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SHOULD WE AIM FOR CONSENSUS?

ABSTRACT

There can be good reasons to doubt the authority of a group of scientists. But those reasons do not include lack of unanimity among them. Indeed, holding science to a unanimity or near-unanimity standard has a pernicious effect on scientific deliberation, and on the transparency that is so crucial to the authority of science in a democracy. What authorizes a conclusion is the quality of the deliberation that produced it, which is enhanced by the presence of a non-dismissible minority. Scientists can speak as one in more ways than one. We recommend a different sort of consensus that is partly substantive and partly procedural. It is a version of what Margaret Gilbert calls "joint acceptance" – we call it "deliberative acceptance." It capitalizes on there being a persistent minority, and thereby encourages accurate reporting of the state of agreement and disagreement among deliberators.

Should we aim for consensus? Perhaps that depends on the arena. There is a long tradition in politics according to which the authority of the state depends on the consent of the governed, and which regards unanimous consent as the ultimate authorization. On this account, majority rule is a distant runner-up, albeit a necessary expedient given time constraints on reaching decisions, etc.

However, Jon Elster once remarked that "I would in fact tend to have more confidence in the outcome of a democratic decision if there was a minority that voted against it, than if it was unanimous" (1986/1997, 16). Thus Elster would rather enforce a law when there is a minority opposed to it, which might sound odd. But what worried him was the possibility that a unanimous decision might be due to some sort of conformism – perhaps resulting from intimidation, the suppression of alternative viewpoints, or self-censorship – rather than from a proper deliberation of the alternatives. One might add the related concern that there had been no interesting alternatives to consider, no real choice. The existence of a persistent minority suggests that at least one decent alternative was considered, and that a case had to be made for rejecting it in favor of the majority's position.

Episteme 7.3 (2010): 198–214
DOI: 10.3366/E1742360010000948
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www.eupjournals.com/epi

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

Presumably, Elster, and anyone else who follows or approves this line of reasoning, would be less confident if the minority numbered one single individual, and if that individual were especially fanatical or naive. Is there, then, reason to be even more confident in political decisions when the minority is sizable, reasonable, and well-informed?

Now take the arena of science. Suppose a body of scientists has been convened to consider an issue on which a political decision hangs, and has submitted its report. Would you have more confidence in the report, and be more likely to defer to the position recommended if it were unanimously endorsed, or if there were a minority opposed? And in the latter case, would you be even more confident if the minority were sizeable, reasonable, and well-informed on the issue in question?

Not that your own outlook is different in the case of science than in the case of politics, but you can surely imagine reasons for judging the two cases differently. After all, no one expects unanimity in politics; not in the light of culture, class, gender, and other differences. If a diverse voting body were to report unanimous agreement on an issue or a candidate, one might well wonder if all parties had freely spoken their minds. Science, on the other hand, is supposedly conducted by rules of reasoning that lead from the same evidence to the same conclusions, no matter who does the reckoning. As Robert Merton put it in a nutshell, "Sooner or later, competing claims to validity are settled by universalistic criteria" (1957/1973, 271 n. 6). By "universalistic," he meant that

> The acceptance or rejection of claims entering the lists of science is not to depend on the personal or social attributes of their protagonist; his race, nationality, religion, class, and personal qualities are as such irrelevant. (270)

In the case of science, lack of consensus might suggest that conclusions had been reached prematurely, or that the "personal or social attributes" of the protagonists had interfered with their deliberations.

Of course this view of science has been widely criticized, especially on the grounds that the available evidence so often "underdetermines" the choice among competing theories, i.e., more than one theory is supported by the facts at hand. Nonetheless, the consensus criterion has considerable currency among laypeople and scientists alike. That science properly conducted leads to near unanimous consent seems to be assumed by those creationists, climate-change deniers, and others who point to divisions within this or that scientific community in order to undermine that group's authority and prevent actions based on the opinions of majorities (even significant majorities) of the scientists involved.[1] That science properly conducted leads to consensus is also implicitly or explicitly assumed by those evolutionary biologists, climate-change scientists, and other groups of experts who, in response, deny that they are actually divided, or emphasize the minuteness of the minority, or the insignificance of the differences at issue.

There can be excellent reasons for calling into question the authority of a group of scientists. But those reasons do not include lack of unanimity among them.

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

In questioning the connection between consensus and authority in science, we will look to the arena of politics, and to reasons for adopting majority rules as opposed to requiring unanimity, especially in decision-making among equals. If we should favor majority rules among political equals, then perhaps we should extend the same attitude to technical experts who regard each other as peers. The idea that we might learn anything about science by considering voting rules in a democracy will be anathema to some (voting on the truth?!) but hopefully only initially. Formal votes may be rare in science, but scientists count other scientists – those for and those against – all the time.[2] This makes sense epistemically. And it makes even more sense for scientists in the sort of deliberative situation we are envisioning. As David Guston argues, "voting and other procedural elements are critical if science is to be a source of enlightenment and legitimation for policy" (2006, 379).

We will also look to the judicial arena, which would seem to teach a very different lesson from that of politics. Indeed, one might think that the case for unanimity requirements in jury trials extends quite straightforwardly to science; that a discordant scientific community is as useless as a "hung" jury. We will argue otherwise.

Unanimity is not required to authorize the result of a scientific deliberation, i.e., to entitle deference to the outcome. Worse, the requirement of unanimity is pernicious. It has a detrimental effect on scientific deliberation, encouraging agreement where there is none in order to protect the authority of the group. It encourages misleading reports of the state of scientific agreement to the public. It undermines the epistemic equality of the deliberators. And it unfairly privileges the status quo with regard to any decisions that hinge on the outcome of the contest.

Furthermore, the persistence of a minority is not only "okay," but is rather a benefit: minorities are not confidence busters, but confidence boosters, for the reasons suggested by Elster in the case of politics, reasons that apply in the case of science as well. What matters is the quality of the deliberation, which is enhanced by the existence of a non-dismissible minority. The kind of agreement that authorizes the result of a scientific deliberation is partly substantive and partly procedural. It is a version of what Margaret Gilbert calls "joint acceptance" (1987, 1996); we call it "deliberative acceptance."

By way of conclusion, we will focus on an issue that we somewhat take for granted in the meantime, namely, the meaning of "authority." We hope that it will suffice until then to assume that authority of any sort involves deference, or more specifically, justified or well-deserved deference. It is better to elaborate later. Our point will be that authority is not undermined by questioning, but rather strengthened by it. Authority also requires transparency, which is easier to provide when hard questions are seen as a strength rather than a weakness.

Should we aim for consensus? Does authority (e.g., the authority of the state, or science, or the judicial system) depend on it?

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

When it comes to unanimous consent, it helps to be realistic. It is a pretty elusive goal, and not just in politics. And this is not necessarily a matter of incompetence or differential access to evidence. As Gideon Rosen puts the point,

> It should be obvious that reasonable people can disagree, even when confronted with the same body of evidence. When a jury or court is divided in a difficult case, the mere fact of disagreement does not mean that someone is being unreasonable. Paleontologists disagree about what killed the dinosaurs. And while it is possible that most of the parties to the dispute are irrational, this need not be the case. To the contrary, it would appear to be a fact of epistemic life that a careful review of the evidence does not guarantee consensus, even among thoughtful and otherwise rational investigators. (2001, 70–1)

The issue of rational disagreement has itself been much debated in the recent epistemology literature. The interesting question, on which both sides focus, is whether there can be reasonable, persistent disagreement among "epistemic peers" who are equally well-informed and competent to adjudicate the issues in question. Critics of Rosen's "permissive" position (e.g., Feldman 2007; Christensen 2007) argue that epistemic peers faced with disagreement should be "conciliatory," by, for example, suspending belief or shifting their positions toward each other. What could be a more reasonable response to an opponent whom you consider to be as reasonable and well-informed as yourself? Supporters of Rosen's position (e.g., Kelly 2005) argue that the "conciliators" make an implausible assumption, namely, that for any issue and any body of evidence, there is a uniquely rational viewpoint. If instead there are multiple reasonable perspectives on an issue, this would justify a certain "steadfastness" among opposing epistemic peers.

Compromising or remaining steadfast hardly exhausts the alternatives. Deliberators have other options that we will discuss (and recommend). But in general, we side with the permissivists. We cannot eliminate disagreement just by being rational. This point is made increasingly in the literature on deliberative democracy, in response to criticisms of early versions of that approach. For example, Jürgen Habermas had considered the ideal of consensus to be constitutive of deliberation: deliberators necessarily assume that they can reach agreement "if only the argumentation could be conducted openly enough and continued long enough" (1981/1984, 42). It was as if – critics complained – dissent was an immature, even pathological state of affairs (e.g., Villa 1992). Not surprisingly, it also came to seem as if there was an antithesis between deliberation and voting; the latter being called for only when the former failed.

As Jane Mansbridge et al. (2010) note, this conception of deliberative democracy rested on a questionable, "unitary conception" of the common good. Increasingly, deliberative democrats deny that there is a "best" option that everyone would and should agree to "for the same reasons" (66, 68). Increasingly, they recommend that deliberators aim not for consensus, but rather for "mutual justifiability" – mutual acknowledgement of each other's reasons as good reasons (e.g., Gutmann and Thompson 2004, 26–9). And increasingly, they see voting not as the premature,

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but as the proper conclusion to a well-conducted deliberation:

> [W]hen interests or values conflict irreconcilably, deliberation ideally ends not in consensus but in a clarification of conflict…, which sets the stage for a decision by non-deliberative methods, such as aggregation.… We assume that the goal at the outset of deliberation ought not necessarily to be a substantive consensus.… Deliberation that has clarified and structured conflict well appropriately ends with majority rule or other non-deliberative democratic methods such as negotiation among cooperative antagonists. (Mansbridge et al. 2010, 68–9)

Science is admittedly a more agreeable affair than politics. Nonetheless, many scholars in the field of science and technology studies consider disagreement to be not so abnormal as Thomas Kuhn's notion of paradigm-guided, "normal science" would suggest. Moreover, many would attribute the reasonableness and not just the fact of so much disagreement to the very sort of consideration that Kuhn himself emphasized – even if he limited its importance to periods of "revolutionary" science – namely, the degree to which theory choice is underdetermined by the available evidence. This situation arises in part because scientists, even in the same discipline, base their inferences on alternative background assumptions and employ alternative principles of inference.[3]

If authority requires unanimity, then there is not much hope for it in politics or in science. We can be more hopeful of unanimity among jurors, since in many cases judges require it; but, of course, judges do not require it of each other (more on the courts shortly). Surely something less than unanimity is sufficient with regard to authority. But even if unanimous agreement could be reached, that would not suffice to authorize the conclusion. What matters is the means by which it was reached. A unanimous agreement reached by coercion or self-censorship – whether in politics, science, or the courts – hardly deserves our respect. If it is unanimity we aim for, surely it is unanimity reached by proper deliberation.

We will not be offering anything like a full account of deliberation. To get an idea of what this would involve, see the well-worked-out theories of Joshua Cohen (1989/1997) and Helen Longino (2002, 128–35), the former of which is tailored more to politics, and the latter to science. Here we will focus on three inextricably related aspects of proper deliberation: disagreement, deliberative equality, and majority rule. First, consider disagreement.

According to the view associated most famously with John Stuart Mill, the quality of the case made in favor of any position (in any arena) depends on how well it is defended against alternatives that are themselves well defended:

> Even in natural philosophy, there is always some other explanation possible of the same facts; some geocentric theory instead of heliocentric, some phlogiston instead of oxygen; and it has to be shown why that other theory cannot be the true one: and until this is shown and until we know how it is shown, we do not understand the grounds of our opinion.… Nor is it enough that he should hear the arguments of adversaries from his own teachers.… He must be able to hear them from persons who actually believe them; who defend them in earnest, and do their very utmost for them. He must know them in

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

> their most plausible and persuasive form; he must feel the whole force of the difficulty which the true view of the subject has to encounter and dispose of, else he will never really possess himself of the portion of truth which meets and removes that difficulty. (1859/1991, 42–3)

As Mill goes on to suggest: if worthy opposing positions do not exist, we would do well to invent them and defend them with all the fervor of the most skillful devil's advocate (43).

The success of a deliberation depends not on whether unanimity, or any other particular vote is eventually recorded, but rather on the strength of the reasoning up to that point. And this is not merely a matter of reason-giving vs. arm-twisting. Unanimity is purchased cheaply if all but one alternative is weak or weakly defended (Longino 2002, 129; see also the provocative defense of Mill by Moffett 2007).

The view that minority-contested outcomes fall short of the ideal reflects the conviction that deliberation is the means and consensus is the end. But if proper deliberation is the end, then a mixed outcome does not fall short; it hits the mark. This is expressed nicely by Bernard Manin in the case of politics:

> The deliberative process is brought to a close by a choice – the vote. … The approval of the greatest number reflects, in that context, the greater strength of one set of arguments compared to others. The process nevertheless institutionalizes the admission that there were also reasons not to desire the solution finally adopted. The minority (or minorities) also had reasons, but these reasons were less convincing. We can now see the justification for the majority principle (it is not a simple necessity of fact [i.e., not simply an expediency]). Because it comes at the close of a deliberative process in which everyone was able to take part, choose among several solutions, and remain free to approve or refuse the conclusions developed from the argument, the result carries legitimacy. The decision results from a process in which the minority point of view was also taken into consideration. Although the decision does not conform to all points of view, it is the result of the confrontation between them. (1987, 359)

The existence of a persistent minority indicates that the majority position was tested, which is confidence-inspiring; and that the minority position was bested, but not to the point that its advocates capitulated on the substantive issue. A mixed outcome is a record and a reminder that there are alternative points of view to the one that prevailed at the time of the vote, and serves as a way to keep an issue alive. It thus helps to prevent the prevailing position from becoming, in Mill's slogan, a "dead dogma."

All this presupposes that the deliberators are equals. They respect each other as deliberative equals, and at the end of the day their votes count equally. Those in the minority are not dismissed as deliberatively deficient, nor are their votes discounted. Interestingly though, when unanimous consent is required to authorize a decision, preferential treatment is actually given to the minority. One or a few individuals' votes count as much as all the rest. The implications of this are especially easy to see in the typical scenario where voters are considering new (additional or replacement) legislation. Under a unanimity requirement, if just one

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

voter out of one hundred wants to stick with existing law, then their preference will win the day, despite ninety-nine votes to the contrary. Of course, one can see this as a nice way to prevent citizens and legislatures from doing anything wild and crazy. On the other side, it can be seen as a sure way to preserve the status quo. Even worse, the requirement of unanimity is a temptation to seek profit over principle. To be sure, the temptation is always there. But where unanimity is required, one or a few bad guys can have their way over and over. Benjamin Franklin's recollection of the veto-abusing governor who insisted on payments for every bill he approved may be extreme in the details, but the principle can be generalized. The requirement of unanimity is also a temptation to submit to the conceit that one is infallible or that one's co-deliberators are vastly inferior. A single self-important individual can simply insist on his or her unique importance – indeed, all-importance – whenever their reasons fail to convince. Preferential treatment of the minority, the attendant privileging of the status quo, and the temptation for personal gain or pride are standard reasons for rejecting unanimity decision rules in politics (e.g., Dahl 1989, 135–52; Schwartzberg 2008).

But there is another side to this coin. If one person or a small minority is given this much importance, then they become a target for silencing, or being aware of that, may be more likely to silence themselves. Perhaps ironically, a minority that has less chance of influencing a decision has less reason to be quiet.

The considerations in favor of majority over unanimity requirements in politics also apply to the sort of scenario sketched earlier: namely, where a group of scientists has been convened to deliberate an issue on which a political decision hangs. Of course there are and have been all sorts of scientific deliberative bodies, with widely differing compositions (e.g., sometimes including informed stakeholders and/or government and industry representatives, in addition to scientists and other technical specialists) that have served this general purpose. Our imagined body is composed first and foremost of a core of scientists who are regarded and who regard each other as deliberative equals with regard to the task at hand. It is not unlikely that they will disagree somewhat, even after considerable deliberation, in part because the available evidence underdetermines the choice among their various perspectives. The deliberation would, however, prepare them well for a vote. At that point, why should one among them have veto power over all the rest? Worse than this epistemic injustice would be if one of the scientists were to act on the temptation to use his or her veto power primarily for personal gain, e.g., to curry favor with an organization that favors the legislative status quo or because he or she personally favors the current regime, or if one of the scientists simply wanted the spotlight.

But while a unanimity requirement would privilege a small minority of scientists on the committee – even a minority of one – it would also make them (or him or her) a threat to the authority of the group and of the discipline(s) represented, possibly resulting in considerable pressure not to air their differences.

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One might grant that the two-sided treatment of the minority is a very real problem. But there is the lingering question of whether a unanimity requirement is any more problematic than a non-unanimity allowance. And in particular there is the vague worry that aiming for less will ensure that we get less. In addressing this question it is instructive to look to the judicial arena, and in particular to unanimity requirements for criminal jury trials.

This tradition had never been challenged in the United States until the 1960s, when two states, Louisiana and Oregon, relaxed their requirements for verdicts in non-capital offense crimes, from unanimity to 9-out-of-12 in Louisiana and 10-out-of-12 in Oregon. The changes were appealed up to the Supreme Court, which upheld their constitutionality. Of course, the Supreme Court itself does not require unanimous decisions, and it decided these two cases by the smallest of margins, 5–4 (for a critical overview of these cases, see Abramson 1994, 179–205).

The Supreme Court also allows the recording of dissenting opinions. So we know what concerned the minority justices: among other things, jurors might subsequently aim low, only to achieve the requisite majority.

> Non-unanimous juries need not debate and deliberate as fully as most unanimous juries. As soon as the requisite majority is attained, further consideration is not required… even though the dissident jurors might, if given the chance, be able to convince the majority.… [T]he collective effort to piece together the puzzle of historical truth… is cut short as soon as the requisite majority is reached.… It is said [in the majority opinion] that there is no evidence that majority jurors will refuse to listen to dissenters whose votes are unneeded for conviction. Yet human experience teaches that polite and academic conversation is no substitute for the earnest and robust argument necessary to reach unanimity. (Douglas with Brennan and Marshall concurring, *Johnson v. Louisiana* 1972)

In support of a non-unanimity allowance, one could point to studies indicating that unanimous verdicts overwhelmingly tend to be the positions initially held by the majority of the jurors. So maybe it would not matter – in the sense of not changing the verdict – if jurors stopped deliberating after the required majority was reached. But might it matter to the quality, if not the conclusion, of the jury's deliberations? And might it matter to the jury members' confidence in their decision and in the jury system (Nemeth 1977, 40–2)?

Studies of experimental mock juries and actual juries – conducted in the wake of the Supreme Court decisions – suggest that in non-unanimity trials, jurors all too often aim just to reach the required majority, and take the minority less seriously. For example,

> Juror #8 (foreperson): I think the first thing we have to do, and probably the easiest, is to decide which side to find for – Do we find for the plaintiff or do we find for the defendant? … Okay, but the second thing I wanted to mention is remember it is not unanimous, we don't have to sit here and argue with one person because it's 6 jurors that are required. (Diamond, Rose, and Murphy 2006, 214)

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Studies also suggest that unanimity-requirement trials are deliberated longer (Nemeth 1977). And while length of time deliberating is not necessarily an indication of the quality of the time spent, nonetheless, this does seem in keeping with the idea that the deliberators are aiming only to reach the required majority.

Moreover, jurors themselves rate the quality of their deliberations lower in non-unanimity trials. It is not just that jurors in the minority rate the quality of their deliberations lower; jurors in the majority do the same. Jurors in non-unanimity trials also express less agreement with the verdict and less agreement that justice has been done than do jurors in unanimity-requirement trials (Nemeth 1977; Diamond, Rose, and Murphy 2006, 225–7).

If the lay public did not demand unanimity or near unanimity for their deference, and if scientists did not place the same demand on themselves in exchange for their entitlement to the public's trust, might not scientists also end up aiming too low? And might they not be disappointed with the quality of their deliberations as a result?

We would like to suggest that consensus does have an important role to play in authorizing decisions, whether in politics, science, or the courts. But it is not just consensus on the substantive question at issue. It is partly substantive and partly procedural. It is a group decision that has the most affinity to what Margaret Gilbert calls a "joint acceptance" (1987, 1996). To introduce the idea of joint acceptance, we will back up and consider a very interesting aspect of jury studies that has been reported but without comment.

We mentioned that jurors in non-unanimity trials report less agreement with the verdict than jurors in unanimity trials. But even the jurors in unanimity trials are not entirely in agreement with the verdict (Nemeth 1977, 47–8). That is, they do not always vote their private convictions. Why would a person vote thumbs-up when they believe thumbs-down, or vice-versa?

One possibility is that these jurors were coerced into reporting a view that was not their own. But recall that jury members in unanimous verdict trials are fairly content with the quality of their deliberations. So another possibility is that they are freely reporting a position with which they somehow identify, even though it is not their own personal position. With whom or what do they identify, if not themselves? They identify with their group. They are reporting what they take to be the position of the jury. This is not just the majority position, because they do not identify with the majority. It is the group's – the jury's – position.

To see better what might be – what we believe is – going on here, consider the phenomenon that Gilbert refers to as "joint acceptance," which she characterizes as follows (paraphrasing slightly):

> A group jointly accepts *p* if and only if the individual members have openly agreed to let *p* stand as the position of the group. (1987, 194)

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Joint acceptance of a position is consistent with considerable disagreement among group members and with considerable abstention as well. We may agree to let *p* stand as our group's position, even though we ourselves reject it and accept *q* instead. Think of your own academic department – for example, the decisions you make with regard to hiring. You personally do not approve of hiring Jones, and several members have abstained for whatever reason, but you all dutifully report to the dean that Jones was the department's choice.

Consensus is critical in the case of joint acceptance, but it is consensus at a different level: not agreement concerning *p* per se (again, concerning *p* per se there may be considerable disagreement), but rather agreement to let *p* stand as the position of the group. It is, moreover, an agreement that carries with it an obligation not to contradict *p* publicly as the position of the group. Of course, no group member would be obligated to lie and state that he or she personally accepts *p* even when that is not the case. But any dissent must be expressed carefully:

> [I]f one feels bound to speak against the group view, though one is not ready to challenge its status as the group view, one must preface one's remarks making it clear that one is speaking *in propria persona*. (195)

Why would anyone in the minority enter into such an agreement? Here is one sort of answer: namely, to protect the authority of the group, on the assumption that the group's authority is linked to consensus within it. After all, the members of a group can publicly announce their joint acceptance of a position without indicating the extent of their own disagreements on the matter. Back to your own department. You each have your own preferences about what the faculty should be doing. But you know that on many of these issues the faculty will need the dean's approval. Presumably you would rather have her defer to the department, but you know from experience (or you should know) that she is less likely to do so whenever you and your colleagues are publicly at odds with one another.

Here is another sort of answer: parties to a deliberation may agree to let a position other than their own stand as the group's not so much to mask the disagreement within the group, as to affirm the position that prevailed and to endorse the process by which it rose to the top. John's colleagues heard his views on the issue; he heard their views. They did not convince him, nor he them. But they are nine and he is one. As deliberative peers they all count equally. He does not agree to the view they hold. But he agrees that it is the position of the department. You might say that he is merely agreeing to the vote count: that the decision is indeed the majority position. But he may be doing more. Had his colleagues not heard him, or if the deliberation had failed in some other way, then he might not have agreed to let the result stand as the position of he department. He might say something more like: "No, they did that without me."

So back to the jurors who seem not to vote their mind. Jurors who contribute to unanimous verdicts with which they personally disagree are, we suggest, substituting another question for the one actually asked by the court. The question

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

they are answering is, "Do you agree to accept the verdict in question as the position of the jury?" Answers in the affirmative might be due to the desire to hide their dissent in order to protect the authority of the jury, given that hung juries are in fact treated as indecisive. Or the jurors might not be so concerned to hide their disagreements as to affirm that the verdict in question was indeed the position of the jury, and that they endorse the process of deliberation that led to it.

Similarly, we might look at the signatures on a scientific committee report not as signifying that each of the parties personally agrees to all of the propositions asserted there, but rather that all of the committee members agree to let the report stand as the group's position. In an earlier paper, Beatty (2006) discussed in detail the proceedings of a committee of geneticists charged with deciding not only a technically difficult issue, but also a matter of considerable social and political importance at the time (the mid-1950s), namely, the genetic impacts of low doses of radiation. As transcripts of the proceedings make clear, the signatories disagreed significantly with regard to the substance of the report that they nonetheless signed.

Why did the scientists holding contrary positions sign on? In this case it had a lot to do with protecting the authority of the discipline they represented, and of the committee and its conclusions in particular. As the transcripts show, the geneticists on the committee were laboring under the assumption that their authority depended on being able to reach consensus. They knew that the public was concerned about their highly publicized disagreements prior to the gathering. They assured each other that they should speak freely in the meeting, but their report should be circumspect. Signs of continued disagreement would further erode the public's trust. In the following passage from the transcript, the chair of the committee rhetorically suggests a certain degree of disclosure to the public, only to insist on the foolhardiness of being so frank:

> We must not do this in a way that runs two very serious dangers. First of all, I don't think it does any particular good. It just scares the pants off the public. I don't think that is useful. Secondly, we have to be very careful that we don't do science a disservice in this procedure by having a lot of people say, "Well, by George, just what I thought. They don't know anything about it themselves." (quoted in Beatty 2006, 59)

In keeping with this attitude, the published report did not reveal that central issues had to be decided by majority vote.

The geneticists did not all agree on the positions reported. But by all signing on, they let the report stand. Masking their substantive disagreements in this way was intended not only to protect their authority, but also to foil the leadership of the Atomic Energy Commission, which liked to stress the disagreements among geneticists – however small the minority – in order to thwart the adoption of new, restrictive maximum dosage limits.

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

But however paternalistically well intentioned the report was, it was an undesirable outcome. We need to be able to defer to scientists (and other experts), but it is no good for us to regard them – and for them to behave – as oracles. We should be able to turn to them for what they know, and also for what they know about what they know, e.g., for the extent of their agreements and disagreements. We will return to this point in our final section.

One would like to think that the minority geneticists signed the report not (or at least not only) in order to protect their authority and foil the AEC's legislative agenda, but also because they believed that the quality of their deliberations justified letting the report stand. This is hard to discern from the transcripts. What is clear is that the geneticists assumed – and were correct in assuming – that their authority would be questioned if they revealed the extent of their disagreements. How might things have gone if they had had reason to presume otherwise – that unanimity was not crucial? What if they had thought that the question put to them was something like this: Is there a position that you could agree to as the group's position, based on the quality of your deliberation, even if there is some residual disagreement among you as individuals? This would involve a qualified joint acceptance. We propose to call it "deliberative acceptance."

> A group deliberatively accepts *p* if and only if the individual members, based on the quality of their deliberation, have openly agreed to let *p* stand as the position of the group.

Deemphasizing consensus on substantive issues (though not entirely), and stressing consensus on deliberative quality would not only take away the temptation to hide a persistent minority position, but would instead provide a good use for it. What better way to inspire confidence in a deliberative outcome than to show that 1) the position in question had been tested against a worthy alternative; 2) the minority felt that they had been heard, that they had been treated as deliberative equals; and 3) having been heard, even the minority agreed to let the position in question stand as the group's.

Aiming for deliberative acceptance is by no means aiming low, because to secure that agreement, it is not sufficient to reach a supermajority or even a majority. It is necessary to reach a point at which the minority concedes that they have been heard and that something like epistemic justice has been done, and that therefore they will let the position in question stand as the group's. What is conceded to the minority is acknowledgement of their persistent concerns, as deliberative equals. But deliberative agreement still extracts from the minority a significant concession, the acknowledgement that they were heard, but had not proven persuasive.

There is one further thing to note concerning the similarities and differences between joint acceptance and deliberative acceptance. Gilbert has been rightly concerned to distinguish joint acceptance from a merely summative conception of what it would be for a group to have a position. For a group to accept *p*, it is not necessary for all or even most of the individual members to accept *p*

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(1987, 201). Joint acceptance may not even involve a vote. Deliberative acceptance, on the other hand, does involve a vote, which is appropriate for deliberators who count each other as equals. To be sure, there is more to deliberative acceptance than just a vote. But, in this case, the count of votes matters. It is epistemically significant that the position jointly accepted was favored by a majority of deliberative equals. And it is epistemically valuable to have a record of the strength of the minority. As we will discuss in the final section, the vote further contributes to the authority of the deliberative body by making its proceedings more transparent.

When it comes to agreement and disagreement, it helps to distinguish (at least) two levels. Disagreement at the individual level is not so worrisome if it is combined with acceptance at the group level and with deliberative acceptance in particular. Indeed, disagreement at the individual level and deliberative acceptance at the group level are a powerful combination.

On the other hand, acceptance at the group level can itself be problematic if it is used to mask disagreement at the individual level. This is most likely to occur when deliberators labor under the assumption that their authority depends on their individual agreement. In order to protect their authority from challenge, they may decide to speak only as a group. What should be challenged, though, is not the authority of the deliberative body, but rather the requirement of unanimity itself.

Instead of hoping for unanimity, and being disappointed otherwise, we should hope that the scientists who gather on our behalf will deliberate to the point where they can agree as a group – if not individually. The minority can continue to insist on the merits of their position, all the while acknowledging that the majority's position prevailed. And the majority can forthrightly acknowledge the minority's contribution to the process and product. The authority of the deliberators and the deliberative outcome will be strengthened, not weakened as a result.

But why have all this concern about authority anyway? What room is there for authority, and all the implied deference, in a critical, deliberative democracy? Mark Warren (1996) notes the scarce attention paid to authority in the literature on deliberative democracy. He accounts for this in terms of the supposition that deliberative democracy is anti-authority, an idea perhaps put into our heads by neo-conservatives who believe increased participation leads to increased questioning, which threatens governability.

If authority is deference, plain and simple, it is understandable why deliberative democrats would have little use for it. Up to this point we have characterized authority solely in those terms. But authority is more than deference, and not all bad, in science or in politics. We need to defer to legislators and scientists alike, and in a similar manner. The sort of deference toward legislators that is justified is not the surrender of our judgment. It is rather, as Warren suggests, a temporary suspension, while we focus on the many other matters that require our direct attention, trusting our lawmakers to act in our interests in the meantime.

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Of course, we often disagree with them (and with each other) about which decisions are best for us and for all. But we cannot possibly deliberate about every issue and contest every decision to which we object. We can, however, and sometimes do raise serious questions. To the extent that our legislators are open to hearing us when we come looking for answers – to the extent that they are prepared to justify their decisions, and re-open issues when they fail – to that extent our conditional deference is justified. To question them in this way is by no means to question their authority. Indeed, their authority is grounded in part on the "institutionalized possibility of challenge" (Warren 1996, 47), and would evaporate if that ground should erode.

The possibility of challenge keeps our deference from devolving into mindless subservience, and more. The possibility of challenge from the public, from public interest groups, and, of course, from within the ranks of the legislators as they deliberate among themselves, also gives us confidence in the process and the decisions ultimately reached. That there were hard, not fully met challenges remaining at the end at least means that there were serious alternatives considered along the way.

Similarly, the authority of a scientific body is not undermined by questioning, but rather depends on it. In this paper we have stressed questioning among scientists, rather than questioning of scientists by the public. Could deference to science be justified without the possibility of public challenge? We will not consider here the extent to which public input could improve scientific deliberations and outcomes. It is not hard to imagine cases where it would (e.g., where "local experts" or well-informed public interest groups are involved). But if public deference to a scientific body is to be anything more than unthinking acquiescence, it will at the very least require some mechanism for questioning the proceedings. The model of authority in a democracy is not an oracle, not even a very reliable one.

Just as the public expects transparency in government, it would and should expect the same of scientists. Central to transparency in government – so central that we often take it for granted – is a vote count. And when scientists are convened in the manner and for the purpose we have sketched, a vote count would also be expected. It is not only a matter of epistemic good sense. Guston makes the point forcefully:

> A scientific [body] that does not partake in… a politics of transparent social choice – one that hides both its substantive disagreements and its disciplinary and sectoral interests beneath a cloak of consensus – is not a fully democratic one.… Scientists need to vote in well-orchestrated ways if they want substantive influence on public laws. (2006, 401)

The very transparency that has been seen as a threat to scientific authority – by revealing a lack of unanimity – is actually a requirement for authority. It is the unanimity requirement that is the problem. What we want to know is that there was indeed disagreement, even to the end, but that by its own account the minority was heard.

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

ACKNOWLEDGMENTS

This paper has benefitted from three terrific audiences: the "Science and Technology Studies Collective" at UBC, organized by Sylvia Berryman; the "Workshop on Contingency and Dissent in Science" at UCSD, organized by Nancy Cartwright; and the "Workshop on Science and Values" at the University of Western Ontario, organized by Kathleen Okruhlik. Thanks also to Garland Allan, James Collins, Faseeha Sheriff, Mark Warren, Liam Willis, and especially Brad Wray. The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007–2013) under grant agreement n° 237230.

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NOTES

1 See the excellent account of doubt mongering in Oreskes and Conway (2010). Their horror stories involve dissent from outside the relevant expert communities, whereas we are concerned with dissent from inside. But in both cases, expectations of unanimity figure into the problem.

2 Typical occasions for informal aggregating are review papers that summarize the state of play concerning a particular issue (e.g., the series *Annual Reviews*), and when scientists justify the invocation of a particular background assumption by pointing out that it has wide support within their community. Solomon (2006) argues that aggregation in science is undervalued, and deliberation overvalued. We agree with the former, but not the latter.

https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press

Deliberation and voting go together in ways we will explain. We do agree with Solomon that deliberation can go wrong when, and because, it is aimed at consensus.

3 The literature on this topic is vast. But in connection with recent discussions of reasonable disagreement, see Moffett (2007). For a well-developed case study, see Dietrich and Skipper (2007).

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https://doi.org/10.3366/epi.2010.0203 Published online by Cambridge University Press