away from his initial choice (of value 7) by the other two *députés* who offered other suboptimal solutions (of respective values 8 and 9).

Deliberation also allowed the group to weed out the good arguments from the bad. While it seemed at first a good argument to look for a big city (Marseille, Paris), it turns out that it was better to look into moderately sized cities (Grenoble, Caen).

Finally, deliberation led to a consensus on the "best" solution, namely the solution that allowed the group to reach the optimum of 10, when the pre-deliberative beliefs about the best solution could have been respectively 7, 8, or 9.

By contrast, if all three *députés* were thinking exactly alike, they would likely stay stuck on a local optimum and miss the global optimum—no matter how long they deliberated. Recall that each member is defined by a set of local optima and a probability of getting stuck at each of his local optima. So if the deliberating group is made up of the exact same people who have a nonzero probability of getting stuck at the non-global optimum, the group probability of finding the global optimum might be higher than that of any individual in the group, but it won't be 100%.

Let us now turn to a second example of more creative problem solving. Here deliberation does not simply reveal a pre-existing solution, but builds it from scratch on the basis of shared information, arguments, and ideas. This example models direct, rather than representative, democracy, but the logic of deliberation described in it is meant to characterize any form of deliberation, including among representatives.

The example of the New Haven neighborhood to be used here is doubly convenient, firstly because it offers a certain deliberative purity, which often gets lost in national legislatures, as interests, partisanship, and ideological posturing obscure the purely argumentative content of many debates. Secondly, the procedure-independent standard of correctness in the case of this particular deliberation about safety is, I believe, particularly intuitive, and less controversial than, say, the right answer to the economic crisis, or the nature of just and efficient health care reform. The issue in this New Haven neighborhood, called Wooster Square, was the recurrence of mugging on the Court Street Bridge, which separates Wooster Square from the downtown area.

In a first attempt at addressing the mugging problem, the neighbors organized block watches and started an online site allowing people to coordinate their walks home after dark. Meetings were also set up with the mayor's representatives and the head of New Haven's police force. The first round of deliberations led to the posting of a police car after 6 pm at the corner of the street where most of the mugging occurred. This solution, however, proved only temporarily dissuasive, as the mugging would simply occur when the police car was not there. Another explored solution was to post an undercover agent in the dangerous location in the hope of identifying and catching the criminals. The time being the middle of January, however, this option was not really viable. After another round of deliberation, somebody suggested installing lights on the bridge, as the darkness of that bridge after sunset invited crime. This simple,

commonsense suggestion struck everyone as much superior to the previous solutions and quickly garnered a consensus. Unfortunately a technician from city hall explained that there was a high voltage system under the bridge, which crosses over a railroad track, making it complicated to use electric lights to light the bridge.

As this solution seemed about to be ruled out, someone else asked if these regulations would apply to solar lamps. They did not. Another advantage of those lamps is that they are maintenance-free. The city hall accountant, however, pointed out that there was a budget constraint. Solar lamps cost at least $5,000 each and the city simply could not afford them. Finally, another participant asked whether the city could not ask for some of the stimulus money from the government. In the end, the city purchased and installed three solar lamps, for a total of $40,000, paid for by Federal money.[11] A block party was organized on the bridge by the neighbors in late September to celebrate the installation of the lights. Since then and as of November 2010, not a single mugging had been reported in this specific area.[12]

The example illustrates how different approaches to the problem—those of the regular citizens, the police, the engineer, the accountant—combined to guide the group from the most obvious but suboptimal solution (the police car posted at the corner of the dangerous block) to the less obvious and more compelling solution (solar lamps on the bridge). The example is also meant to illustrate how a group of non-experts can do better than the experts themselves, i.e., the police in this case. This is so because the police kept trying to offer solutions along the dimensions they knew best—either catching the muggers or dissuading them by overt presence—when the more compelling solution required thinking outside of the experts' box and taking a different approach altogether. It now remains to be seen whether crime truly decreases over the long term, which will be the only way to validate the chosen solution as meeting the procedure-independent standard of correctness in that particular case. It should be obvious, nonetheless, that the chosen policy was by far the best of those explored until then.

Let me now explain under which conditions the epistemic (here problem solving) properties of deliberation are maximized. In the example of the Wooster Square deliberations, the cognitive diversity comes from a diversity in professions (some people were teachers, others housewives, others engineers, others policemen, others accountants…) as well as diversity in age, life-experience, and so on and so forth. Cognitive diversity, however, should not be confused with any of these characteristics. Nor should cognitive diversity be confused with a diversity of values or end goals, which would have harmed the collective effort to solve the common problem. In the example of the Wooster Square citizens, at least as I have reconstructed it, there was no such diversity of values or end-goals. All the participants in the deliberation process pursued the same goal of improving the safety of their neighborhood.[13]

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[11] For a full report of the story, see http://newhavenindependent.org/index.php/archives/entry/and_wooster_square_said_let_there_be_light_and_there_was/id_29649.

[12] I base this assessment both on periodic checks of http://woostersqwatch.com/EventPix.aspx and on the email reports I receive weekly from Karri Brady, the neighbor heading the Wooster Square community.

[13] This is not to say that a solution couldn't have been found had there been a diversity of values or preferences (along the dimensions of, say, the cost versus the efficiency of any given proposal) but it would have

The general point illustrated by the example of the deliberating citizens of Wooster Square is that what matters most for the problem solving properties of deliberations among citizens is how diverse the thinking of the members of the group is, rather than how good of a problem-solver each individual is likely to be on his own. It is thus the diversity of thinking introduced by inclusiveness of all sorts of people that explains how a group can move from a not-so-smart solution—having a police car stationed a few hours a day at the corner of the dangerous street—to a much smarter one—using light as a general crime deterrent. A minimal amount of cognitive diversity can in fact compensate for some amount of individual incompetence.

If Hong and Page's findings are right, and, as I propose, can be usefully applied to the case of democratic deliberation about at least some political issues, they suggest that the gain of making deliberation properly "democratic," that is, not just procedurally fair in the sense of giving equal consideration to the participants, but open to all rather than just the few, is that this openness and inclusiveness ensure greater cognitive diversity. The claim is, importantly, ceteris paribus, that is, controlling, among other things, for a possible increase in value diversity, communication costs, or additional time constraints. In other words, the connection established by Hong and Page between the presence of sufficient cognitive diversity in a problem solving group and the collective intelligence of that group, and illustrated above by the example of a deliberating group of citizens, suggests that more inclusive deliberating groups are, all things otherwise equal, likely to be smarter than less inclusive ones. Simply put, *the more, the smarter*.

Notice that the ceteris paribus clause can actually be relaxed on one dimension: that of individual ability. Since cognitive diversity can trump individual ability, more inclusive groups are likely to be smarter, indeed, even if including more people means dumbing down the average individual ability in the group, at least up to a point. This yields an argument for preferring more inclusive decision-making over less inclusive decision-making. If twelve individuals are more cognitively diverse than just one, then 43 are even more cognitively diverse, and thus smarter, than twelve and so would be 123 or 500. This assumption that cognitive diversity positively correlates with numbers will not always hold, but it is more plausible than the reverse assumption that cognitive diversity increases as the number of people included goes down.

It thus seems possible to generalize the "Diversity Trumps Ability Theorem" into a "Numbers Trumps Ability Theorem." If so, then what matters most to the epistemic competence of a problem-solving group is not so much individual ability (at least above a given threshold) as the number of people in the group (at least under constraints of feasibility and all things otherwise equal). In other words, under some conditions, including more people means, counter-intuitively, increasing the collective intelligence of the group.

Footnote 13 continued

required that the deliberators first reach a meta-consensus on the dimension along which problem solving should occur (privileging efficiency, cost, or a particular trade-off between the two).

3 Cognitive diversity among representative assemblies: the case for random selection

We just saw that a more inclusive deliberation process can increase the chances that a group figures out the right answer to a given problem. A crucial problem, however, which naturally dampens any enthusiasm one might have for numbers, is a question of threshold. Deliberation involving all members of a given group is not always feasible. In practice, past a certain numerical threshold, deliberation turns into a chaotic mess, in which case epistemic superiority would seem to go by default to deliberation involving a smaller number of people, preferably the smartest ones. In a democratic context, the institutional device of representation through elections was introduced as an obvious solution to this problem of threshold, initially with the explicit goal of selecting from among the larger pool of the entire populace the most competent decision-makers, who were supposed to enlarge and refine the judgment of their constituents.

If the argument presented in Sect. 2 is correct, however, what matters for the epistemic reliability of deliberations among representatives is that their group be cognitively diverse rather than made up of individually smart but cognitively homogenous people. From that point of view, it is not clear that elections as we know them are the best way of attaining that goal. In practice, elections retain an aristocratic flavor in that, historically at least, they have generally involved a principle of selection on criteria that give greater opportunities to the more educated and the richest members of society, who then tend to stay in power and reproduce themselves as a class (see also Mueller et al. 2011).[14] Even in theory, though, it is not clear that the principle of election can be fully reconciled with the goal of cognitive diversity, as the persons most likely to run for office are likely to share some personality traits (a type-A personality, say), or other homogenous characteristics that may reduce the overall cognitive diversity of the assembly. As a consequence, even if the individual ability of such elected assemblies is high, their cognitive diversity will not be as high as it could be.

Assuming that on average the citizens from among which the representatives are selected meet a minimal threshold of individual competence, what would be an alternative selection method ensuring as much cognitive diversity as possible in the representative assembly?

It depends of course of what we mean by "as much cognitive diversity as possible" but an obvious goal would be to at least replicate on the smaller scale of the representative assembly the cognitive diversity one would get by including everyone, that is, the cognitive diversity existing at the level of the larger group. In order to obtain this amount of diversity, the simplest solution would be random lotteries. Random lotteries would indeed produce what is known as a "descriptive representation" of the people (Pitkin 1967), or in Charles Adams' famous formula, "an exact portrait, in miniature, of the people at large" (Adams 1851, pp. 194–195), ensuring a statistical similarity of thoughts and preferences between the rulers and the ruled.

Random lotteries have recently been explored as an alternative to elections on many grounds: equality, fairness, representativeness, anti-corruption potential, protection

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[14] For a compelling critique of and solution to the problems of representative democracy in America, see O'Leary (2006).

against conflict and domination, avoidance of preference aggregation problems, and cost efficiency, among others (e.g., Elster 1989, pp. 78–103; Mulgan 1984, pp. 539–560; Goodwin 1992; Carson and Martin 1999; Duxbury 1999; Stone 2007, 2009, 2011; Sintomer 2007). It can be argued that the descriptive representation that lotteries would achieve, however, is normatively desirable for specifically *epistemic* reasons as well. Descriptive representation achieved through random lotteries would not elevate the level of individual ability in the deliberative assembly, as by definition the expected individual ability of the selected individuals would be average, but it would preserve the cognitive diversity of the larger group. Besides other possible advantages, random selection thus holds the promise of an important epistemic improvement for the quality of deliberation among representatives.

Notice that another implication of the argument presented in Sect. 2 is that no matter how we select the subset of deliberators, whether by election or by random lotteries, they should not stay in power forever. A regular turnover of representatives seems like a minimal requirement if the goal is to inject and maintain some cognitive diversity in the long term. Even if the turnover were limited to a specific subset of the population (the more educated, say), at least it would solve the problem of ossifying oligarchies, whose members end up thinking the same way and lose sight of the common good. Terms of limited length—already an essential and uncontroversial feature of representative government (Manin 1997)—and terms of limited number (a provision which exists for offices such as the presidency, but not for senators and congressmen) thus seem like an important guarantee of the minimal cognitive diversity of the decision-making body over the long term.

Now, is reproducing the cognitive diversity of the larger group in the context of the smaller group of representatives the best that can be done? If the goal is to maximize the cognitive diversity of representative assemblies, an even better method than random lotteries, which simply reproduce in the larger group the diversity existing in the larger group, would seem to be to oversample the cognitive minorities existing in the larger group. We might thus be better off with a smaller pool of representatives carefully selected for their cognitive differences than with a larger pool of randomly selected representatives. This objection thus questions the claim that, at least at the level of representative assemblies, "more is smarter".

I will argue that the option of oversampling cognitive minorities, however appealing on the face of it, is impractical.

This impractically is due, essentially, to the unpredictable nature of political questions. Politics is arguably the domain of questions where we collectively deal with the unknown. As a result, it is impossible to identify in advance all the questions that any given representatives will have to deal with over the several years of her tenure (e.g., a foreign war, a financial crisis, global warming, terrorist attacks, etc.). If we knew in advance what the problems were going to be over the next few years—say, problems related strictly to an economic crisis—we would want to ensure an assembly with enough cognitive diversity along certain dimensions of relevance for economic decisions. We would presumably be better off with an assembly of economically savvy and ideologically diverse representatives, some of whom are Keynesian, others monetarist, and other "Austrians" when it comes to macro-economic principles. We would then have, presumably, enough cognitive diversity of the right kind to increase the

chances that deliberations among these representatives produce good outcomes. In fact, if we could know, or at least guess with enough accuracy, what the problems that the assembly would have to deal with were going to be, we should generally over-sample deviant perspectives. For example, if we knew that an ecological disaster was likely to take place within the next five years, we could make sure that a legislature contains more environment-friendly individuals than are present proportionally in the overall population.

Whether we can ensure such over-sampling in a democratic fashion is not obvious. But that question of legitimacy is pre-empted in any case by a feasibility question. In most cases, we cannot predict the relevant dimension of cognitive diversity in advance, because we simply cannot predict the future. Nor do we know what the relevant cognitive diversity really translates into, as categories such as Keynesians, monetarist, Austrian, or various styles of "environmentally friendly" are very often too crude to capture the differences between people's ways of thinking about economic or environmental issues. Even if a refined post-facto sociological analysis could reliably correlate certain features with certain views, (e.g., left-libertarian females tend to think X on issue Z), that still might not tell us anything of relevance on what their views would be in the future, in a different context, and on ever-changing issues.

Political problems, I submit, are unpredictable issues for which we cannot tell in advance who is going to have the relevant perspective. The rational attitude to have with respect to such questions is one of agnosticism as to who has the best answer to them, at least until that answer is tried in a public forum. The only thing we can tell about political problems is that their solution can come from anywhere and it is unlikely that it is going to come always from the same people, that is, people who can be identified as belonging to specific categories (e.g., White, male, Republican). The uncertainty about the problems an assembly will have to solve in the few years of its tenure, combined with the almost infinite diversity of human cognitive properties, thus makes it technically impossible to implement oversampling. We simply can't tell in advance from which part of the *demos* the right kind of ideas are going to come. It therefore does not make much sense to try to engineer cognitive diversity *ex ante*.[15]

Even assuming that one could identify in advance what kind of cognitive traits matter most to increasing the quality of deliberation on a specific question likely to be on the agenda—economic and environmental issues are, after all, very likely to arise—nothing guarantees that these traits will be equally relevant on other questions. Worse, any attempt at oversampling cognitive minorities on the basis of classical statistical categories is bound to homogenize the representative assembly along one or more dimensions, which actually risks harming the epistemic potential of the deliberating group. Assuming, for example, that you over-sample economically savvy individuals or environmentalists to make sure the deliberation on some economic or environmental issue is the best it can be, you have no guarantee that over-sampling along those lines

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[15] I have argued elsewhere (Landemore 2007, Chap. 5, now Landemore forthcoming 2012, Chap. 4) that this belief in the unpredictability of politics might well account for the Greeks' principle of *isegoria*. In politics, it is better to let everyone speak in the assembly, because, unlike what happens in more technical domains like architecture or ship-building, we simply don't know in advance who will come up with the answers or who will bring the relevant perspectives and arguments.

has preserved cognitive diversity when it comes to addressing entirely different issues. In fact, by oversampling any category of people, you may have unknowingly homogenized the group of representatives along lines that are very problematic for other issues. Economically savvy individuals, however cognitively diverse with respect to economic issues, may all tend to be too lenient towards Wall Street and financial institutions and corporations in general. Environmentally friendly individuals of different styles may tend to be too fiscally irresponsible. (I'm hopefully making both examples up.) On some other issues—say, the problems relating to poor single mothers in black communities—a group in which both economists and environmentally friendly individuals are disproportionately represented may well lack enough of the relevant diversity, because oversampling economics Ph.D.s and environmentally friendly citizens may mean oversampling white privileged individuals. Random sampling is the simplest, most parsimonious way to avoid this kind of bias and get as much cognitive diversity as possible in the absence of knowledge about the kind of perspectives that will ultimately be needed.

Since an assembly cannot be reconfigured at will for every possible new issue, and since every issue may require a completely different type of cognitive diversity, in the end it seems more rational to consider each person in the group a unique source of potential cognitive diversity and try to preserve in the legislature the many unique perspectives of the larger group. Another solution would be, perhaps, to convene a different assembly for every possible issue, thus fragmenting the decision-making process and distributing it over many specialized assemblies. I will not entertain this interesting solution here, as I assume throughout that we want to preserve some of the centralizing features of existing representative assemblies.

It is true that, in practice, if people can't be forced to participate, and pure randomness must be abandoned, then some consideration for quotas based on gender, ethnicity, or other rough and ready categories might be better than nothing. This is the solution applied in the quasi-random recruitment of participants to Citizens' Assemblies for example (Warren and Pearse 2008). But on the general abstract principle, the fact remains that systematic oversampling of cognitive minorities is both unfeasible and generally normatively undesirable for epistemic reasons. Notice, finally, that even Fishkin's Deliberative Polls, which specify in advance the issues to be discussed, are designed around the principle of random selection rather than minority oversampling. This is so even when minorities, defined as communities of interest, are historically well defined, as in the case of Catholics versus Protestants or Bulgarians versus Roma (Fishkin 2009, p. 163).[16]

An objector might target the use of lotteries over elections on other epistemic grounds. Even assuming that cognitive diversity indeed matters more than individual ability for the problem solving abilities of the representative assembly, lotteries might

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[16] One notable exception is the 2001 Deliberative Poll organized in Australia on the fate of Aborigines (Fishkin 2009, p. 162), where the Aborigines, who represent less than 3% of the population, were oversampled in proportion to the rest of the population to make sure they would form a critical mass in the final deliberative sample. Still, I would argue that this scenario, where both the problem to be discussed is known in advance and a sufficiently small, stable, and relevant minority, which can be equated with a cognitive minority with respect to the topic at hand, can be identified *ex ante*, does not characterize the situation facing a normal representative assembly.

lower the average ability below the threshold necessary for group competence, so that we would still be better off with a homogeneously thinking group of representatives rather than a representative group of average citizens. In other words, the average citizen might be simply too dumb. In that case, the objector could ask, shouldn't we privilege instead a form of "selective descriptive representation" that would consist in choosing among various pre-defined categories of people those that are deemed smarter than the rest?[17] Combining elections with quotas or the right kind of district-design, for example, could get us the best of both worlds: elected individuals with high individual abilities and some of the cognitive diversity present in the group at large.

Let us grant for the sake of argument the optimistic assumption that elections do, in fact, select the best and brightest problem solvers, or that such political "experts" exist at all (see Tetlock 2005 for skepticism as to the superiority of experts' political judgments over those of lay-people[18]). First, it still remains unproven that the average citizen's individual abilities are below the threshold that must be met for competent problem solving in a sufficiently cognitively diverse group. If anything, the available empirical evidence speaks in favor of the opposite conclusion. Again, the results observed in Deliberative Polls or Citizens' Assemblies seem to falsify the theoretical worry about the inaptitude of the average citizen to cooperatively figure out solutions, even to complex questions. If so, there might be at worst a strict tie between a cognitively diverse group of individuals with average individual abilities and a group of homogenously thinking people with high individual abilities, even when some amount of cognitive diversity has been injected in the latter group through quotas or gerrymandering.

Second, as has already been said, quotas and gerrymandering are extremely clumsy and imperfect ways to inject cognitive diversity in the representative assembly. While it may be the case that the sociological features on which quotas and gerrymandering are based are going to be correlated with the right kind of cognitive difference—that brought by women and blacks, for example—for some other problems the relevant categories would need to be something else entirely (for example, animal lovers and librarians). For most political situations, we cannot know in advance which property of the electorate will be relevant, that is, from which category of people the right kind of thinking will come.

Finally, it is far from certain that the result of elections with such correcting measures for selective descriptive representation would be much different in terms of cognitive diversity than the result of elections without such measures. After all, as mentioned earlier, if it is the case that elections draw a certain type of person (Type

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[17] Selective descriptive representation is currently achieved in several European countries through a system of quotas ensuring the presence of various minorities on party lists, and in the U.S. by gerrymandering new districts to ensure the election of minority representatives. Some authors advocate selective descriptive representation in certain contexts and for historically disadvantaged groups. Jane Mansbridge's argument for it, for example, is that selective descriptive representation can enhance the substantive representation of these disadvantaged groups' interests as well as improve the self-image of those communities or increase the polity's de facto legitimacy (Mansbridge 1999, p. 1).

[18] When it comes to assessing a problem and making political predictions, Tetlock argues, political "experts" hardly do better than lay people, and, on the purely predictive side, are in general outperformed by simple statistical regressions.

A personalities), diversifying the group along some dimensions (ethnicity, gender, religion,) while retaining that common trait, might not necessarily do that much good (although it is probably better than nothing).

As a result, it seems that the best solution is not to choose but to leave it up to chance and the law of large numbers. Trying to predict whether an African-American single-mother or a Caucasian farmer are going to contribute to the quality of the deliberative outcome on a series of topics yet to be determined is silly at best, essentializing at worst. From an epistemic point of view, therefore, selective descriptive representation (particularly if based solely on a history of past discrimination) is not likely to create enough cognitive diversity. There may be valid reasons to embrace gerrymandering and quotas, but it is doubtful that improving the epistemic properties of the deliberating assembly is one of them.

A last concern with random selection is that this selection mode would one day lead to the appointment of extremely incompetent and/or morally corrupt individuals (e.g., Nazis or white supremacists) who would cause important kinds of problems (epistemic and otherwise). Over time, indeed, under a continuous system of unrestricted random sampling, the probability of such an unlucky draw goes to 1. This is, however, a very theoretical worry.

Consider even the pessimistic scenario of a population where 25% of the population consists of these really incompetent people—let us identify them as "white supremacists"—and we aim to randomly appoint an assembly of, say, 50 representatives, to be renewed every four years.[19] The first time we use the random sampling mechanism, the probability of drawing an assembly in which there is at least a simple majority of white supremacists (that is, 26 of them or more) is ridiculously low: 0.0038%. Over time, however, as we keep using the procedure, this probability will, as the objection points out, rise to 100%. This will happen, however, over an *infinite* amount of time. How many years would it take for this probability to rise not to 100% but, say, 50%? The answer is: 72,924 years. For the risk to go up only to 10%, we would still have to wait 11,088 years. For the risk to rise to 1%, it would take 1,060 years. No democracy has lived that long, and at least some representative democracies based on the election principle have managed to produce much worse assemblies in much shorter periods of time. It is true that we could be terribly unlucky and, against the odds, draw the dangerous assembly on the first trial or soon after. In a well-designed democracy, however, there should be institutional safeguards that limit the damage potentially caused by a particularly bad, if unlikely, draw. Constitutional checks and the existence of a second, non-randomly selected chamber, for example, may come to mind. All in all, therefore, the risks associated with random sampling do not appear sufficiently significant to justify rejecting the procedure.[20]

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[19] The calculus grows more unwieldy as the size of the assembly increases, hence the choice of that relatively low number. The point is, in any case, that it would take even more time for the probability of drawing a "bad" assembly consisting of several hundred individuals to reach any dangerous threshold so the argument that follows applies a fortiori to the case of most existing representative democracies, whose representative assemblies are generally ten times as in numerous as in the example considered here.

[20] See also, for a refutation of the same objection along similar lines, Mueller et al. 2011, p. 54.

4 Answering more objections

I now turn to a series of more general objections to the idea of randomly selected assemblies of representatives. I will not consider the objection from legitimacy, which raises the question of whether the principle of random selection is compatible with certain democratic principles that require, among other things, the consent of the people as traditionally expressed through a vote. This objection raises major issues that I do not have the space to address here. I will also disregard objections from feasibility, such as the view that reforming the US Congress or Senate or any existing representative assembly in the direction indicated here is simply too utopian. Of course it is.[21]

The first objection questions the premise of this paper, namely that deliberation among citizens or representatives consists, in essential ways, of problem solving activities. The objector might argue that problem solving not only does not exhaust the tasks that representatives have to accomplish in the assembly, but that most of what is political about representatives' job is in fact about bargaining and the defense of particular interests or that of incommensurable worldviews and values (as argued by agonistic pluralists, such as Mouffe 1999).[22] This surely speaks in favor of descriptive representation, but on the classical grounds that having an assembly that looks like a miniature portrait of the people is more likely to represent all interests and worldviews fairly, in proportion to their number, rather than on the epistemic grounds proposed here.

In reply to this objection, it can only be acknowledged that problem solving is not all there is to politics and that arbitrating and compromising between competing interests and incommensurable values is certainly also a part of representatives' tasks. The proportion of problem solving versus conflict management may vary over time or from one country to the next (in this respect, the adversarial American Congress and the consensus-oriented Parliaments of Scandinavian countries may well represent two extremes on a continuum). But as long as we acknowledge some role for problem solving, an epistemic argument in favor of descriptive representation seems important. Notice, furthermore, that the dividing line between problem solving and arbitrating of interests/values is not as clear-cut as it may seem. At its best, deliberation can actually reframe what was initially perceived as a radical conflict—a zero-sum game—in terms of a problem with a possible common solution—a positive-sum game. To borrow and adapt an example from Jane Mansbridge,[23] consider two people who disagree as to whether or not they should open the window in the library where they are both working. The situation is one of conflict of interests, but one could probably imagine a similar

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[21] For a list of possible reform schemes based on the principle of a randomly selected assembly, see Mueller et al. (2011, pp. 55–56). Among the six alternatives considered, the least utopian is the scheme of an advisory national legislature, "to be used if requested by the present two legislatures or the President or to be required to give advisory votes on selected issues," followed arguably by the scheme of "an additional legislature to the present two." Among the most utopian is the proposal of "an exclusive national legislature replacing the present two."

[22] Notice, though, that even agonistic pluralists cannot seriously argue that conflict is all there is to politics and are, in one way or another, parasitic on a deliberative approach to democracy. For politics to be possible at all, rather than pure "*agon*," or war, there must be some fundamental domain of rational agreement to begin with.

[23] An example that she herself borrows from the political and management theorist Follet (1942).

scenario with competing worldviews or values. The first person wants the window open to let in some fresh air. The other person wants to keep the window shut to avoid a draft. Seen as a disagreement about whether or not to open the window, the situation is purely adversarial. The two individuals have conflicting yet equally legitimate claims. Through deliberation, however, the problem can be clarified and rephrased more cooperatively, as a problem of finding the right room temperature, where "right" here simply means acceptable to both parties. The question is no longer: Should we open the window or leave it shut? Instead it becomes: What temperature would we both be comfortable with, and can we achieve it without causing a draft? There is no answer to the first question that will be acceptable to both parties. The second question, however, lends itself to an approach in terms of right or wrong answers. In that case, one possible right solution is simply to open a window in the adjacent room.[24]

Not all conflicts of interests or values, however, can be reframed as epistemic problems. Sometimes politics is just about arbitrating between equally legitimate claims. My point in this paper is not to deny this reality, but simply to emphasize that taking seriously the epistemic function of representative assemblies involves a specific conception of representation. It might be that another conception of representation is more appropriate to account for other functions of representative assemblies. As Hanna Pitkin first argued, the concept of representation is multi-faceted (Pitkin 1967). It might be the case that no single account can unify all the functions that representatives are supposed to fulfill. It might even be the case than we should have several kinds of assemblies, rather than just one or two, to deal with the various functions of representation. From this point of view, for example, the project of creating Citizens' Assemblies can be seen as fulfilling a function that is not, or is no longer, fulfilled by existing Parliaments, where agonistic or aggregative functions seem to dominate.

An objector might be skeptical, next, of the relevance of formal results for real life deliberation. In fact, it might be argued that the reason why it is so hard to find compelling examples of deliberation in parliamentary settings is not because of the partisan nature of contemporary politics, at least in the U.S., but because of the difficulty of meeting the conditions for ideal democratic deliberation assumed by formal models, i.e., among other things, participants that are informed enough as well as sufficiently immune to problems known to plague group discussions, such as social pressures and other factors leading to "group polarization" (Sunstein 2002). The problem of ignorance is not generally taken to be one affecting elected representatives (although perhaps it should be), but it could be raised in the case of assemblies of average citizens. The problem of epistemic failures of deliberation in theory affects both types of deliberating groups. Finally, the reality is that introducing more cognitive diversity often means increasing communication costs, if not introducing value diversity. Although the argument in this paper is meant to be ceteris paribus and has purposefully

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[24] Follet (1942) cited in Mansbridge (2009, p. 15). Notice that my use of the example slightly differs from Follet's and Mansbridge's, both of whom interpret the final "integrated solution" (Follet 1942) as the result of a form of negotiation. In my view, the point of reframing the issue is precisely to move away from negotiation, in which individuals primarily seek to foster their own interests, towards deliberation, in which interests enter only as factors to be taken into account in the search of a solution to a common problem. In theory, the same integrative solution could have been found by impartial observers not motivated by any interests but granted the same level of information.

bracketed both issues, there may be a concern that in real life such problems would be impossible to ignore. The fact that people think differently may entail communication failures, cultural misunderstandings, and preference conflicts that outweigh any potential epistemic benefits brought by cognitive diversity.

Regarding the problem of public ignorance on political issues, the case can be made that it is at least partly overblown (e.g., Landemore 2012a; Mackie 2012). Levels of information as measured by political scientists may not be the adequate standard by which to assess the public's competence in making decisions. In fact, most existing studies (e.g., Luskin 1987; Delli Carpini and Keeter 1996) fail to demonstrate a causal link between the inability of people to answer certain types of political quizzes and their alleged political incompetence, namely, the inability to make the "right" choices or hold the "right" policy preferences. This is so in part because the design of factual political questionnaires smacks of elitism, measuring a type of knowledge relevant for policy analysts and journalists, but not necessarily the only one conducive to smart political choices (Lupia 2006). The difficulty of establishing a causal link between low information level and political competence comes also from the fact that it is hard to find a good empirical benchmark for political competence that would be distinct from a good benchmark for information level. The fact that educated people are good at answering political quizzes does not entail either that the policy preferences of the educated are better as a result (unless you take such policy preferences as the standard, but then you are begging the question), or that the policy preferences of "know-nothings" or low political IQ people (as defined by such tests) are wrong. The kind of factual knowledge measured by public opinion surveys is a crude measurement of political competence, and there is no reason why the burden of the proof should be on people who deny the connection between political I.Q. as it is measured by existing empirical surveys and actual political competence.

Most importantly, public ignorance, even if real, may be a problem for pure judgment aggregation in the context of large elections not preceded by any kind of public deliberation. In the context of smaller deliberative assemblies where participants have an incentive to become properly informed, because their voices and votes are much more influential, "rational ignorance" is bound to be less of an issue (see also Stone 2011, p. 20). Assuming that deliberation can inform people and change their minds, it becomes plausible that a group of not-so-knowledgeable or informed individuals would nonetheless be capable of reaching more informed, and even intelligent, decisions at the end of a sufficiently well-designed deliberative process.

Again, empirical evidence backs up the prediction that under some non-exacting conditions, groups of average citizens perform decently well when placed in the right deliberative conditions. Deliberative Polls or Citizens' Assemblies, which gather between 100 and 500 randomly or quasi-randomly selected participants, would seem to offer such deliberative conditions. Deliberative polls, despite taking place over two days or fewer, provide participants with briefing material that they can discuss in smaller groups of 15 or so, as well as access to expert panels that they can question at length during plenary sessions, which also have a deliberative dimension. The model of Citizens' Assemblies, which have a longer life-span of several weeks to several months, allows for even more in-depth pre-deliberation reading and processing of information, as well as the pursuit of the deliberative process over many

meetings. Both experiments have been documented to produce epistemically promising outcomes. Deliberative polls (see Fishkin 2009) thus produce more informed post-deliberation preferences on topics ranging from the selection of a candidate for mayor (in the 2006 Deliberation Poll organized in Greece), energy policies (American Deliberative Polls), or the reform of the European Union pension system (the 2007 Deliberative Poll called "Tomorrow's Europe"). The 2004 British Columbia Citizens' Assembly produced, over a period of several months, a sophisticated and innovative proposal on the complex topic of electoral reform, meant to address the problem of democratic deficits in Canada (Warren and Pearse 2008). The size of such experiments, involving a little more than 100 people in the case of Citizens' Assemblies and up to 500 in the case of Deliberative Polls, is sufficiently large to make the random selection truly representative, and allows us to extrapolate from the performance of regular citizens in these deliberative contexts to what the epistemic performance of an actual Parliament based on random selection would be like.[25]

The results of these experiments should also assuage the fear that the benefits of cognitive diversity would necessarily be offset by increased communication costs and disruptive value diversity in a randomly selected representative assembly. Deliberative Polls, in particular, have been conducted with great success across the globe, sometimes despite challenging communicative contexts induced by language barriers, cultural differences, or even profound value rifts, as in the case of the 2007 Deliberative Poll in Northern Ireland involving Protestants and Catholics (see Fishkin 2009, pp. 159–169 and also Farrar et al. 2010).

Regarding the well-documented epistemic failures of deliberation, leading, as some claim, to group polarization rather than to any form of epistemically sound consensus (e.g., Sunstein 2003), it can be argued that they are not as damaging as is usually taken to be the case. In the end, the empirical literature on deliberation yields mixed or inconclusive results (e.g., Thompson 2008, pp. 499–500). The negative results observed in some deliberative contexts can be explained not by a failure of deliberation per se, but rather by a failure at implementing the "normal" conditions under which deliberation can take place at all, that is, as a truly argumentative form of exchange among diversely-minded individuals, which guarantees that individuals' confirmation biases check rather than reinforce each other (see Mercier and Landemore in press, see also Mercier and Sperber 2011). The evidence garnered against deliberation generally comes from groups of like-minded people that never end up engaging each other's arguments in a properly deliberative manner (see also Manin 2005).

Let me finally consider an objection to my defense of random selection of representatives that can be built on Rehfeld's (2005) alternative reform proposal to keep the election principle but randomize constituencies. Rehfeld provocatively suggests randomly assigning for life every new voter, upon their registration at 18, to one of 435 virtual constituencies. The goal of this reform would be to create stable, hetero-

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[25] The results observed in the smaller context of consensus conferences, citizens' juries, and the like, which gather only a few dozen citizens at a time, also support the epistemic properties of deliberative groups, but it is harder to extrapolate from the performance of these smaller groups to the performance of large assemblies. The fact that these groups are self-selected, rather than randomly selected, also makes them a less scientific source of evidence (see Mansbridge 2010 for a critique).

geneous and involuntary constituencies that would form small mirror-images of the nation, rather than interests or identity-based districts as is currently the norm with territorial districts. According to Rehfeld, this reform would not only bring us closer to the real intentions of the Founders when they designed large territorial districts, but also closer to the normative ideal of legitimate representation. What is particularly interesting for our purposes here is that, according to Rehfeld, representative districts would foster truly common-good-oriented voting, as opposed to voting oriented towards the defense of local interests, simply by virtue of the fact that the good of representatives' constituents would be identical to the good of the whole.

Rehfeld's randomized constituencies are problematic from an epistemic point of view. To the extent that constituencies are randomized, they are all like miniature versions of the people. As such, the way they will vote is most likely going to be quite similar. This similarity, according to Rehfeld, guarantees that random constituents will vote for the common good, which is statistically equivalent to the good of any random constituency, rather than the good of now-nonexistent local interests. From this point of view, there is no doubt that random constituencies are a marked epistemic improvement on the practice of gerrymandering in terms of selecting the "right" representative. However, at the collective level, this epistemic advantage is largely annulled by the fact that those "right" candidates do not add up, when taken as a group, to the "right" assembly. Since statistically similar constituencies would presumably vote for the same type of person most of the time, the Congress would end up being entirely made up of white male Republicans (in the U.S.). Randomized constituencies may improve the civic-mindedness and "rightness" of the votes, but they would also likely lead to a cognitively homogenous assembly of 435 representatives who think roughly the same way.

Rehfeld ([2005](#), Epilogue) considers the objection that the first Congress after the transition to random constituencies that he imagines would be heavily homogenous. However, he trusts that as far as the ideological imbalance is concerned at least, things would smooth out after some time. After an all-Republican Congress, the next round of elections would bring in an all-Democratic Congress. After a few more oscillations, the Congress would stabilize in the middle of the ideological spectrum, as the importance of partisanship would diminish over time. Regarding the problem of minority voices, Rehfeld's solution consists in reintroducing quotas at the level of random constituencies. By changing the qualifications for holding a congressional seat and making them such that, for example, only African-Americans or women could run for election in a certain number of constituencies, he argues that one can reintroduce some degree of diversity at the level of the representative assembly in a controlled and transparent manner. While the proposal is a marked improvement on gerrymandering practices that homogenize districts along racial lines (not gendered ones, though) to a comparable effect, the problem from an epistemic point of view is that such quotas suppose that one can determine in advance which kind of diversity (race, gender, etc.) is good for deliberation. As already argued, nothing guarantees that this predefined diversity exactly maps onto the epistemically optimal type of cognitive diversity.

5 Conclusion

I have argued that the advantage of an assembly of representatives mirroring the composition of the larger group—the advantage of descriptive representation—is that, given the nature of political questions, it is conceptually the most parsimonious way of ensuring the presence of a key ingredient of successful deliberation-as-problem-solving, namely, a diversity of ways of interpreting the world and addressing problems in it. This view has led me to argue in favor of the random selection of representatives over alternative selection modes, such as elections.

Besides institutional and practical implications, this conclusion has possible normative implications for contemporary debates opposing the advocates of a "politics of ideas" to those of a "politics of presence." For the advocates of a politics of ideas, accountability in relation to declared policies and programs is all that matters in evaluating the legitimacy of representatives. White men can represent black women, and black women white men, because what matters is the kind of "ideas" representatives are capable of defending. Ideas can be assessed through the use of reason, which is color-blind, gender-neutral, and impartial. What we should care about in selecting representatives, therefore, is to identify people with good ideas and good argumentative skills, not specific sociological traits. Advocates of a politics of presence, however, argue that the gender or ethnic composition is not a matter of indifference, but is in fact a legitimate matter of democratic concern. There is a degree to which only a black person can represent other black people and only a woman can represent other women. According to the epistemic approach proposed here, however, the politics of presence cannot be separated from the politics of ideas because, as the argument has it, the best ideas are likely to emerge in a deliberative setting where the presence of the people in all its cognitive diversity is statistically ensured. For this view, it is not meaningful to say that a black woman more aptly represents other black women. But in a country characterized by the presence of a strong black minority, an assembly that would lack black women almost certainly fails to include as much cognitive diversity as it should, which is very likely to harm the epistemic quality of deliberative outcomes.

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