

# TAKING THE JURY THEOREM TO TRIAL†

JOHN MILANESE

ABSTRACT. This paper applies recent generalizations of Condorcet's Jury Theorem in answering objections which have been raised against the standard Condorcetian justification of democracy. It is argued that these new developments significantly increase the likelihood of an adequate appeal to Condorcet's Jury Theorem, though some serious criticisms remain intact.

## 1. MOTIVATING THE DISCUSSION

One might wonder, *why* is democracy a good form of government? In what does democracy's legitimacy consist? For the philosopher offering an *epistemic* conception of democracy, the driving distinction in answering these questions is: it is not enough that a political system possess virtuous properties such as fairness or political equality of citizens; a system must also derive legitimacy from its capacity to produce the *right* policies with greater reliability than other systems. This outcome-oriented criterion of legitimacy is contrasted, though not diametrically opposed, to that of the *proceduralist*: that a policy is selected through a fair or otherwise virtuous process is what gives that policy legitimacy. The intuition underlying epistemic conceptions of democracy is that there is an independent fact of the matter as to which policy, among an array of options, is the right one and ought to be adopted by a society. Proceduralist conceptions need not commit to there being an independent truth as to which policy outcome is best - rather, that some policy happens to be selected by a good process is what makes the policy a 'good' one, where goodness need not

---

*Date:* May 16, 2007.

† (This is a draft. Comments are appreciated. My email is: [johnrmilane@yahoo.com](mailto:johnrmilane@yahoo.com))

Thanks to P.D. Magnus and Chris DeLeo for their helpful discussions.

be a robust property of the outcome, but rather of the process which brought it about. Epistemic and procedural conceptions of democracy are not necessarily at odds; David Estlund [4] defends a position he calls *epistemic proceduralism*, according to which democracy is justified because the procedures of democracy are good in that they tend to select the best policies.

Proceduralist justifications for democracy are well motivated by what Joshua Cohen calls “the fact of *reasonable pluralism*,” or the idea that in liberal democratic societies, there is and will be reasonable but incongruent conceptions of what is good, with no clear convergence toward a comprehensive morality [4, p.18]. Though this fact lends plausibility to the project of grounding political legitimacy in procedures which all could find fair and agreeable, it does not preclude the philosopher from justifying democracy on other grounds. As Estlund says, if one is of the intuition that some policies are “better than others by standards that are in some way objective,” it then may make sense to defend democracy on the basis of it being the system which does best at tracking this independent truth of the matter [4, p.69].

While it may be appealing to justify political systems according to the epistemic criteria of legitimacy - by how effectively systems come to *recognize and select* the best outcomes - this might seem an unpromising strategy for justifying democracy, since this criterion does not straightforwardly demarcate democratic systems as the best. In fact, the classic worry about such outcome-oriented approaches is that they seem to favor characteristically undemocratic political systems, a prime example being the *epistocracy* of Plato’s *Republic* - rule by the knowers [4, p.69]. It seems a likely hunch that epistemic criteria would favor, say, a benevolent oligarchical team composed of various geniuses from across the disciplines, as opposed to rule by the masses.

There is an argument, however, composed by the French enlightenment polymath Marquis de Condorcet, which suggests that *direct democracy* constitutes

a unique solution to the epistemic formula for political legitimacy. This fascinating argument, which has become known as Condorcet's Jury Theorem, seems to indicate that any political system privileging a relatively small subset of its citizenry as the sole voters or makers of policy would fail to produce better outcomes than a system employing voting by the masses. Because of this, the Jury Theorem has received much recent attention by political philosophers of the epistemic persuasion. In this paper, I present the Jury Theorem argument for democracy and highlight its assumptions. I then consider objections, and suggest some solutions one could give against the objections, in light of recent generalizations of Condorcet's theorem in the voting theory literature.

## 2. CONDORCET'S JURY THEOREM

The idea that majority opinion might epistemologically trump expert opinion is not original in Condorcet, though he was the first to formalize the thesis as a mathematical theorem. Foreshadowings of Condorcet's theorem arise in works as early as Aristotle's *Politics* (1282a). Jeremy Waldron explains that for Aristotle this idea arose out of his thesis (at 1253) that "Nature...does nothing without some purpose; and for the purpose of making man a political animal she has endowed him alone among the animals with the power of reasoned speech" [6, p.1326]. From the observation that free speech must be the necessary condition for political animals to reach informed group decisions, Aristotle further held that this supports an "argument [for] the collective intelligence of the masses, so long as they do not fall below a certain standard. Each individual will be a worse judge than the experts, but when all work together, they are better, or at any rate, no worse" [6, p.1326].

To see how closely Aristotle's statement resembles the Jury Theorem, consider the following formulation of the Condorcetian argument. Imagine first the flipping of a fair coin. Each toss of the coin is an *independent* event (each toss does not correlate with or influence future ones), and for all flips, one

expects heads equally to tails since the coin is fair. After tossing the coin three times, one would not be especially shocked if 100% of the flips (all three) landed heads, though the odds of this are a mere one in eight ( $1/2 \times 1/2 \times 1/2 = 1/8$ ). However, as the number of coin flips increases, the chance of landing 100% heads swiftly becomes astronomically unlikely (the chance of landing the first forty heads in a row is one in  $(\frac{1}{2})^{40}$ , i.e. less than one in a trillion). Similarly, while the chance of tossing only 30% heads for 20 flips is somewhat low, the chance of tossing 30% heads for 200 flips becomes incredibly small. This is a direct result of the *law of large numbers*: as the number of fair-coin flips increases to *infinity*, the chances of landing a cumulative total of anything other than exactly 50% heads becomes *zero*.

Imagine now that instead of each independent event being a coin landing heads or tails, the events are voters choosing either policy *A* or *B*, where *A* is a better policy than *B* by some objective standard. Further, instead of having a *fair* coin, voters are slightly *weighted* so that they have a 52% chance of voting for policy *A*. Just as 50% of the coin flips were guaranteed to be heads as the number of coin tosses went to infinity, the chance of less than 50% of the electorate voting for policy *A* becomes vanishingly small as the size of the electorate increases. This simple application of probability captures the Jury Theorem: that in an electorate where voters are have a better than fifty/fifty chance of selecting the best of two policies, as the size of the electorate increases, their majority rule decision becomes practically infallible.

This simple but powerful theorem can be transformed into the following argument. (1) Voters face two options, one better than the other by some objective standard. (2) Voters vote for the best option with better-than-random reliability. (3) Votes are independent events. (4) Vote outcome is determined by simple majority rule. (5) The chance that the worse policy wins the majority vote approaches zero as the size of the electorate increase (by the law

of large numbers). (6) It is unlikely that any small group of individuals could select the best policy with this degree of infallibility. Therefore, (7): political systems using the largest electorate, i.e. democratic systems, do best at selecting good policies.

Though interesting and elegant, this argument should *not* impress the philosopher seeking to justify democracy on epistemic grounds. For when it comes to conferring legitimacy to democracy, the argument faces the following dilemma. On the one hand, if the argument is meant to apply to (at least possible) democracies, then its assumptions are at best unrealistic, and at worst, strictly false. For it is not clear how an electorate could be magically faced with only two-choice votes; who gets to narrow down the otherwise vast array of options in a policy arena such as health care, for example? Further, insisting that votes be ‘independent,’ i.e. uncorrelated, seems to contradict what is commonly held as a cornerstone of any successful democracy: that citizens be able to freely engage each other in deliberation on the issues of the day, swaying and perhaps winning over others’ opinions on matters which they may come to vote on. On the other hand, if the argument is *not* meant to apply to possible democracies, then it is unclear what the force of the argument is. The Jury Theorem may well capture a possible relationship between majority rule systems and the selection of correct policies. However, if it is to successfully supply justification to democratic systems, then the argument ought to only hold assumptions which could realistically apply to democratic systems.

Fortunately, there has been significant progress in generalizing Condorcet’s theorem beyond his initial assumptions. The result is that the classic formulation of the argument is now obsolete, and so the objections made against the earlier formulation must be reappraised.

### 3. GENERALIZING TO THE $k$ -OPTION CASE

When any electorate must come to vote on a two-option policy proposal, the *procedural* and *epistemic* democrats line up in agreement. The epistemic democrats invoke the Jury Theorem in arguing that majority rule will best determine the correct outcome, and as Goodin argues, “procedural democrats of virtually every stripe agree [also] that majority voting is the best social decision rule in the two-option case,” though proceduralists are not motivated by expected outcome [9, p.278].<sup>1</sup> However, beyond the two-option case, epistemic democrats may wonder: can any of the force of Condorcet’s result can be preserved when his original restrictions are relaxed?

If the Jury Theorem is to confer significant warrant to democratic systems, it seems that it *must* apply to votes with more than two options. This is because the important issues in politics, barring some exceptions, do not condense down into two clear alternatives, with one always being significantly better. For at least this reason, epistemic democrats such as Estlund regard Jury Theorem justifications as “less than trustworthy,” for they must “assume there are only two alternatives,” leaving one wondering how the other options are no longer open for consideration [4, p.80]. Hand-in-hand with the two-option assumption is another especially suspect Jury Theorem premise, which Christiano, in a 1990 survey article, mildly refers to as ‘difficult’: that everyone has a better than fifty percent chance of being right [3, p.165].

One proposed solution to Estlund’s kind of worry, originally offered by Condorcet himself, is to allow an electorate to vote on a larger set of options by holding *pairwise* votes instead of voting on all the options at once. According to this proposal, an electorate should be able to successfully decide among

---

<sup>1</sup>Goodin suggests that the usual procedural appeal made here is to May’s Theorem [10], according to which only majority rule in a two-option vote satisfies four basic but compelling conditions: “decisiveness, anonymity, neutrality and positive responsiveness” [9, p.278].

a large range of options,  $\{p_1, \dots, p_n\}$ , so long as different pairs of choices are considered one at a time. The idea then is that the majority rule winner of the ‘ $p_1$  vs.  $p_2$ ’ vote ‘survives’ and goes on to be considered against  $p_3$ , and the winning selection from *this* vote goes on to be considered against  $p_4$ , and so on until  $p_n$ . This method addresses Estlund’s worry about the limited-options requirement.

Unfortunately, this proposed extension of the Jury Theorem could not constitute a reply to Christiano’s criticism, since voters must still be required to have a better than fifty percent chance of selecting the best policy over the runner-up. In fact, Condorcet’s pairwise approach has recently been proven inadequate by Young [13], the reason being that for majority rule to be nearly infallible in this multiple-option case, one must assume that individual voters having an unreasonably high likelihood of selecting the correct option, i.e. requiring that “their competence is close to 1” [9, p.289]. Thus, the pairwise strategy fails to carry over the force of the Jury Theorem into multiple options.

In 2001, Christian List and Robert Goodin [9] successfully extended Condorcet’s original one-vote/two-options theorem to a one-vote/ $k$ -options case, where  $k$  can be any number, given certain conditions. Their result constitutes a response not only to Estlund’s criticism of the two-option assumption, but also to Christiano’s fifty percent worry as well: as it turns out, in the  $k$ -option Jury Theorem, *any* voter can have a *much* lower than fifty-percent chance of selecting the correct policy.

The mathematical proof of their result is too complicated to fully consider here, but the general idea behind List and Goodin’s result is the following. Let there be an electorate of voters facing  $k$  number of policy options, such that (1) each member of the electorate can cast only one vote, (2) the probability of a voter selecting the best policy,  $p^*$ , is greater than the probability of selecting

any specific other option  $p_i$ , where  $p_i \neq p^*$ , and (3) the outcome of the vote is decided by *plurality rule* rather than by strict majority.

Here is the trick. One might think, *prima facie*, that because the probability of any voter selecting the best policy can be well below fifty-percent, meaning that the probability of a voter being wrong can easily be greater than half, this implies that it could be very unlikely that the electorate will select the right policy  $p^*$ , since the probability of each voter selecting a wrong one can exceed fifty percent. The recognition that this intuition is mistaken is the fulcrum of List and Goodin's proof. Notice that under *plurality rule*, ensuring that the best policy wins the vote does not require  $p^*$  receive more votes than all the other options *combined*: all that is required is that the best policy  $p^*$  be voted for more than *any other individual option*  $p_i$ .

If this idea seems unintuitive, consider the following analogous example. Think of rolling a six-sided die, where the die is unfair in that it is slightly more likely to roll a '6,' with a probability of approximately .2857; the probability of each other face turning up on a roll is only approximately .1428. As the probability of a roll coming up anything (1 through 6) is equal to 1 (absolutely certain), the probability of *not* rolling a 6 is likely: it is  $Pr(1 \text{ through } 6) \text{ minus } Pr(6) = (1 - .2857) = .7145$ . By consulting the graph on the next page (FIGURE 1), one can see that by considering only 100 rolls of this die, the number of times each face comes up *per* number of throws already begins to converge almost precisely on their actual probabilities. So, as the number of rolls increase, it becomes increasingly likely that the largest percentage roll will be the 6, as opposed to a 3 or 5, for example. Now, reinterpret these 100 events on the graph as votes on a set of six possible policies (where option #6 is the best policy). If the probability of a voter selecting the right policy is only approximately .2857, versus the .7145 chance of selecting one of the wrong policies, such as #3 or #5, one ought to expect that option #6 will become highly likely to

win the plurality rule vote as the number of votes (or trials on the graph) increases. Notice on the graph that if this electorate was stopped from voting after the first 18 voters cast their ballots, option number #5 would have won the plurality vote. However, as the size of the electorate increases to some arbitrarily large number of voters, option #6 would be virtually guaranteed to win with almost exactly .2875 percent of the votes.

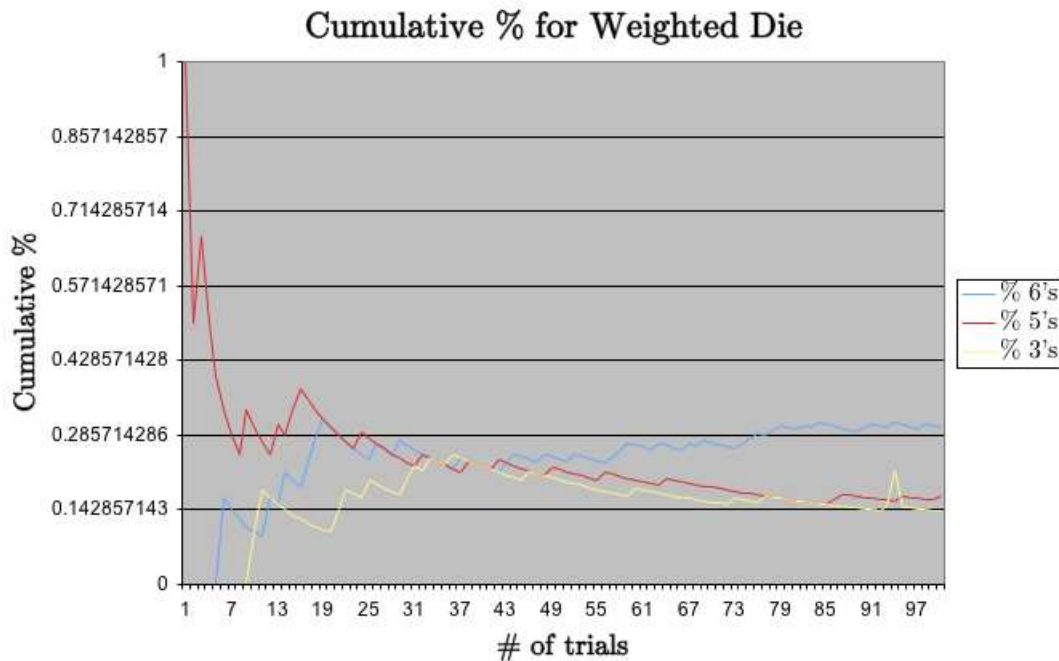


FIGURE 1

The main result of the  $k$ -option case can then be stated as follows. So long as the best policy outcome  $p^*$  has a higher probability of being selected by a voter than any other individual option  $p_i \neq p^*$ , the correct option is most likely to be the plurality rule winner. And as the size of the electorate composed of these kinds of voters increases to infinity, the probability of a policy other than  $p^*$  winning the plurality vote goes to *zero*.

A further desirable consequence of List and Goodin's  $k$ -option Jury Theorem obtains when (1) there are more than two options and (2) the probability of a voter selecting  $p^*$  is higher than fifty percent. When these conditions

obtain, “the probability of the correct option being the plurality winner not only increases quickly with the size of the electorate, [but] it increases *more quickly* in the  $k$ -option case than it does in the two-option case” [9, p.287]. This result is a function of each non-optimal policy choice having to share the remaining  $< .5$  probability of being selected with all the other non-optimal choices.

The upshot of List and Goodin’s generalization is that it completely dissolves the criticism raised by Estlund, the criticism that a restriction to two options is necessary for the Jury Theorem result while at the same time an unrealistic assumption if the theorem is to apply to democratic political systems.

#### 4. THE RELIABILITY ASSUMPTION

Christiano’s criticism is that there is no good reason to think that voters will be more than fifty percent likely to select the best option. One might adduce from the List-Goodin Jury Theorem that since voters in the  $k$ -option case can all have a *much* lower than fifty-percent chance of selecting the correct policy, that Christiano’s objection is circumvented. However, Christiano raised this objection a decade before List and Goodin presented their findings; he might still demand a reason for thinking that voters somehow have a propensity to chose better policies over worse ones, probabilities aside. For those who are skeptical (and rightly so) about the truth of the assumption that voters are likely to select good policies over bad ones, List and Goodin’s extension provides little in the way of new reasons for subscribing to the Condorcetian defense of democracy.

In responding to this skepticism, the philosopher defending the Condorcetian argument must provide general empirical reasons for voters having this propensity, for two reasons. Presumably, if there is *no* general explanation for why voters select good policies with some reliability, this regularity would simply be a statistical anomaly. But for the Condorcetian to admit this is to

reduce the Jury Theorem *argument* to a wishful *hope*: if this central premise anomalously turns out true somehow, then the incredible conclusion follows. Secondly, in the absence of convincing reasons why voters reliably select good policies, why is it not equally fair to assume, on the other hand, that voters tend to select bad policies over good ones? Goodin credits Gerald Gaus [7] with pointing out that if voters reliably fail to choose wisely, then the Jury Theorem “works equally dramatically in reverse,” nearly guaranteeing that the better policies are *never* chosen [9, p.284].

One might be tempted to interject and claim that this symmetry is not problematic; one recourse here is a painfully obvious ‘smart alec’ solution: so much the better if citizens *reliably* vote for the wrong policies - all that need be done in this case is to instantiate the *opposite* policy of the vote outcome.<sup>2</sup> However, it seems right to say that this solution cannot generalize into the *k*-option extension. If this is right, the result is that the ‘smart alec’ solution is of no avail; it would require that the Condorcetian appeal to the two-option theorem so she can alleviate the worry about reliably-bad voters, while she must also simultaneously respond to the unreasonable two-option restriction by pointing to the success of the *k*-option generalization.

Because this good-voter / bad-voter symmetry *is* problematic, if the Jury Theorem is to provide any support for the epistemic democrat’s thesis, one must be able to tell a story about why voters tend to select good policies over bad ones. One might offer an explanation from neoclassical economics, appealing to invisible hands: voters will tend to pick what is in their interest as rational economic agents and that what is in everyone’s selfish interests ultimately connects up to what is best overall, or what have you. A different line one might submit is that humans happen to be equipped with complex moral compasses, better-than-random moral intuitions, or consciences which

---

<sup>2</sup>Who gets to complete the ‘switch’? Is this kept secret? One would be left wondering how this counter-objection preserves the legitimacy one was after in the first place.

tend to track the truth about the goodness of a policy. This reply may not be entirely unsubstantiated, for it seems that the only true test of a philosopher's moral theory is how well it measures up in handling cases our moral intuitions' tell us are counterexamples. However, there are equally good reasons to think voter's intuitions fail at tracking the truth about good policy outcomes. Waldron offers such evidence, elaborating on a passage from Plato's *Republic* (487b-502c): "it is a well-known theme in the critique of democratic politics that correct decisions are often those that seem counterintuitive or run contrary to the preconceptions with which the common [person] approaches ordinary decision" [6, p.1323].<sup>3</sup>

It seems evident that perhaps *the* central issue concerning the Jury Theorem argument, as well as the most controversial, is how it could be that voters tend to pick good policies over bad ones. That a substantial, positive answer to this question is sorely lacking in the literature is problematic. Epistemologically, this may be because the answer to the question is unverifiable from a practical standpoint: according to whose standard can one measure how accurately Ms. Jones's moral intuition tracks the truth about the goodness of policy outcomes? Yet supplying some kind of convincing evidence for the wise-voter premise seems necessary for the Jury Theorem argument to hold water. Unfortunately, since this premise constitutes the heart of the Jury Theorem, no extension of Condorcet's results neatly dissolves this concern.

---

<sup>3</sup>Waldron does not push this point far enough. Assume *individual* voters get the right policy more often than not, say 60% of the time, and a small *team* of experts selects the right policy 95% of the time. If there are even a relatively small number of policies (say 10%) that are good *in a very unintuitive way* such that the commonsense voters are nearly guaranteed not to institute them, then a large electorate of these 60%-competent voters could only hope to ratify 90% of the correct policies, since majority rule outcomes for the 'Monty Hall policies' are guaranteed to go poorly.

## 5. VOTING SINCERELY

Setting aside the question of whether citizens are generally wise-voters or not, it may be granted that voters *do* have some intuitive access into the goodness of policies. The Condorcetian is still left with the task of negotiating the inference from voters having better-than-random information about good policies to them in fact voting for the better policy in accordance with their judgment. This question of whether it is reasonable to expect members of an electorate to vote ‘sincerely’ has been a matter of debate in the game-theoretic literature on the Jury Theorem. Austen-Smith and Banks [1] have constructed a game-theoretic Jury Theorem model, assigning utility-functions to agents (voters) based on possible outcomes, where agents are rational in that they act to maximize individual utility taking into account what strategies are rational for other agents to adopt. Austen-Smith and Banks found that voting sincerely is *not* a Nash equilibrium strategy, meaning that an agent would never rationally prefer to vote sincerely regardless of the strategies being employed by other agents in the game model [1, p.34-5]. This negative result is counterintuitive, and one wonders whether the assumptions of their model reflect the Jury Theorem as applied to democratic systems (for instance, the utility-functions of courtroom jurors may not be isomorphic to those of voters). Conflicting results were presented in the same journal two years later by Andrew McLennan, who shows that given a simple common interest game model of a Condorcetian electorate, “whenever sincere voting leads to the conclusion of the Jury Theorem [i.e. when the best policy wins the vote], there are Nash equilibria [strategies for all players]” [11, p.413]. Given these recent, contradictory findings, one might say that the jury is still out on whether it is strictly rational for members of a Condorcetian electorate to vote their sincere judgment.

Another way one might want to analyze the gap between citizens having knowledge of the right policy and citizens voting their judgment is by employing

a Rousseauian framework. Arguing along these lines, Joshua Cohen points out that “the mere existence of a general will is sufficient to provide individuals with an incentive to vote their judgments of the common good,” whereas an electorate’s coming together for mere preference aggregation only embodies what Rousseau calls the ‘will of all’ [5, p.36]. Cohen’s suggestion, that one could expect wise-voters to vote their judgment if the electorate has general will, seems to be a well received suggestion among epistemic democrats. Ladha says that “if members share a *common goal* on a [set] of issues, then the correct alternative is easily defined” [8, emphasis not added, p.620]. However, it does not seem to be a necessary assumption of the Jury Theorem argument that the electorate must have something like a general will. Ladha cites Miller [12] as having demonstrated that there may be well-defined correct options for voters without members of the electorate sharing a common goal. Nevertheless, it is sometimes assumed in the game-theoretic models, as it is by McLennan, that there be a common interest among all members of the electorate.

However, there appears to be a lack of consensus, or perhaps a confusion, at the intersection of Condorcet’s and Rousseau’s work, certainly due at least in part to the mysterious nature of the general will. While some scholars researching the epistemic conception of political legitimacy appeal to the need for a general will among the electorate to ensure the Jury Theorem result, others more directly interested in Rousseau have come to see the Jury Theorem as a means for reinterpreting and clarifying the content of the general will. For example, Estlund says that “Rousseau conceived voters as giving their opinion...on the content of the general will...and held that the answer receiving a majority of votes under certain circumstances was guaranteed to be correct. This feature of Rousseau cries out for a Condorcetian interpretation” [6, p. 1318]. One may wonder whether a well-defined general will is required for obtaining the forceful Jury Theorem result, or whether the power of the Jury

Theorem argument is instead to be used to clarify and elucidate on the nature of the general will. Which idea is to serve as a solid foundation for the other? If Miller's argument runs successfully, that an electorate need not have a common goal for its members to be able to select a best alternative, then it is plausible that the Jury Theorem could serve as firm ground for interpreting Rousseau.

## 6. FREE SPEECH VS. INDEPENDENT VOTES

One might grant the assumptions of the  $k$ -option Jury Theorem, including that it is reasonable that voters have a propensity to chose good policies over bad ones, while still remain skeptical about the Jury Theorem's applicability to democratic systems. One might insist, as Estlund does, that in democratic societies with free speech, where opinion leaders sway votes, voters inevitable fall into factions: "if individuals vote in blocks, the effective number of votes is reduced from the number of individuals to the number of blocks" [6, p.1318]. The objection here then is that the the force of the Jury Theorem fails to carry over to democracies, since in democracies votes are *not* independent of each other, resulting in an increased chance of the electorate outcome being mistaken. The problem is compounded if it turns out that Miller's argument fails, and that something like a general will or common good *is* needed to ensure the Jury Theorem result. Christiano seems to think this might be the case when he argues that it may be necessary *for there to be* well-defined good or bad policies (in relation to something) that there be a common good, yet it may be that such a common interest can only come to be clearly established through open deliberation and the transformation of interests and public opinions [3, p. 162-3].

There are several responses given to the free speech objection. The most substantial is provided by Ladha [8], who developed an extension of Condorcet's Jury Theorem specifically to solve the problem of free speech, by relaxing the assumption that votes be uncorrelated, separate events. As the List-Goodin

model generalizes from the 2-option restriction to  $k$ -options, Ladha generalizes from votes having zero correlation to votes having some positive amount  $\rho$  of correlation, where a high correlation value means that there are few different “schools of thought,” and low correlation represents great diversity in thought. For Ladha, two assumptions allow his model to obtain the forceful Jury Theorem result. Ladha axiomatically denies that free speech leads to a small number of factions, as suggested by Estlund, but rather to a large diversity of schools of thought. He also postulates that, *ceteris paribus*, the probability of a majority selecting the correct policy “is *inversely related* to  $\bar{\rho}$ , the average of the coefficients of correlation,” meaning, to cut directly to his main result, that allowing free speech *increases* diversity of thought, which *lowers* the value of  $\bar{\rho}$ , which therefore implies a corresponding *increase* in the probability that the electorate selects the best policy. The result is that free speech is not forbidden by the Jury Theorem; quite the opposite: *it’s required*. It is worth mentioning that Ladha’s generalization into correlated votes is complemented by Miller’s finding, that the electorate need not agree upon a common good for their majority rule to select the best outcome, since presumably the wide diversity in thought sought after in Ladha’s model would lead to disagreement about the common good.

However, Ladha’s model is unconvincing for a philosopher sharing Estlund’s intuition that free speech allows opinion leaders and the media to swing large numbers of vote, thus effectively reducing the number of voters. Whether Ladha’s axioms tend to hold true of democracies are beyond the bounds of this paper. Nevertheless, his extension of Condorcet’s result significantly shifts a common criticism of the Condorcetian argument away from the unrealistic assumption that votes are perfectly independent, to the more plausible claim that votes can be correlated to the extent that free speech and deliberation leads to a diversity of thought and not large factions.

One line of thought which comes to mind in supporting Ladha's assumptions is an argument offered by Buchanan [2], that political liberalism correlates with an increased ability to diagnose and correct socially inculcated false beliefs, such as racism, which could otherwise polarize large factions within a society. The argument supporting Ladha would then be: if Buchanan's thesis applies equally well to democratic societies, then democratic societies with free speech would foster *less* pernicious socially inculcated false beliefs which polarize society into large factions, thus leading to both increased voter competence/intelligence in selecting better policies, as well as lowering Ladha's average of the coefficients of correlation. There is then at least some reason for thinking then that the free speech criticism commonly appealed to against Jury Theorem arguments is not a decisive objection.

## 7. CONCLUDING REMARKS

For philosophers arguing that democracy is justified because it best tracks the truth about correct policies, the Jury Theorem arguments does provide some reason for thinking that benevolent, wise dictators could not measure up epistemologically to the vote of the masses. However, the Jury Theorem argument in its standard form is entirely unpersuasive, since its assumptions cannot realistically apply to any sort of democracy. Fortunately for epistemic democrats, some recent generalizations of Condorcet's original result can be effectively appealed to in alleviating these objections. For example, List and Goodin's  $k$ -option extension has completely dissolved what has up until now been a devastating criticism: that the Jury Theorem requires an electorate to only consider two alternatives in a vote. The List-Goodin result also addresses, to a fair degree, the criticism that it is unrealistic that citizens have a greater probability of voting for the best policy over the worse options, since in their extension the chance of a voter selecting the best alternative can drop well below

fifty percent. Additionally, Ladha's extended Jury Theorem model offers reasons for thinking that another primary criticism of Jury Theorem arguments, that the theorem disallows free speech, is not decisive. If the assumptions of Ladha's model generally hold for democracies, it seems that the Jury Theorem result would *require* that democracies have free speech. Thus, far from denying free speech, Ladha's model provides an outcome-oriented justification for citizens' right to free speech.

Many concerns, however, remain unaddressed. If one is especially persuaded by the Jury Theorem argument, there are still curiosities: does the Jury Theorem require that the United States let Canadians vote in U.S. elections, since this would increase the size of the electorate, increasing majority infallibility? Remaining largely unanswered in the literature is the issue which penetrates to the heart of all Jury Theorem arguments: how is it that citizens have a propensity to choose good policies over bad ones? Until strong evidence is submitted for thinking this is true, the Condorcetian defense of democracy remains incomplete.

#### REFERENCES

- [1] Austen-Smith, David; Banks, Jeffrey S. "Information Aggregation, Rationality, and the Condorcet Jury Theorem". *American Political Science Review*.
- [2] Buchanan, Allen. "Political Liberalism and Social Epistemology". *Philosophy and Public Affairs*, Vol. 32, No. 2 (2004): 95–130.
- [3] Christiano, Thomas. "Freedom, Consensus, and Equality in Collective Decision Making". *Ethics*, Vol. 101, No. 1 (1990): 151–181.
- [4] Christiano, Thomas *Ed.* "Philosophy and Democracy". Oxford University Press., 2003.
- [5] Cohen, Joshua. "An Epistemic Conception of Democracy". *Ethics*.
- [6] Estlund, David M.; Waldron, Jeremy; Grofman, Bernard; Feld, Scott L. "Democratic Theory and the Public Interest: Condorcet and Rousseau Revisited". *The American Political Science Review*, Vol. 83, No. 4 (Dec. 1989): 1317–1340.
- [7] Gaus, Gerald. "Does Democracy Reveal the Voice of the People? Four Takes on Rousseau". *Australian Journal of Philosophy*, Vol. 75, No. 2 (1997): 141–62.

- [8] Ladha, Krishna K. “The Condorcet Jury Theorem, Free Speech, and Correlated Votes”. *American Journal of Political Science*, Vol. 36, No. 3 (Aug. 1992): 617–634.
- [9] List, Christian; Goodin, Robert E. “Epistemic Democracy: Generalizing the Condorcet Jury Theorem”. *The Journal of Political Philosophy*, Vol. 9, No. 3 (2001): 277–306.
- [10] May, Kenneth O. “A Set of Independent Necessary and Sufficient Conditions for Simple Majority Decision”. *Econometrica.*, Vol. 20, No. 4. (Oct. 1952).: 680–684.
- [11] McLennan, Andrew. “Consequences of the Condorcet Jury Theorem for Beneficial Information Aggregation by Rational Agents”. *American Political Science Review*.
- [12] Miller, Nicholas R. “Information, Electorates, and Democracy: Some Extensions and Interpretations of the Condorcet Jury Theorem”. as appears in *Information Pooling and Group Decision Making*, ed. Bernard Grofman and Guillermo Owen, GAI Press: 1986.
- [13] Young, H. P. “Condorcet’s Theory of Voting”. *American Political Science Review*, Vol. 82, No. 4 (1988): 1231–44.

DEPARTMENT OF PHILOSOPHY, UNIVERSITY AT ALBANY SUNY, ALBANY, NY.

*E-mail address:* johnrmilanese@yahoo.com