

An epistemic case for democracy; analysing the performance of voting groups

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Submission for MPhil Stud

September 2012

Approx. 21 000 words

This thesis argues that, given certain assumptions, democracies are epistemically superior to other forms of government. Using quantitative results calculated with Condorcet's Jury Theorem, it will assess the performance of different voting groups. These groups will be models of current systems of governance or those that could feasibly be adopted. To achieve this it will have to argue for the plausibility of two main claims. Firstly that there is a true choice open to voters in political decisions and secondly that democracies are better able to identify correct choices than alternative forms of government.

The first chapter of the thesis derives the theorem and discusses possible barriers to the application of its results to political decisions. The second chapter will explicate a notion of political truth based on two distinct interpretations of voting. The third chapter discusses how an idea of unequal political knowledge has led to structures of societies that are politically inegalitarian. By using the results of the Jury Theorem, the fourth chapter will argue for the epistemic superiority of democracy when compared to these other forms of government.

1. Condorcet's Jury Theorem and the Epistemic Superiority of Groups

1.1 The Wisdom of Crowds

It is often claimed that large groups of people are wise, or at least that they are wiser than individuals or small groups. As this accolade is attributed to their increased ability to make correct or truthful decisions, wisdom is probably a stronger claim than is argued for. We may for instance hesitate to call a person wise if they make inconsistent decisions. Yet possible inconsistencies of majoritarian group judgments can be seen in simply constructed examples, for instance those discussed in the Discursive Dilemma (List and Pettit 2004a). It is better therefore to restrict the claim to the truthfulness, correctness or epistemic superiority of crowds.

In an early twentieth century paper, Francis Galton shows how the median figure calculated from the estimates of the weight of a bull given by attendees of a fair were very close to the correct value. In this case the '*vox populi*' is close to the weight of the animal and to the true answer. Further, this method provides a more accurate estimation than taking the answer of an individual or a small group. From this Galton suggests:

‘This result is, I think, more creditable to the trustworthiness of a democratic judgment than might have been expected.’ (Galton 1907)

This idea is extended in the 'The Wisdom of Crowds' by James Surowiecki (2004). The evidence used is empirical, and sometimes anecdotal, but it is said to show that large groups of amateurs outperform small groups of experts in the accuracy of their predictions. The author argues for the need for greater public participation in many decisions.

In philosophical literature, Cass Sunstein (2009) argues that the support given to legal institutions by generations of people gives support to their legitimacy. Traditions and conventions are supported by their assent from 'many-minds'. In political philosophy, Joshua Cohen (1986), David Estlund (1994) and Elizabeth Anderson (2006) argue that it is a positive feature of democracy that large numbers of people are involved in political decision making. Social Epistemology is a field that considers the epistemic capacities of groups of people and how group decision-making compares with that of individuals or small groups.

But how can one argue for this epistemic superiority? There is empirical evidence, such as that presented by Galton and Surowiecki, but it limits us to certain cases, and there would still

be the question of under what conditions such observations hold and whether we could induce a general rule from such examples.

A broader argument can be constructed with Condorcet's Jury Theorem (CJT), which was formulated close to the end of the 18th century by the French mathematician Marquis de Condorcet (Condorcet 1995). The theorem is initially discussed in relation to a group of jurors deciding between two alternatives where we assume that one is true (or correct) and the other is false. Each juror casts a vote that is assumed to represent their belief or opinion on the proposition (this rules out tactical voting). The theorem dictates that the group decision is made by a simple majoritarian decision procedure and concludes that (given certain further conditions) the group is far more likely to make a correct decision than each of the jurors. This outcome lends support to a number of existing social institutions. It favours a large number of jurors determining a defendant's guilt rather than a single able judge. Similarly, a democracy with a large number of voting representatives will be superior to a single beneficent dictator or small political elite. However, it is often noted that the premises of the theorem are not justified in cases of real-world decision making (see for instance Anderson 2006, Dietrich 2008, Saunders 2010 and Estlund 2008). The next section of the chapter derives Condorcet's Jury Theorem, and gives the conclusions that follow from it. Section three will discuss the independence assumption made by the theorem and how it is violated in real world cases of decision making. Section four will consider the competence assumption and section five discuss limitations to the application of the theorem and what limits the application of its results to political decision making in a democracy.

1.2 The Condorcet Jury Theorem

The Condorcet Jury Theorem (CJT) gives a formula for the probability that the majority decision of a group of n jurors will yield the correct outcome. The theorem is described in the context of a jury determining a defendant's guilt but it can be extended to cover different voting contexts. It is essential, however, that one of the options is true or correct and the other is false.

The simplest illustration of the theorem for odd numbers of voters is as follows. Allow n to represent the number of people to decide on the proposition and assign each voter a number $i = 1, 2 \dots n$. Each voter decides between two alternative propositions labeled 0 and 1. One of these options is true and represents correct state x . In the original jury context, 0 and 1 may represent the propositions that the defendant committed or did not commit a crime. x represents the proposition that is true given the state of the world. Condorcet's theorem is limited to two

options but jury theorems that extend the results to multi-option cases can be constructed (List and Goodin, 2001). V_i represents the voting event of the i^{th} voter and this decision can be correct or incorrect. Allow p to represent the probability that each voter makes a correct decision ($p_i = P(V_i = x)$). p is the competence of the juror and we assume this value is constant for each voter, therefore $p_1 = p_2 = p_i$. Given this background, the theorem can be derived following a method similar to that given by Bovens and Rabinowicz (2006).

Allow h (where $1 \leq h \leq n$) to represent the number of the total n voters that make a correct decision. The probability that the first h voters decide correctly and the remaining $n-h$ vote incorrectly is:

$$P^h (1-p)^{n-h}$$

for $n = 101$, $h = 52$, $p = 0.9$ the probability of this event would be:

$$0.9^{52} \times 0.1^{49}$$

If $h \neq n \cup 0$ there are numerous possible instantiations of h members of the group making a correct decision. The probability of h members of the group making the decision is therefore equal to:

$$\binom{n}{h} P^h (1-p)^{n-h}$$

$$\text{Where } \binom{n}{h} = \frac{n!}{(n-h)!h!}$$

For the group to reach a correct majority decision, the number of voters making a correct decision must be greater than the number making an incorrect decision. Therefore h must be an integer in the interval $\frac{n+1}{2} < h \leq n$.

Allow M to represent the vote of the group that is determined by a simple majoritarian decision procedure. The probability that the majority among n voters is correct $P(M = x)$ is:

$$P(M = x) = \sum_{h=\frac{n+1}{2}}^n \binom{n}{h} p^h (1-p)^{n-h} \quad (1.1)$$

Examples of the empirical results the theorem produces are given by Goodin and Spiekermann (2010)¹. For a group where $n = 1001$ and $p = 0.550$, the probability of a correct group decision is calculated as 0.999. Large groups of voters with low individual competence can therefore have very high collective competences.

If $p > 0.5$ the theorem has the following two conclusions²:

C1) As more voters are added the probability of a correct majoritarian group decision increases. As n increases $P(M = x)$ increases.

C2) At the limiting value of n , the probability of a correct majoritarian group decision approaches one as the number of voters increases. As $n \rightarrow \infty$, $P(M = x) \rightarrow 1$

It follows from **C1** that, *ceteris paribus*, large groups are more likely to make a correct decision than small groups or individuals. Therefore as we add more members to the group its epistemic performance is improved. An implication of this is that large groups of less competent individuals can outperform a smaller group with far higher individual competences. This is given by Goodin and Spiekermann (2010) as a potential argument against a federalist form of government in which political decisions are made by a small, specially selected deliberative group. The effect of this selection is quantified using calculations from the CJT for different combinations of n and p . In many cases a larger representative parliament is said to be epistemically superior because the selection effect is outweighed by the larger numbers involved in the decision making. Does this offer a compelling argument against federalism and for the epistemic superiority of democracy? As Goodin and Spiekermann acknowledge in their article, the premises of the CJT are not justified in many voting contexts. It seems therefore that a federalist could reject the conclusions given by the theorem as they rest on false assumptions.

¹ For further results see Bovens and Rabinowicz (2006)

² Further conclusions follow from the theorem, covering groups where the competence of voters is less than or equal to 0.5.

A further indication that the results of the theorem are unreliable can be seen in **C2**. Very large groups of people are predicted by the theorem to be almost infallible. For contemporary democracies therefore, if the society's members are slightly competent when voting on a proposition, their collective decision is virtually certain to be correct. This is a problematic result. Few would claim that having a large number of people make a decision ensures infallibility and counterexamples could readily be constructed. The claims generally made concerning large groups are not that they are infallible but that they are better than smaller groups in most cases.

The reason for this unrealistic conclusion is that the probabilistic assumptions made in constructing the theorem do not hold in many real-world cases. Arguments against the use of the jury theorem to model political decisions often note this flaw, for instance Ben Saunders claims:

‘If the conditions of the jury theorem hold, then it provides good reason to go along with the majority, since they are most likely to have identified the right answer. However, it is not obvious the conditions do hold in most cases of political decision making’

(Saunders 2010)

and similarly Elizabeth Anderson claims that:

‘the Condorcet Jury Theorem supposes that voters vote independently of one another... it is unclear whether the Theorem is robust under the actual patterns of influence characteristic of modern democracies’ (Anderson 2004)

As claimed above, it can be demonstrated that under standard (or classical) formulations, the probabilistic assumptions of the CJT are not justified in real world cases of decision making. The two important assumptions in this respect are that jurors are *competent* and *vote independently*. These assumptions will be discussed individually in the next two sections. Further assumptions in the construction of the voting context can also be problematic. For example, the requirement that a decision have a correct or true answer is appropriate for a group of jurors determining whether a defendant is guilty but not perhaps for members of a society deciding between two policy options. In such cases either option can be judged to be correct depending on the values held by the person making the decision. Correctness in such a context is voter-relative and a potential response to this problem will be outlined in section **1.5**.

The situation is further complicated if the decision being made involves predicting future events, because the decision, once taken, may cause the state it predicts to occur. This issue is

referred to as the epistemic free riding problem and is first raised in the work of Karl Popper (1963) and would lead to the self-instantiation of decisions made by the group. Voting contexts will be chosen in this paper in order to minimise such complications and focus instead on probabilistic assumptions made in the construction of the theory and their applicability to real-world examples.

1.3 Condorcet Independence

Condorcet Independence³ - voting events are probabilistically independent conditional on the state of the world.

This assumption is also referred to as classical or standard independence and implies that each voting event is unaffected by those that precede it. For a given voter therefore:

$$P(V_i = x \mid x) = P(V_i = x \mid x \ \& \ (V_{i-1} = x \cup \neg x) \ \& \ \dots \ \& \ (V_1 = x \cup \neg x)) \quad (1.2)$$

Such independence implies that if we know the state of the world then we can gain no further information as to the competence of the individual by consideration of other juror's votes.⁴ However, given we have knowledge of x , our estimation of the competence of a specific juror should not be altered by other voting events. For instance, if Condorcet Independence is satisfied 49 preceding votes for x (or $\neg x$) should not raise the probability of an incorrect or correct decision from the next voter. Using (2), for Condorcet Independence to hold it must be the case that:

$$P(V_{50} = x \mid x) = P(V_{50} = x \mid x \ \& \ (V_{49} = x) \ \& \ \dots \ \& \ (V_1 = x)) \quad (1.3)$$

A helpful analogy for this type of independence is a sequence of tosses of a fair coin. Here the results of previous tosses ($T_i = T$ or H) are not thought to affect the probability of a 'Heads' result on the next toss. Similarly to (1.3):

$$P(T_{50} = H) = P(T_{50} = H \mid (T_{49} = H) \ \& \ \dots \ \& \ (T_1 = H))$$

³ This definition is equivalent to state conditional independence in Dietrich and Spiekermann (2010b)

⁴ If we were not aware of x , other voters' decisions may provide information about what the state of the world is likely to be and therefore suggest which way a juror will vote.

This type of probabilistic independence is often assumed for a fair coin toss; an assumption supported by the impossibility of certain gambling systems that attempt to predict future events by what has preceded them. For von Mises (1957) such independence is a necessary condition for sequences of events to be considered probabilistic. For Condorcet's conclusions to be applicable, this independence would need to be displayed between voting events in the relevant contexts.

Objections to the relevance of CJT to real-world cases often claim that voting events do not display this type of independence because voters can influence one another's decisions. Discussions take place between voters that could affect their reasoning and 'opinion leaders' are common in jury votes. Furthermore this discursive element is an essential part of how such groups function, as Elizabeth Anderson states that 'public discussion and hence mutual influence prior to voting are constitutive, not accidental features of democracy.' (Anderson 2006).

1.3.1 Complete Probabilistic Dependence - Limiting Case 1

For an extreme example of the causal relation between the opinions of voters, we could consider a parliament where although the members cast their own vote, their decision is always determined by a certain powerful group member. This is a similar situation to a jury led by a particularly persuasive foreman. If this lead voter were to yield such an influence as to determine the votes of the others we could represent the situation as the following causal network. The form of the network follows that described in the work of Judea Pearl (2000) and is used in a similar context in the work of Bradley, List and Dietrich (2006). The nodes represent the variables of interest and the arrows represent a causal dependency between these variables.

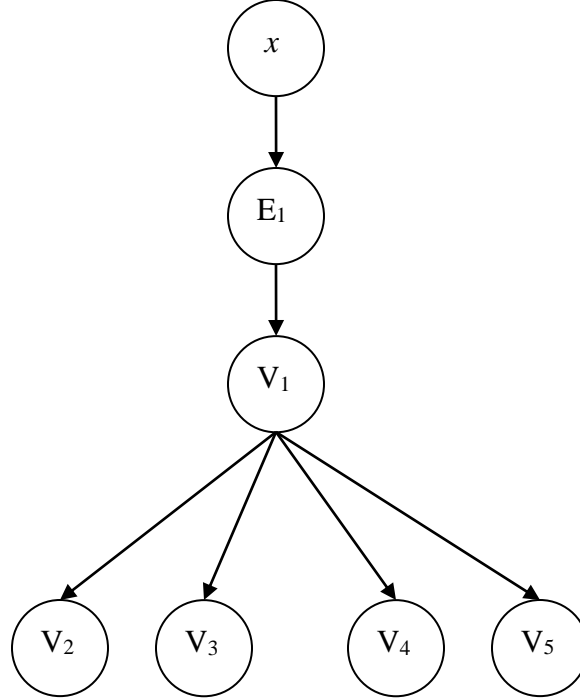


Fig. 1 A causal network representing a voting group with complete probabilistic dependence.

V_i again represents the vote of a specific voter i . E_1 represents a causal factor that affects the decision of a voter⁵. In this case it is assumed to be a causally sufficient piece of evidence and also the decision of the first voter (the opinion leader) is the direct cause of the decisions made by the other members. In this context, given that we know the vote of the opinion leader, the choice of each juror is already determined. The probabilistic independence relation expressed in (2) is therefore not satisfied.

$$P(V_i = x \mid x) \neq P(V_i = x \mid x \ \& \ (V_1 = x)) \tag{1.4}$$

$$P(V_i = x \mid x \ \& \ (V_1 = x)) = 1 \tag{1.5}$$

And also that;

$$P(V_i = \neg x \mid x \ \& \ (V_1 = \neg x)) = 1 \tag{1.6}$$

⁵ For simplicity of representation E_1 is represented as the sole, sufficient cause in this example. The nature of such causes is discussed in section 3.3.

Given that the other votes are probabilistically dependent in this way, there are only two possible outcomes for such a group. Regardless of whether the leader makes a correct or incorrect decision, all of the other members of the group will follow suit. If the group decision is to be correct:

$$P(M = x) = P(V_1 = x) \times P(V_2 = x \mid V_1 = x) \times \dots \times P(V_5 = x \mid (V_4 = x) \& \dots \& (V_1 = x))$$

From (5):

$$P(V_i = x \mid (V_1 = x) \& \dots) = 1$$

$$P(M = x) = P(V_1 = x) \times 1 \times 1 \times 1 \times 1 = p$$

And from (6):

$$P(V_i = \neg x \mid (V_1 = \neg x) \& \dots) = 1$$

$$P(M = \neg x) = P(V_1 = \neg x) \times 1 \times 1 \times 1 \times 1 = 1 - p$$

In such a context, as n increases, the probability of a correct group decision is constant. The CJT however is insensitive to this probabilistic dependence; it again will calculate that as n increases, $P(M = x)$ will increase and **C1** and **C2** will apply.

This is clearly a form of limiting counterexample, yet real world cases are likely to share part of its structure. It is an essential feature of groups under consideration that the cases before them are discussed and therefore the opinions of group members may affect each other causally. If the theorem does not take account of this, it cannot be said to represent such cases accurately. However, we could attempt to solve this problem by isolating each group member. Efforts could be made to restrict communication between jurors and therefore prevent causal influence between them. Would **C1** and **C2** then hold for such a large isolated group? As noted by Franz Dietrich (2008) it is likely that such causal isolation would not secure probabilistic independence due to the presence of common causes in voters' reasoning.

1.3.2 Non-Causal Probabilistic Dependence

The Common Cause Principle states that although two factors are causally independent, they can be probabilistically related. The principle was developed in the work of Hans

Reichenbach (1956) and states that two events are only probabilistically independent if they are causally isolated *and* if all common causes are conditionalised upon. A simple illustration of this principle is the relationship between owning ash trays and the likelihood of having cancer. There is no causal relationship between the two. Possessing ash trays does not cause their owner to develop cancer. Yet owning an ashtray makes it more likely that they will. This probabilistic dependence disappears however when the common cause is accounted for:

$$P(\text{cancer} \mid \text{owns ashtrays}) > \Pr(\text{cancer})$$

yet

$$\Pr(\text{cancer} \mid \text{owns ashtrays} \ \& \ \text{smoker}) \approx \Pr(\text{cancer} \mid \text{smoker})$$

Analogously, it is not only this causal relationship between voters that contradicts the independence premise. That voting events are causally isolated does not imply they are probabilistically independent. For instance, though the preceding votes may not causally affect the next voter they may provide information as to what their decision is likely to be.

To illustrate this it is helpful to consider a similar example to that suggested by Dietrich and Spiekermann (2010b)⁶. Consider a group of meteorologists attempting to make a decision as to whether there will be a hurricane in a specific area in the following week. They make their decision in complete isolation and are professionals, so we can assume they are competent in making such predictions. If causal isolation secured probabilistic independence the CJT's conclusions would hold and as we added further scientists, the probability of making a correct group decision would increase almost to one and the group would be practically infallible. Such a conclusion however seems unrealistic. Perhaps some piece of evidence was available to all or each used a common theory in their reasoning. Suppose further that all the voters reasoned in this way and yet it was misleading. It is likely then that most of the voters would make an incorrect decision. If such a group had common causes in their reasoning the group would not be infallible as **C2** predicts. A group with such common causes can be represented in the following causal network:

⁶ The example has been altered slightly to avoid the complication of the decision effecting which alternative is correct. The original case refers to a group of economists deciding on the possibility of a recession in the next year. It is possible that such a decision could be a cause of such an event.

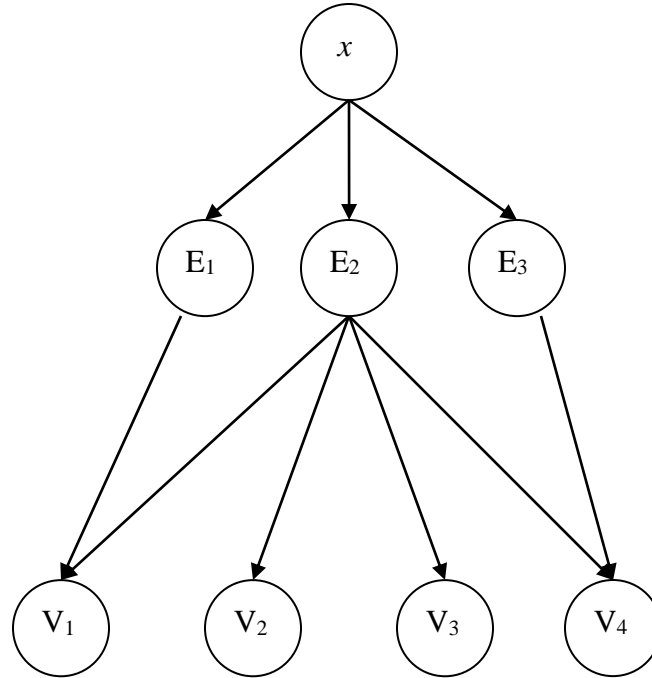


Fig. 2 A causal network representing a voting group with a common cause in their reasoning.

Consider that E_2 is a cause of all of the voters' decisions and the presence of E_2 makes a vote for x more likely:

$$P(V_1 = x | E_2) > p(V_1 = x) \tag{1.7}$$

Via Bayes' Theorem⁷:

$$P(V_i = x | E_2) = \frac{P(E_2 | (V_i = x)) \times P(V_i = x)}{P(E_2)} \tag{1.8}$$

Substituting (8) into (7):

$$P(E_2 | (V_1 = x)) > P(E_2) \tag{1.9}$$

⁷ $P(A|B) = \frac{P(B|A)P(A)}{P(B)}$

By **(1.9)**, if E_2 is a cause of a vote towards an option (x or $\neg x$), then it is also the case that the occurrence of this vote raises the probability that the cause is present. If the first voter decides on x this will raise the probability that E_2 is present. If E_2 is a common cause to both V_1 and V_2 then the increased probability of the presence of the cause will transfer to an increased probability of the second voter making the same decision as the first. Knowledge of the first voter's decision, due to the common cause, therefore gives information concerning the likely decision of the second voter and contradicts **(1.2)**.

If both V_1 and V_2 have E_1 as a common cause, it follows that:

$$P(V_1 = x | x) < P(V_1 = x | x \ \& \ (V_2 = x)) \tag{1.10}$$

Whereas Condorcet Independence assumes that:

$$P(V_2 = x | x) = P(V_2 = x | x \ \& \ (V_1 = x)) \tag{1.11}$$

Condorcet Independence therefore holds only when there are no common causes in voters' reasoning. We can now describe the conditions necessary for the independence assumption in the CJT to hold.

1.3.3 Complete Probabilistic Independence - Limiting Case 2

To satisfy Condorcet Independence, each cause would need to be specific to the voter and each member of the group would necessarily reason from different evidence. No phenomenon could act as a cause for more than one voter. This can be expressed in the following causal network:

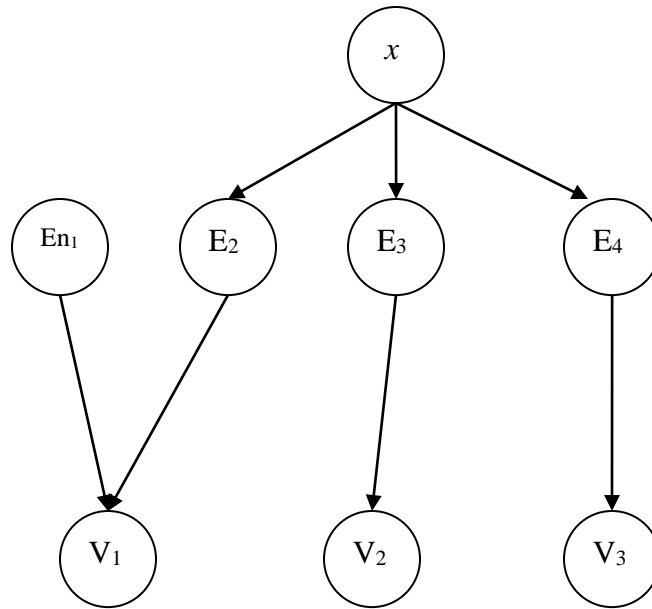


Fig. 3 A causal network representing a voting group that is Condorcet Independent.

The discussion in section 3.2 should make clear how unlikely such conditions would be. It is highly likely that votes will depend on common causes. In the examples discussed, jurors will make decisions based on common witness reports and scientists will make decisions based on the same data and theories. The fact that voters will frequently share a common education or background will make this even more likely⁸.

Further, it may be questioned whether it is physically feasible for this type of independence assumption to obtain when n is very large. Assuming we also want each voter to be competent (i.e. their choice is better than random), there would need to be an equally large number of different evidential pathways to indicate x . Each human voter shares similar perceptual capacities and there may be a limit in some situations as to how voters be causally connected to a state. Therefore to be competent it is necessary that the jurors have access to common causes. This seems to provide evidence of a certain tension behind the mutual

⁸ A further issue is that there could be other common causes that are environmental (En_1 in the network above) rather than evidential⁸. There are phenomena that may not point to the truth or falsity of a proposition but may affect which way a juror is likely to vote and therefore alter their competence. The current social conditions or even the weather on the day the decision is made could be common causes if they affect jurors in the same way. For instance, a dark cold night may lead jurors to a particular decision that would not be made if the conditions were bright and warm. Their environment may lead to a collective drop or increase in competence among voters. This further limits the theorem to cases where voters are evidentially and environmentally isolated. Dietrich and Spiekermann (2010b) split such causes into evidential and non-evidential categories.

attainability of the concepts of competence and independence. This shows further how limited and artificial the contexts to which the independence assumption of the CJT applies. For the CJT to be considered an accurate representation of real-world group decision making a revision of the theorem is required.

1.4. Condorcet Competence

Condorcet Competence is defined as the probability that the member of the group votes for the true proposition ($V_i = x$). For the original CJT's conclusions to hold, this value is required to be greater than 0.5 and the same for all members of the group.

Condorcet Competence; For each voter $1, 2 \dots i$, p is constant and $p = P(V_i = x) > 0.5$

For simple decisions, Condorcet Competence appears plausible and could be justified in the following way. Suppose that a jury is deciding on a simple trial with strong evidence. The probability of a juror picking a correct result could be seen to be a simple notion of the frequency of correct decisions in the appropriate reference class, thus giving a simple frequentist interpretation of the probability⁹. As this new decision is an instantiation of the reference class, the probability of a correct decision is known for a voter and since the decisions are easy and are supported by strong evidence, it can also be assumed that each juror is more likely than not to make a correct decision. Therefore as long as the new decision fits the description of the reference class, a probability of greater than 0.5 can be assigned to the event. The probability is unlikely to be the same for each juror, but as long as they are competent on average the theorem's conclusions can be shown to hold (Atkinson and Romeijn, Forthcoming).

We can also describe why if Condorcet Competence and Independence were satisfied such a group would be infallible. This wide reference class would include a broad range of cases that differed significantly from this specific problem. A juror could be highly competent in accurately determining the correct decision in the vast majority of court cases. Yet on a specific decision, where there is perhaps misleading evidence, they regularly make the wrong decision. If we narrow the reference class to such problematic cases the competence of the juror would be far lower than the average over the wider reference class. In such a case therefore, the value for p is likely to be far lower than average ($p < 0.5$). If this is the same for all jurors (the evidence influences their

⁹ It would also be compatible with other objective notions of probability, for instance Carl Hoefer's Humean Objective Chance (Hoefer 2007).

decision in the same way) it is a consequence of the CJT that the value of $P(M)$ will tend to 0 as n increases and an individual juror would outperform the group. This however is not a problem for the original formulation of the CJT as independence assumes that jurors do not reason from common evidence and therefore such a collective drop in competence is not possible. But we have already seen that Condorcet Independence does not hold in most cases and it may be a consequence of a revised theorem that in problematic cases, individuals are likely to outperform groups.

1.5 Jury Theorems and Political Decisions

To summarise, there are two main issues with the application of results from the CJT to the domain of political philosophy. The first is that the necessary independence relations do not obtain and the subsequent effect on the competence of each voter. The second is the lack of a true choice in political decisions. The first issue, will be discussed in chapter 4 in the context of the quantitative results given for each of the voting groups. It is important to note that recent work has been undertaken to produce an adaptation of the CJT, that allows adjust the theorems results for non-Condorcetian independence relations in groups (For instance, that given by Dietrich and Spiekermann (2011)). However, for the later chapters of this project, unrevised results of the CJT will be given, and how this effects the results will be discussed further in chapter 4. The results are therefore idealizations rather than accurate representations of the groups under discussion as they do not account for differing independence relations. This is relatively common method in works in this field¹⁰. These first two assumptions are more frequently discussed in the literature concerning the CJT, yet even if a defensible version of the theorem could be constructed and it produced a conclusion similar to that in **C1**, it would give us a strong reason to think that large groups are epistemically superior to small groups or individuals. However, it does not immediately follow that its results would apply to all voting contexts. This chapter has used various different contexts where an assumption of a correct choice appears plausible. For instance, when juries decide if a defendant performed a crime, one option is correct and the other is incorrect. Similarly, scientists deciding if an event will occur will be correct if their decision is instantiated and incorrect if it is not. However not all voting contexts display this feature. The area this project concerns is citizens making political decisions in a various governmental structures. If the theorem could be applied to such cases it would lend support to the idea of the epistemic superiority of democracy when compared with other forms of

¹⁰ See, for instance, Bradley (2012), Goodin (2011)

government (see Cohen 1986). A problem with this application is that the assumption of the correctness of a voting option is less plausible in this democratic context.

The argument against its applicability suppose members of a society were asked to vote on which policy option (P_1 or P_2) they believed to be correct. Assume that each voter will make their decision based on which option they believe will lead to the superior future state of the society. Such an evaluative judgement will inevitably have some base on the values of the voter making the decision. Given that voters are likely to have a different set of values, which decision is correct or better will be relative to the voter. It may therefore be the case that what is correct for one voter is incorrect for another and this contradicts the correctness assumption made by the CJT (Saunders 2010 and Anderson 2006).

For the CJT to be a useful argument for the epistemic superiority of democracy, a response to this issue must be given. This is the subject of chapter **2**

2. Political truth and Democratic Government

This chapter will consider whether the assumption of the CJT, that decisions can be true (or correct) can be said to hold in at least a subset of cases of political decision making. This claim can be expressed by the following premise;

(P1) There are objective, procedure-independent standards by which it is possible to judge political decisions.

The first section, will consider the different theories of democracy and their varying commitment on this point. The second section will discuss interpretations of the act of voting, and it will then be shown that under each the idea of a true political decision is plausible. The third section will consider Alvin Goldman's preference view of voting and how combined with an assumption of voter coherence over political issues, for some votes it gives a notion of political truth. The fourth considers an idea of the public will or good, present in the work of John Stuart Mill and Jean Jacques Rousseau.

2.1 Epistemic Democracy

What is the value of democratic governance? In many accounts that express an epistemic conception of democracy, public deliberation is of crucial importance. Pluralistic opinions on political issues are not thought to be an inevitable feature of political systems, rather on a given subject a correct answer can be reached by all parties. This is a different vision of democracy than is often expressed. Democratic decisions are not viewed as a compromise of differing interests held by its population. Rather, as an ideal, democracy functions to promote cohesion and the acceptance of a true choice by all its citizens. Through deliberation and debate, a consensus may be reached.

In the multitude of conceptions of epistemic democracy, correctness or truth can be understood in different ways, depending on the views held by the theorist. It could correspond to that reached in an ideal context with ideal citizens or to some independent true moral facts. Deliberative or epistemic democracy is thereby compatible with different meta-ethical positions, though each must propose some notion of moral objectivity or inter-subjectivity. Common amongst the majority of these views is the existence of some independent standard against which

a decisions can be judged. Jose Luis Marti claims it to be a defining feature of the position that ‘participants in deliberation must assume the existence of some inter-subjective criterion of validity of their claims, a criterion that should at least be partly independent from the participants’ preferences and from the process itself’ (Marti 2006). This standard or criterion gives an evaluative basis for decisions made by a society. The important question for each account is the nature of this standard and different traditions in political philosophy have provided different answers. Similarly to the context described in the CJT, a vote is not simply a matter of opinion, (where all votes are equally true or false as there is no right answer). Rather, as the Condorcet Jury Theorem stipulates, each vote can be right or wrong.

This necessary assumption can be expressed as the following premise, it is similar to what David Estlund calls the *truth claim* (1993b).

(P1) There are objective, procedure-independent standards by which it is possible to judge political decisions.

A claim of this sort is often said to be unrealistic for political decisions. Whilst it may be true that a democracy may occasionally be faced with such a dilemma (for instance, we could pose the members of a democracy a question where the evaluative basis of the decision is stipulated¹¹), this is not normally the case. David Miller argues that in the majority of cases the decisions facing a government will involve ‘competing claims which cannot all be met simultaneously in circumstances where no resolution of the competition can be deemed objectively right’ (Miller 1983). For instance, two candidates in an election, the actions of each, will have a wide ranging effect on the society. Assuming different individual standards, neither option can be seen as correct. The challenge is therefore where these communal or independent standards emerge from. If we assume, as Miller does, heterogeneity in the views of the population on issues, we appear to lack this necessary feature.

There will be two bases suggested, each assuming a slightly different interpretation of the act of voting. This is done so as not to limit the work to one approach and also to consider both main interpretations that are present in the literature. If these arguments are successful they may make (P1) plausible to the reader. If not, the remaining chapters can be read as conditional on some other variant of political objectivity, with a basis specified in accord with the commitments of the reader. More detailed studies can be found in the work of Joshua Cohen (Cohen 1986) or

¹¹ Which economic policy, p_1 or p_2 , would have greater benefits in terms of Gross Domestic Product, Tax Income or some other measure.

David Estlund (Estlund 1993a). Both favour a deliberative interpretation of democracy and assume both the existence of truth in political decisions, and the possibility of individuals to possess this knowledge.

2.2 Interpretations of Voting

In a general election, the population is asked to vote for a political party (or its selected member) and in referendums, different policy options are given to the public to choose between. Whether a vote can be said to be true or false depends on what we consider the vote to be. In a simple trial, the vote is a statement concerning a state of the world. The defendant is guilty if they performed an action and the vote is true if it corresponds to this state. Is a vote in a referendum or election analogous to this case? Are we attempting to determine what the correct action is or simply what we prefer to happen? These are the two main interpretations offered in related literature. Following Geoffrey Brennan and Phillip Pettit's (Pettit 1990) terminology, they will be called the *preference ideal* and the *judgement ideal*. No argument is given as to why these two options are exhaustive but they emerge in the majority of work on the subject. The preference ideal considers an individual's vote to represent a statement of preference between two options. In the political context, the evaluative basis for the ordering is the values or interests of the voter. The Judgement ideal takes a vote to be a statement concerning whether something is or is not the case. In a political context it is whether an action is in accord with the interest of the wider public. The aim of the next two sections is to argue that vote upon either interpretation a vote can be true, in the sense required for the CJT. Both interpretations rely on assumptions about voting habits and the motivations of the population.

2.3 Preference Voting and Political Truth

A model of democratic voting that incorporates a preference interpretation is given by Alvin Goldman. His account perhaps most closely resembles the 'preference view' of voting and is the dominant interpretation amongst social choice theorists. According to Goldman's account, a vote is a statement (and can be correct or incorrect) of which option is better for the voter. Each voter makes their decision 'on the basis of his or her estimate of how well the competing candidates would perform in achieving that voter's ends' (Goldman 1999). Goldman views the purpose of democracy to further the aims of its citizens. For a society to function well, it is of crucial importance that voters have knowledge that allows them to choose adequate

representation. This Goldman calls ‘core voter knowledge’, and is defined as knowledge that is sufficient to allow a citizen to make a ‘correct’ decision between two alternatives. A fully functioning democracy has a high proportion of citizens with core voter knowledge, the majority being able to choose options that further their aims.

In this account, the options for the voter are represented as certain combinations of outcomes which are the product of the actions of the representative during their term. These outcomes are mutually exclusive sets of variables, which represent factors such as the cost of living, employment levels etc¹².

$$OS(C) = L_a, E_b, \dots$$

$$OS(C') = L_c, E_d, \dots$$

Ignoring the possibility of indifference, there are two answers to any voting question (C or C')¹³. Given this model, for a society to function is necessary for each citizen to possess knowledge sufficient to determine ‘which of the two candidates, C or C', would, if elected, produce a better outcome set from my point of view?’ (Goldman 1999). There is also an evaluative basis set by the somewhat opaque term ‘by my lights’. A voter’s statement is correct, if the outcome set from the option they choose ‘would be better (by my lights) than the outcome set C' would produce’ (Goldman 1999).

Goldman claims therefore that, in a political vote, one answer is true (or correct) and the other is false (or incorrect). If a voter possesses core voter knowledge, by Goldman’s definition, the voter would hold the true belief that, for example, OS(C') is superior to OS(C). Alternatively, if a voter lacks this knowledge, they may hold a preference for C, despite the fact that OS(C') is more closely aligned to their interest. Lacking core voter knowledge, the voter is uninformed or even misinformed. This gives a context resembling that demanded by the CJT, as for each voter one answer is true and the other is false. Yet, what is important here, is how correctness transfers between voters. In the jury trial, for each voter the same option is correct, whilst in this political context, the ordering of the outcomes will depend on the interests and values of the voters. As each voter analyses each option by their ‘own lights’, they are making the decision with a different evaluative basis. Although each voter is faced with the same choice,

¹² Goldman’s system seems to assume a sole possible future state and therefore determinism. This could be loosened in numerous ways, each candidate representing a non-overlapping range of outcomes. Whether an answer is true or false in such a circumstance will depend on how divergent the possible outcomes are for each candidate.

¹³ C, here stands for a candidate in an election, but the model works equally with two different policy options in a referendum.

which answer is correct will vary between them. Even when all the voters have core voter knowledge and therefore choose the correct answer we can have situations where there is no majority.

This is clearly not a suitable notion of truth for the CJT as when the question is put to two different people, it has a true answer for both respondents but they are not necessarily the same. This can be seen in the justification this voting model gives to a majoritarian democracy. Goldman concludes it is beneficial because if in such a system, the majority of people display core voter knowledge, they will choose the option that favours them. We can then see that it is probable that the option will be chosen that advances the interests of the majority of the members of the society. Consider a group of eleven voters, all with core voter knowledge. Numerous different outcomes are possible (all combinations between 11 votes for C, 0 for C' & 0 votes for C, 11 for C') and the majority decision, whatever it may be, will elect one winning candidate (C, C'). This candidate will take actions that will lead to the outcome set preferred by the majority of voters. Given the goals Goldman stipulates for democracy, majority rule is preferable as full core knowledge *guarantees* that the majority of voters get their preferred outcome set. Hence, majority rule is justified as it furthers the aims of the majority¹⁴.

In this way, Goldman's justification differs from epistemic democrats, as for Goldman, it is sufficient that a knowledgeable democracy will be likely to produce decisions that favour the majority. However, could we challenge an implicit assumption in Goldman's account? That there is a large degree of heterogeneity over political values of the voters. Different voters judge the options by their own lights (which we take to be their interests or values), but if a limited cohesion of the group under a strictly political domain was assumed, then under a preference view like Goldman's, an inter-subjective notion of truth emerges.

Instead of assuming that as each voter employs a different standard and consequentially opposing choices will be true for different voters. If we propose, that on a certain restricted agenda, there is cohesion in the values of numerous voters. It is against this that the possible outcome sets can be ranked in order of preference, and due to this cohesion, each voter will prefer the same outcome set. This would not be to suppose that in a democracy each citizen will cast the same vote. Rather, that if each voter possessed core voter knowledge, they would vote in the same way. A discrepancy between votes is due to their possession or lack of this knowledge and

¹⁴ However, this holds only under the assumption of full core voter knowledge. The opposite holds for a situation with full core voter error and where there is full voter ignorance, will make a 'good' decision only 50% of the time. In fact, nothing short of full core voter knowledge guarantees a 'good' result. Situations with 99% core voter knowledge but an even split in preferences could yet lead to a 'bad' decision, the 1% of ill informed voters pushing the balance the 'wrong' way.

political disagreement is not over values or interests, but over the routes to achieve these outcomes. The process of public discussion may improve voter knowledge and therefore, in the tradition of deliberative democracy, help the public to reach a communally correct decision. If the agenda is restricted to focus on specific variable where cohesion is present the same ordering will be present for all those that are in possession of core voter knowledge. Under this assumption, each voter is in fact answering the same question and one answer for each of them is correct. A situation exists akin to that given in the CJT except with a different notion of competence¹⁵. Consider an outcome set leading from two candidates pursuing different tax policies. There are two indicators, measuring the level of growth (L) and the level of employment (E)¹⁶. Each voter places equal weight on each factor and both possess core voter knowledge. Consider two outcome sets;

$$\begin{aligned} \text{OS}(C) &= 0.95 (L), 0.04 (E), \dots \\ \text{OS}(C') &= 0.96 (L), 0.05 (E), \dots \end{aligned}$$

It can be imagined for the sake of the example, that each of the other variables, by which different outcome sets are judged, will remain roughly the same for each voter. The variables are chosen to be politically uncontroversial; each voter is likely to favour higher levels of each factor if it comes at no reduction of any other. For each voter the correct option is C' and as both are informed, they will select this answer. More problematic cases may be where there is a trade off between factors.

$$\begin{aligned} \text{OS}(C) &= 0.9505 (L), 0.04 (E), \dots \\ \text{OS}(C') &= 0.9500 (L), 0.06 (E), \dots \end{aligned}$$

In this example, a slightly higher level of unemployment is countered by a larger increase in the level of economic growth. This will then depend on the weighting assigned to each factor. Whether by the lights of each and every voter one of the two relations hold.

$$0.9505 (L), 0.04 (E) > 0.9500 (L), 0.06 (E) \tag{2.1}$$

Or

$$0.9505 (L), 0.04 (E) < 0.9500 (L), 0.06 (E)$$

¹⁵ The competence would be equivalent to the probability of a voter possessing core voter knowledge.

¹⁶ Each value is expressed as a proportion, L in the range (0, 1) and E can take an value.

(2.2)

Whether this relation holds will depend on the weighting given by the voters to each factor. Whether a slight drop in employment levels is compensated for by an increase in the growth of the economy. If one of the two relations holds for each voter, then we have an explanation of what it would be to make a correct choice in this instance. If (2.1) is the case, then candidate C is the correct choice for both voters. If (2.2) holds then it is candidate C'. Upon this interpretation, the idea of a true vote will depend on two factors, whether there exists cohesion over a certain level of values of voters and how divergent the two outcome sets for the candidate are. For the rest of the chapter it will be assumed the two possible outcome sets are divergent. This gives the voters a 'real' choice between candidates with different impacts. The more important issue will be the presence of cohesion.

2.31 Political Cohesion

An idea of a homogeneous or stable society is invoked in the work of many philosophers. For John Rawls, a well ordered society would have a similar sense of justice (Rawls 1999). This moral consensus is restricted as it extends only to certain basic constitutional values and principles and not to all aspects of life. In this ideal, the political sphere is organized around a set of values that claim authority over individual concerns and provide common ground. This feature is also suggested by William Riker, who argues the only condition where democratic rulers can be considered to act in the interest of their population, is when 'by reason of discussion, debate, civic education, and political socialization, voters have a common view of the political dimension' (Riker 1982). In such an ideal we have limited pluralism over a small domain but can we consider it to have any relation to an actual society? This situation may have use in a metaphysical initial position or amongst impartial observers but perhaps it can extend no further than this. There are two explanations for how this cohesion may emerge in present day democracies, both could contribute to its presence.

The first approach is to argue that this cohesion is a precondition for democratic decision making. Christian List (2011) calls this 'endogenous' cohesion and 'the key idea is that democracy cannot get off the ground unless pluralism in the relevant group or society is sufficiently limited.' (List 2011). Democracy can only function as a form of government when there is consensus on an agenda that we would describe as the political sphere. This is consistent with a vast array of differences on numerous issues and commitments (religious, aesthetic etc.) but limits disagreement on some crucial issues. Hence, we stipulate cohesion as a necessary

condition for the existence of democracy. If this is not present, the system will change to either democratic governance of smaller, less pluralistic populations or to a different political system. This indicates that the stability of democracy as reliant on a lack of a radical divergence in the interests of the population.

An exogenous conception of cohesion is similar to Riker's ideal, where the consensus, rather than being a precondition for democracy is a product of its functioning. The institutions of democratic society, education, political discourse, media platforms etc. aim to shape the individuals conceptions of certain issues and to facilitate communal decisions. This is perhaps closer to the position argued for in deliberative conceptions of democracy where agreement is reached by discussion. How likely this is to be present, depends on the precise form of the society and its nature, but if either endogenous or exogenous cohesion were assumed to contribute sufficiently to limit pluralism over a certain ideal, we could at least have an evaluative basis over a restricted domain.

There is also sociological evidence to support the presence of such a phenomenon, when we look at the political process surrounding voting, it is not portrayed as two radically divergent parties attempting to satisfy a population's greatly different interest. Parties and politicians cast themselves as able representatives of everyone in society, not a subsection or a small group interest. Even minority parties and political radicals, generally do not accept their appeal is limited, often considering themselves as the true, ignored representatives of the vast majority of the population's interest. Generally, if we think of the major parties in an election, each side will commit themselves to important concepts of justice, fairness, freedom and also to measures that indicators a functioning society; prosperity, efficiency, employment. Much political discourse, rather than disputing these outcomes which are commonly accepted by all parties, instead focuses on who best will achieve them. The radically different economic policies of two parties will often be described as means to the same ends (Stokes 2012). If this is true, the divergence of political opinions (often to the point of conflict) is not a reflection of any underlying difference in the values of the voters, but rather in their epistemic state relative to the two options. Conflicts are a result of different epistemic positions rather than as an underlying conflict of interest. If we had, in Goldman's terminology, a society with full voter knowledge, such frictions would not be present. We could reason that by altering the structure of democracy, closer to a deliberative ideal, we would approach this consensus. To aid this we could adopt different suggestions from the literature, unveiling the vote for instance, suggested by Pettit and Brennan (Pettit 1990),. Different ways of achieving this could be explored, yet on the assumption of this evaluative basis, a standard would be present against which the decisions of a democracy would be correct or

incorrect. By accepting such a thesis, and Goldman's interpretation of voting, a grounding can be found for assumption **(P1)**.

2.3 A Public Good

We have so far only considered Goldman's view of voting and shown it, under restrictive assumptions, to be compatible with a with the CJT. There is another important interpretation of voting that, in its essence is more in line with the ideas of epistemic democrats. This is what was referred to as the *judgement ideal* in section **2.2**. Upon this interpretation, the act of voting is an attempt to indicate something more than your preferred state of the society. The voter attempts to determine what is the correct option, not relative to his beliefs or desires but some other independently defined criteria. The possibility of such a concept is contentious and has found many articulations in works of political theory. It will therefore be briefly considered, yet a more detailed study would be needed to argue for the existence of this standard.

The approach is at first notable for the force by which it is opposed. Social choice theorist Kenneth Arrow, explicitly rejects that 'that there exists an objective social good defined independently of individual desires' (Arrow 1963). And further sees its postulation as dangerous, warning of its potential to justify government by the 'elite, secular or religious' (Arrow 1963). This warning is important and has clear precedents, which will be discussed in section **3**, yet an objective good need not lead to a tyrannical regime. If there is an acknowledgement that no one has a unique access to this phenomena and that each can judge as well as another, then it may not lead to tyrannous regimes. Both Jean-Jacques Rousseau and John Stuart Mill postulate this phenomenon and express it in the terms, 'public will' or 'public good'. This notion of political truth is not present in much contemporary politics. Jurgen Habermas maligns the fact that 'Anyone who still discusses the admissibility of truth in practical questions is, at best, old-fashioned.' (Habermas 1976). Yet its historical precedents can still be explored.

Rousseau and many of his followers understood the democratic process as an attempt to formulate and reliably choose a conception of the common good with which to guide the society. Voting is a part of this process and Rousseau held a view of voting as a judgement as to a certain fact of the population at large. Each voter, in their action attempts to articulate the will of the majority. We do not vote for what we prefer, rather we try and interpret the will of the wider population.

‘When in the popular assembly a law is proposed, what the people is asked is not exactly whether it approves or rejects the proposal, but whether it is in conformity with the general will, which is their will. Each man, in giving his vote, states his opinion on that point, and the general will is found by counting votes. When therefore the opinion that is contrary to my own prevails, this proves neither more nor less than that I was mistaken, and that what I thought to be the general will was not so.’ (Rousseau 2012)

Here, we can see the separation of Rousseau’s theory from a view like Goldman’s. If the opposing motion is carried, it proves for Rousseau that we voted in error. For Goldman, whilst error is possible, if the voter is knowledgeable, the opposite motion is likely to be against their interest and yet they must accept as it is likely to correspond to that of the majority. For Rousseau, there is one common interest and this is best advanced by the majority vote.

A similar view of voting is shared by John Stuart Mill but instead of a public will, voters look for the public good;

‘the citizen’s vote ... has no more to do with his personal wishes than the verdict of a jurymen. It is strictly a matter of duty; he is bound to give it according to his best and most conscientious opinion of the public good’ (Mill 2004)

In these two accounts, there is an idea of each person voting about some state of the society around them. In both accounts, the voter can be correct or incorrect depending on whether they have correctly identified this public ‘will’ or ‘good’. Both accounts contain the invocation of a somewhat mysterious concept, what this could be we will turn to in the next section. What is important, for our purposes, is what kind of question the voters are answering. They are not being asked which state of affairs they would prefer, their task instead is to determine which option best represents the public good and vote accordingly. Therefore we do not take the interests of the individual into account or, at least it should have no greater influence than those of another member of the population. The question is whether voters can be said to vote in this manner. A greater sociological study of the habits and motivations of voters would be necessary to argue convincingly for such a position yet some points in its favour should be noted in its favour.

The history of public elections in the United Kingdom and the United States have shown a large shift in emphasis in the act of voting. Initially a transaction, where voters were often rewarded financially for their allegiance to a party it is now a public duty the citizen must

perform. Accepting an incentive would now be seen as a dereliction of one's public responsibility. Consider, for instance, the processes that precede elections or referendums. Little campaigning targets the interests of certain special groups or classes. It often makes reference to groups, but the group is often defined so loosely that it includes almost everyone in the society. Manifestos are justified as they are the right or fair thing to do, and are said to be in the interests of all, not just a subpopulation. Public debates about distributive politics often prominently feature ideas about justice or reward for the virtuous (hard working, responsible, honest). Susan Stokes places this rhetorical shift at the same time voters no longer received financial rewards for choosing a candidate;

‘in democracies in which voting is no longer transactional, this double detachment of voting from rewards opens up space for voters to include ‘independent standards’ and not (just) ‘personal preferences for policies’ in deciding how to vote. That is, it allows people to act like the kind of voters that epistemic theories require.’ (Stokes 2011)

Therefore there is some reason to believe that voters act in something other than their own personal interests. A public duty rather than a pursuit of personal aims. However, a more likely conclusion is that there will be a mixture of motivations. Whilst this is probably no issue for the CJT, this may affect the competence of a certain proportion of the population that vote in a certain direction. This will have to be something a CJT factors into its calculations of the probability of a correct majoritarian decision.

The definition of this notion is likely to vary with the theorist that employs it and reconstruction of Mill's and Rousseau's notion is beyond the scope of this chapter. What is at issue is that such an account has been made in the past and may remain plausible. One possible origin emerges from game theory and other mathematical fields that model collective actions. Here games are designed that maximize or minimize the utility of different agent's depending on their choices and those of others. Co-operative or antagonistic strategies lead to different levels of well being for the participants and in many situations strategies can be described where no possible change in strategy for any participant can lead to an increase in their utility (assuming other strategies remain constant). In games, the optimal strategy may be to identify such equilibriums and it is necessary for each individual to take into account the welfare and actions of others in designing their policy.¹⁷ How is this relevant at the societal level? There exist certain practices that combine individual disadvantage for communal advantage. Driving on just one

¹⁷ For a clearer exposition of mathematical models of collective action see Coleman (1973)

side of the road or refraining from littering are often cited examples. It may benefit me to litter in one instance, but there is an awareness that I benefit from a general situation where no person litters. This action therefore is not beneficial considering the likely impact on the actions of others and how that in turn would affect my well being. In the same way, we could argue certain patterns of distribution of resources are mutually beneficial in that a change in any way would only improve the position of one person at the cost of another. And that certain laws and restrictions are again beneficial as they serve the interests of each person. This notion may be far from what Mill or Rousseau envisaged, yet it provides the independent basis for evaluating decisions. Such an account would need far clearer elucidation, which is beyond the scope of this chapter. However the aim is to make this judgement ideal of voting compatible with a notion of an objectively correct answer to political questions.

3. Epistemic Inferiority and Political Inequality

In this chapter, it will be assumed the truth premise, previously discussed is plausible and consider how its acceptance can and has previously, formed the basis of an argument for political inequality that we will call *epistocratic*. It will be shown a commitment to the concept of political truth does not always lead to a commitment to democratic governance. If our primary concern in structuring society is to make correct decisions, it may not be the case that a democracy is the most reliable structure. This chapter will consider different forms of government and a tradition in politics and philosophy of epistemic elitism; that decisions should be left to the most educated and out of the hands of the wider collective. The first section discusses how a theorist's commitment to political truth shapes their preferred structure of government. The second section analyses the current political system of the United Kingdom and asks whether present parliamentary democracies are epistemically elitist. The third section details common premises made in epistocratic arguments and structures and considers where a proponent of democracy raise a challenge.

3.1 Epistemic Democracy and Political Structure

A democratic form of government is often assumed to entail the associated concept of majority rule. In elections and referendums, each citizen casts a vote and a democratic result (and subsequent action) is that which has been chosen by the greatest number¹⁸. Yet it is clear that we can achieve democracy, in its most abstract sense of 'rule of the people' and political equality without the associated concept of majority rule. For instance, votes could be cast and the result decided by a weighted lottery with the chance of an outcome equivalent to the proportion of the votes it receives. We then have a system that is politically egalitarian (at least with reference to voting rights), and democratic in an abstract sense, but does not rely on majority rule. These three features; democracy, political equality and majority rule can be shown to be separable (Saunders 2011) and each can be thought to require a separate justification.

The justification given for these features of a society will depend on the philosophical commitments of the theorist. We can roughly define two distinct, opposed positions¹⁹. Epistemic democrats place value in the fact that decisions made in a democracy track the truth better than

¹⁸ The precise form of this procedure may vary. Each voter may have one choice or list several options in order of preference. In this chapter, we will only consider two-option decisions with a voter choosing one option.

¹⁹ Such a distinction is not proposed to be complete; some accounts may value aspects of both positions.

alternative systems. Procedural democrats, instead stress the importance of some virtue of the way in which the decisions are made. Considerations of the fairness or equality of voting procedures determines if a decision is right or valid. It is not possible, on this account, for a democracy run according to principles of procedural justice or fairness to make an incorrect political decision.

As mentioned in chapter 2, an important distinction between the two positions (in Joshua Cohen's terminology (Cohen 1986)) is in the existence of some independent standard against which political decisions can be judged (Marti 2006). Epistemic Democrats, who claim the existence of such a standard, often defend democracy and majority rule as they increase the likelihood of the society making a correct political decision. Proceduralists have no such concerns, a decision is valuable if it treats its citizens according to some virtue, fairness, justice, equal respect. In this way, the optimal decision making system, a society employs, depends on the commitments held by those that design its voting structure. This section, from this point forward, will consider what type of government an epistemic democrat should prefer.

The crucial question for an epistemic democrat would be which political structure is most likely to produce correct decisions? One could conclude, following Condorcetian reasoning, that the optimal situation is to utilize the knowledge of the majority of the population. Assuming minimal competence and independence, the probability of a correct group decision will be very great. An example of this reasoning is given by Brian Barry;

'If we have a voting body of a thousand, each member of which is right on average fifty one percent of the time, what is the probability in any particular instance that a fifty one percent majority has the right answer? The answer . . . is: better than two to one. Moreover, if the required majority is kept at fifty one per cent and the number of voters raised to ten thousand . . . the probability . . . rises virtually to unity' (Barry 1967)

If we attribute these characteristics of competence and independence to our population, it may be optimal in terms of the reliability of the group, to create greater public involvement in politics either by referendum or a different representative format. Here, Condorcet's theorem is used to argue for an inclusive, politically egalitarian democracy. Yet, this is not the logic that all epistemic democrats follow. Throughout the history of political theory, others have reached a the opposite conclusion.

It could equally be argued that due to the differing epistemic capacities of the population, we should restrict decision making to some small elite group with great political knowledge

(assume, for instance, the competence of the elite to be far greater than 0.5, that of the population is roughly equal to 0.5). If the majority of the population possesses minimal or no political knowledge, political authority should then be given to a small epistemic elite. This position, following David Estlund, we will call ‘epistocratic’ (Estlund 2008) and the general structure of the arguments employed will be given later in the chapter.

Different forms of the epistemic conception of government are present in the work of philosophers from different historical periods. Plato, argued in *the Republic* that only a specific section of society were fit to rule, philosophers or kings who could see and love the truth. The best form of government, prescribed in *the Republic* is a philosophical aristocracy or monarchy, governed by those possessing superior knowledge (Plato 2000). In this way, social cohesion and the absence of conflict and war are ensured. A commitment to political inequality is also found in more modern political philosophy. For instance, in the work of the Marquis de Condorcet²⁰ and the English liberal philosopher, Edmund Burke. Following Plato, their work stresses the importance of structuring society so that the correct decisions can be made by those in power (be it a single ruler, a larger subsection or a small ruling elite). These ideas can also be found in the documents designing early forms of democratic governments. In the *Federalist Papers*²¹ (No. 68), Alexander Hamilton makes the following argument in support of assigning responsibility of choosing a new president, to a small Electoral College;

‘It was equally desirable, that the immediate election should be made by men most capable of analyzing the qualities adapted to the station ... A small number of persons, selected by their fellows from the general mass, will be most likely to possess the information and discernment requisite to so complicated an investigation.’ (Hamilton 2012)

For Hamilton, a small group with superior information should be entrusted with the decision of choosing the president. It should be selected from their fellows for their wisdom and virtue. These small groups can then determine, for the majority, the individual with the greatest capacity for ruling and elect them president. It should be noted that the electoral college remains a feature of the political system employed by the United States. However, at present, the members of the electoral committee make their political allegiances clear to the voters that elect them. Their role is therefore no longer to use their own discernment but to act out the wishes of the voters that

²⁰ Such a system, some what surprisingly given the results of his theorem. However, it is consistent if one thinks, as he did, that ignorance and error were prevalent within contemporary society

²¹ A selection of essays designed to motivate the ratification of the constitution of the United States of America.

have elected them to the position. In a paper mentioned previously, Robert Goodin and Kai Spiekermann refer to ideas like Hamilton's that decisions should be left to a small informed elite as the 'Federalist's conjecture' (Goodin 2010). Specifically that 'the proposition that a smaller group of more competent people is epistemically superior to a larger group of less competent ones' (Goodin 2010). Therefore under Hamilton's assumptions, decisions should be left to a small elite that then elect one single person to govern for the general mass.

The next notable form of epistocratic government in political philosophy is that given by the English liberal philosopher, John Stuart Mill. He shares the view that citizens differ in their epistemic abilities yet gives an alternate vision of how political decisions should be made. As discussed in chapter 2, for Mill, when voting people attempt to determine the best option with regard to the public good. To ensure this option is likely to be selected, an optimal system would assign a number of votes to a citizen that varied with their probability of choosing the option, most in line with this good. This in turn will depend on their level of knowledge and education. Although in his system there is a measure of equality, each person receiving a vote, it allocates varying power depending on a perceived level of knowledge. As education, in Mill's period was limited to a small part of society, the political responsibility given to an individual would depend on their gender and class. Here, there is a conflict in Mill's philosophy with his political pragmatism. Sound and stable governance he saw to be at threat if votes and power were extended to the working classes, as they possessed the vast majority. What Mill viewed as a necessary extension of rights to all citizens would, in his mind, inevitably lead to a form of despotism of the lower classes. Although, he supported the extension of political participation to all members of a society, he did so with pessimism and with the system designed to allocated increased political power depending on the epistemic merits of the person concerned.

'The only thing which can justify reckoning one person's opinion as equivalent to more than one is individual mental superiority; and what is wanted is some approximate means of ascertaining that. If there existed such a thing as a really national education or a trustworthy system of general examination, education might be tested directly. In the absence of these, the nature of a person's occupation is some test. An employer of labour is on the average more intelligent than a labourer; for he must labour with his head, and not solely with his hands' (Mill 2004)

Unequal political influence, should be acknowledged and respected by those in positions of inferiority, 'this superior influence should be assigned on grounds which he can comprehend,

and of which he is able to perceive the justice.’ (Mill 2004). A stable society can therefore be formed, with power kept from the uneducated class of physical workers, whilst not contradicting Mill’s commitment to liberal values of universal voting rights.

3.2 Epistemic Elitism and Parliamentary Democracy

In the political systems of Mill and Hamilton, an idea of political truth is combined with an assumed inequality in the capacities of the population. And this difference in ability leads directly to a difference in the political influence each person is assigned. We will label such systems epistocratic (also epistemically elitist). Were these ideas relics of rejected political philosophies, they perhaps would not be worthy of much discussion. This section will argue that although such ideas may no longer hold much weight at a level of political discourse, they have a close resemblance to many current political systems.

At present, an unequal distribution of political influence based on one’s knowledge would seem in conflict with fundamental democratic principles (as they are currently articulated). Even if citizens have demonstrably different access to politicians and the decision making process, it remains essential that each has an equal formal voting power. Some citizens may own media outlets or political consultancies that bring them significant influence, but each person has only one vote. Leaders of political parties, also make a public display of exercising their sole vote in elections. This illustrates that despite differing political efficacy, as citizens they are at least formally equal with respect to voting rights. However, does this imply our current political systems are not epistocratic? The remainder of this section will argue that it does not. From a study of our present political system, it can be seen that it maintains a structure of decision making by an empowered elite. In spite of a shift in ideas around political equality, the structures of previous political systems built on assumptions of epistemic inequality remain.

Like many modern democracies, the United Kingdom makes the great majority of its political decisions by a parliamentary vote. Its parliament is comprised of a small number of members, who represent the population. It consists of two houses, with each possessing distinct powers, voting regulations and membership criteria. The members of the House of Commons are elected by the majority decision of citizens living in areas of the country with roughly constant populations. An upper limit of five years is placed on the period they are employed and there is no power of recall available to the constituents²². Each member is said to represent the

²² Other democracies vary in these features, Senators in the United States, for instance, serve a fixed period of two years

constituency in the parliament, but such a relation can take different forms, and it is clear the structure of the political system ensures this is not a 'direct' form of representation.

This can be seen by the fact there is no formal method employed that attempts to gather popular opinion on a subject. If we were to attempt to argue that the Member of Parliament's opinion is, on the majority of cases, aligned with that of the majority of their constituency, how would we claim this was achieved? Politicians often make reference to the opinion or beliefs of a wider public or of their members. However, it is unclear how this dominant view is discovered. The process is, at best, drawn from a small arbitrarily selected sample of constituents the Member of Parliament (MP) has contact with. At worst, it may simply reflect the MP's assumptions concerning the beliefs of their constituents or be defined from media reports on the views of the wider public. If we were to define a 'direct' representation, as that in which the opinion of the representative is in constant accord with the majority they represent, it can be seen that the relation present in the UK parliamentary system is not of this sort. Firstly, there is no reliable mechanism to ensure this, beyond a vague belief in the MP being in tune with their constituents. Secondly, there are features of the political system that work to hinder this alignment of views. The most clear example of this is the employment, by political parties, of 'whips', whose role is to ensure that on crucial issues, the vote of each member is in accord with senior levels of the party. In a whipped vote, conflicting with the decision of the leadership can lead to loss of office or expulsion from the party. Claiming you were directly representing the views of your constituents, would not be sufficient for the MP to avoid punishment. Further as there is no power of recall available to the constituency, for a full five year term, the vote of the MP could feasibly be in constant conflict with the opinions of the population and no action could be taken. The determining factor in a large number of parliamentary votes is the opinion of those at a senior level of the political party that possesses a majority. This hierarchal structure, which will be discussed further in chapter 4, introduces the possibility that the votes of a large number of MPs are quite independent of the opinions of the far larger population. Even on crucial issues, there can be a large amount of opposition from the wider public and yet the bills are passed by a majority. Recent examples in the United Kingdom are the introduction of the Poll Tax (bill passed in 1986), a vote to allow the use of UK armed forces in Iraq (2003) and most recently the Health and Social Care Act (2012). In each case, large public opposition (250 000 people protested against the introduction of the poll tax, over one million against the Iraq war and 250 000 signatures were collected in a petition against the Health and Social Care Act) were not the deciding factor in the decision of the parliament. If we define democracy as the abstract principle

of the rule of the people, where the population determines and acts in their interest. This arrangement would appear, in at least some cases undemocratic.

The arrangements are possibly based on pragmatism, relating to the difficulty of collective decision making in a very large population without communication technologies, and of disseminating adequate information to the population allowing them to judge their own decisions. Yet, were these the sole reasons for the arrangement, one would expect the political system to change as communication and polling apparatus became less expensive and time costly. The political system however, is resistant to reform, particularly concerning its voting structure. Instead, the explanation may lie in a tradition in British politics, that suggests, albeit not always explicitly, that the representative must use their own judgement, to act in the true interests of the population (rather than what the public judge their interests to be). The politicians and party leaders are fit to adequately judge the interest of the nation, and act accordingly and thus we can see a slightly different role envisaged for the members of a parliament. They do not directly parallel the views of those they represent. The representative acts in line with their constituents' interests but not necessarily with their present majority opinion

This is a relatively common position in British politics (especially in the conservative tradition). Politicians claim that the privileged informational position of those in the parliament gives them a better understanding of the situation. Or even that the members of parliament are specifically selected due to their increased abilities. This is a traditional political philosophy and is succinctly expressed by Edmund Burke, where he encourages members to act on what they believe to be the right decision irrespective of the views of their constituents. In addressing his constituency he claims;

‘But his unbiased opinion, his mature judgment, his enlightened conscience, he ought not to sacrifice to you, to any man, or to any set of men living. ... Your representative owes you, not his industry only, but his judgment; and he betrays, instead of serving you, if he sacrifices it to your opinion.’ (Burke 2000)

And further;

‘Parliament is not a congress of ambassadors from different and hostile interests; which interests each must maintain, as an agent and advocate, against other agents and advocates; but parliament is a deliberative assembly of one nation, with one interest, that of the whole’ (Burke 2000)

In this tradition, which finds support from both Burke and Mill, the representative acts not as an advocate (advancing the views of their members) but as a trustee tasked with determining and enacting their interest. It is the responsibility of the Member of Parliament to take action that he or she believes is correct. If this is divorced from the current opinion of those that elected them, then it remains the duty of the member to follow their own judgement.

By a similar logic, we can then extend this to the leaders of the party in the case of whipped votes. The political leaders, as the most able of the members of the party, need not sacrifice their opinion to that of the majority. In fact, such is their superior epistemic position, they can judge what is in the interests of the wider public and therefore the party. In such a situation, the opinions of the voters, may act as one of many causes of their representative's vote, yet they do not determine it. There are other causal factors that may dominate, such as opinions of colleagues and leaders and personal information. In fact, from our previous discussion of the MP's role, and whipped voting their role is designed to give prominence to these other factors

The structure of the UK parliament ensures that in making political decisions, the opinions of a large population will frequently be overlooked in favour of the few in positions of political power. In this way it is an epistocratic system, similar in form to those envisaged by Mill, Burke and Hamilton, though without the explicit commitment to political truth. The next chapter aims to model these structures and compare their epistemic performance with more democratic systems. It will thereby produce an argument for the epistemic superiority of democracy and against epistocracy. It is however, important to make the epistocratic argument more explicit in order to make clear which premises can be challenged.

3.3 The Epistocratic Argument

In outlining the argument, we follow loosely, the premises given by David Estlund (2008).

(P1) There are objective, procedure-independent standards by which it is possible to judge political decisions.

(P2) In cases of political decision making, members of a society vote for the option they believe to be true or correct

(P3) In a society, some members possess superior knowledge than other members. They are more likely to make decisions that conform to these independent standards

(P5) If some members are more likely to make correct decisions, they should be assigned a greater degree of responsibility in making political decisions.

(P6) Thus, a group of epistemically superior members should be assigned the responsibility to make political decisions.

This argument in differing forms is present in the philosophies we discuss. The justification for each premise differs between the cases. Particularly with reference to **(P3)**, why individuals will differ in their epistemic capacities. For Plato, it may be a part of the nature or the character of the person whilst Mill was concerned with how the social position of the voter affected their ability. Hamilton discusses at length, the virtues necessary for those in command. What is important is that this initial assumption of epistemic inequality, via premise five and results in different roles for individuals within the society. Those considered to be of inferior ability, will receive a diminished level of influence in the case of Mill, or the ability to only elect those to govern in their interest in the systems of Hamilton and Burke.²³

But it should be noted from the argument that there is a further premise that often receives far less consideration. For the conclusion of the argument to hold it must also be the case that;

(P4) A subsection of these more knowledgeable individuals are more likely to make a correct decision than the population combined.

If we are interested in constructing a society so that it is likely to make correct decisions, it is necessary to consider whether a very large number of the population may collectively be more competent than a selection of very able members. The democrat therefore does not need to reject premise two or three of the argument to reject the conclusion. All they need to claim is that in spite of the diminished epistemic performance on an individual level, collectively the larger group is superior. We can therefore claim that monarchs and dictators should be subordinate to

²³ A more difficult question is whether the present parliamentary system in the UK can be considered to be epistocratic. Whilst there is no commitment to the parliament making politically true decisions, should we consider this implicit in the political structure? It would explain the trustee relation of the members of parliament. In spite of a lack of explicit commitment to this premise, the system can be called epistocratic.

the people they command and epistemic elites should be replaced by systems encouraging wider participation. More pertinently, considering our current political structure, we will argue for a change in the role of parliamentary members. They should act as an advocate rather than a trustee, putting forward the views of the larger body they represent rather than their personal opinions. However, to argue in this way, we need to assess the performance of different voting groups to see under what conditions premise **(P4)** can be rejected.

4 The Epistemic Efficiency of Democracy

From the discussion in chapter 3, it is clear that a commitment to political truth can lead to different ideals of government, depending on what further assumptions the theorist holds. The purpose of this chapter is to explore quantitatively the most efficient form of government that an idealized population of constant size can produce. It will use Condorcet's Jury Theorem to estimate the epistemic efficiency of different organizational forms. The first section of the chapter introduces the forms of government to be considered. They have been chosen to represent either current political systems, democratic or epistocratic ideals. The second section discussed the relations of probabilistic independence assumed for each group; it also gives the results of the theorem. The third section considers these results and how they lend support to the idea of democracy as an epistemically superior form of government. The fourth section discusses whether the assumed independence amongst voters limits the applicability of the results. The fifth section acts as a conclusion of the thesis and argues for a directly representational parliament.

4.1 Different Models of Society

This section, will begin by considering postulating an idealized society where each member votes and reasons independently from each other, and asks what organizational form should it adopt in order to maximize the probability of making a correct group decision. The relevance of this society to modern democracies will be explored in section 4.3.

Suppose for instance we had a population of roughly one thousand, the size of a small city. We can make various different assumptions about the epistemic capacities of the population. There could be one very able member, a small group with superior abilities or citizens with equal abilities. Further, the collective decision can be made in different ways, with changing patterns of causal influence between the members. The discussion will be limited to five systems and their performance will be approximated.

The systems have been chosen, to represent those that have been previously discussed in chapter 3. The first three systems; a Dictatorship (D), a government of the Epistemic Elite (EE) and a parliament consisting of Independent Representatives (IR) are epistocratic forms of government as they devolve responsibility to individuals that are seen as more able than the wider population.

Dictatorial systems of governance have a long history and are a feature of many contemporary societies (they are also the organisation structure of other social organisations; armies, private companies etc). A dictatorial system represents, the limiting case of governance by an epistemic elite, where we assume, the ruler to be like that envisaged by Plato (they are exceptionably able and guided only by the truth). There are also many current political systems that bear similarities to governance by epistemic elite. As mentioned in chapter 3, in the United Kingdom, both the majority and minority parties are whipped on votes considered important to the government's stability. This is also common practice in the leading parties of Greece, the United States, the Republic of Ireland, Australia and many other democracies. Whilst some parties may make their decisions collectively, in the majority of cases, it is at least possible given the disciplinary mechanism used to ensure assent from party members, that the opinion of few in the party decides that of the many. In other parliaments, even if a whip is not employed, there may be implicit or explicit influence from the leadership of the party to its more junior members. Countries that have parliaments containing hundreds of members may in many cases be controlled by the few people in powerful positions. These two forms of epistocratic governments are therefore taken to be examples of currently existing systems.

Parliaments that employ Independent Representation are rare in modern politics. Yet a similar structure emerges when the party members are encouraged to vote according to their own opinion and the vote is not whipped. These votes occur when matters are judged to be outside the remit of the party and their frequency will depend on how all encompassing the political agenda is. This is a system envisaged by Burke and Mill, with each representative employing their own reasoning and sacrificing their opinion neither to the leader of their party nor to the public that elected them. This ideal would be equivalent to a parliament without dominant parties, a large proportion of the members determining and voicing their vote independently of wider political obligations. Whilst there are few present instances of such a government, it exists at various points within present democracies and it can be seen as a feasible alternative to the present political structure of many countries.

The remaining two forms of political structure can be described as epistemically egalitarian rather than epistocratic. Each person is considered equal in terms of their epistemic ability and each has an equal impact on the decision procedure. The first, we can describe as a Directly Representational (DR) form of government. The population is divided into subsections of equal number and each elects a member to act in a parliament on their behalf. The duty is to voice the majority opinion of the population they represent, rather than their own independent opinion. If their opinion conflicts, their duty is to vote in line with the majority of the larger

group. The parliament then passes the majority opinion of the representatives and in a large majority of cases, that of the majority of the public²⁴. Although this is not the form of current political systems, there are social organisations that have this form. It is similar to the election of the United States president where members of an electoral college are selected by states. The majority decision of this college then elects the president and each member declares their affiliation before the vote and enacts the demands of their voters. Local councils and other small community organisations are often comprised of members with strong links and awareness of the public they represent. Trade unions, in their decision making, often employ representatives to speak on behalf of a smaller body (a factory, fire station). Members emerge from relatively small sections of society and are in regular contact with their electors (in these examples they live, or work together). This ensures that firstly, the member has a direct, if *ad hoc*, link to the body they represent and this may introduce a mechanism to enforce direct representation.²⁵ Parliamentary members representing large populations may lack this process and subsequently be detached from the majority opinion. A representative of a larger population would have to solve this issue to act in the way described, but the system is not without precedent in society and it does not seem utopian to consider it as a possible form of government.

The second egalitarian system is Direct Democracy, where the public are asked each time a major political decision is made. Current examples of this practice include referendums in European countries concerning changes to the constitution of the European Union, and most recently in the United Kingdom to determine whether a change in the process of parliamentary members should be implemented. In their current form, such forms of governance would be unlikely to function successfully. Considering the size of modern democracies and expense and effort involved in determining the opinion on issues, constant direct democracy would seem infeasible on a national scale. It is therefore included as a limiting case opposite to that of a dictatorship.

4.2 The Epistemic Efficiency of Voting Structures

As described in the previous sections, all the systems to be considered in the next section are present or idealised forms of political systems. The next section analyses their epistemic

²⁴ It is possible that the minority opinion of the population could be selected. If the population were divided so that strong support was present in some constituencies but not in all, then it could attract the majority public vote but the minority of votes in the parliament. This is perhaps, a flaw in this and other 'first past the post' voting systems.

²⁵ If the candidate does not act with the dominant opinion of the group, a pressure to conform could be exerted. Depending on the proximity and the regularity of contact, this may be an effective mechanism.

efficiency. Each group will be said to number 1111 members²⁶ and face a decision between two policy options²⁷. Calculations will be made for varying competence and for each of the forms of governance. The efficiency of each system will be calculated with Condorcet's Jury Theorem, the derivation of which is given in chapter 1. In each example, the quantitative results will depend on the competence and voting influence assigned to each voter.

4.21 Dictatorship

In this form of government, all political decisions are taken by one member of the society. They will be assumed to have acquired their position by merit, in which case they will have an atypically high level of competence. In real political situations, this may not be the case. The dictator may have acquired the position by force and govern purely in their own interest. The calculations below assume a wise, benevolent dictator that decides solely according to what they take to be the correct option. In this example, the decision is made by one individual and is equivalent to the jury leader limiting case in chapter 1 and as detailed in this section group competence is therefore equal to that of the dictator (V_1).

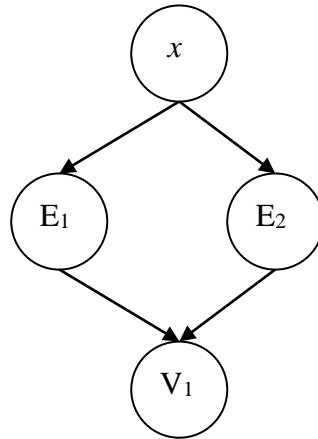


Fig 4.1 A causal network to illustrate a dictatorial system of decision making²⁸

²⁶ This number is chosen for two reasons, the first is so that the structures are plausible and secondly so a range of competences can be assessed. For very large populations, the figures for DD and RD are close to unity.

²⁷ This assumption appears very implausible in the dictatorship system, where the leader can be said to design and implement their own policy. Only in a small number of cases would there be a choice between two contrasting options.

²⁸ V_1 represents the vote of the dictator. For ease of representation, opinions of other society members are not thought to influence the voter.

Assuming the competence of the dictator is high, (in a range between 0.6 and 0.9) we have the following results for the competence of the group.

$P(D)^{29}$	$P(M)^{30}$
0.6	0.6
0.7	0.7
0.8	0.8
0.9	0.9
0.95	0.95

Fig. 4.2 A table showing group competence with a dictatorial system of governance

4.22 Epistemic Elite

In this structure, the decision is made by assessing the majority opinion of eleven members of a political elite (V_{1-11}). In accord with different epistocratic theories, any selection criteria could be used to assign these members as long as it is sufficient to select members of a superior competence. This form, of a very able elite, resembles the structure of government offered by the Federalist Anthony Hamilton, as well as resembling the ruling of a wise elite, suggested as the optimal political system in the Republic. Further, it resembles a form of a strongly whipped government, where the opinion of eleven members at the higher levels of a party are sufficient to decide the majority decision of the parliament (the eleven votes dictate over 50% of the votes in the parliament). In either case the opinions of the majority do not determine those of the elite,

²⁹ In this and all other figures $P(D)$ will refer to the probability that the person casting the vote makes a correct decision. The competence of the dictator in this example.

³⁰ In all examples $P(M)$, will refer to the probability that the group makes a correct decision. Or in this case that of the sole dictator.

though they may act influence the decision.

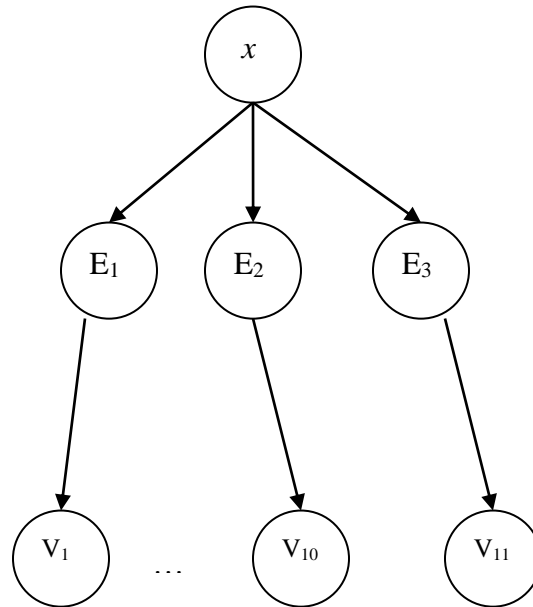


Fig 4.3 A causal network to illustrate decision making by an epistemic elite

For simplicity of calculation, we will consider each of the members of this elite group to have equal competence. Further, we will assume the system functions to select those of a relatively high epistemic ability. The competence of the other citizens (or parliamentary members in a whipped vote), is not specified as they do not, in the model, effect the decision.

$P(EE)$	$P(M)^{31}$
0.6	0.7535
0.7	0.9218
0.8	0.9883
0.9	0.9997
0.95	0.9999

Fig. 4.4 A table showing the group competence of a system governed by an epistemic elite.

³¹ Figures through out this section will be given to 4 significant figures.

4.23 Independent Parliamentary Members

In this system, the parliament consists of 101 members and follows a majoritarian decision procedure. Each member of the parliament (V_{1-101}) is selected by a small constituency consisting of eleven members (this includes the representative). It will be assumed that a process exists so that each subgroup is able to correctly identify their most able member. The system aims to represent how modern democracies are constructed, except with the differing factor that the parliament has a large number of members relative to the population. The opinion of this representative is not dependent on the population they are drawn from. They follow their own reasoning, of which the views of the individuals they represent may be a cause. Each member's vote is not causally determined by that of any political leadership or those of the wider public.

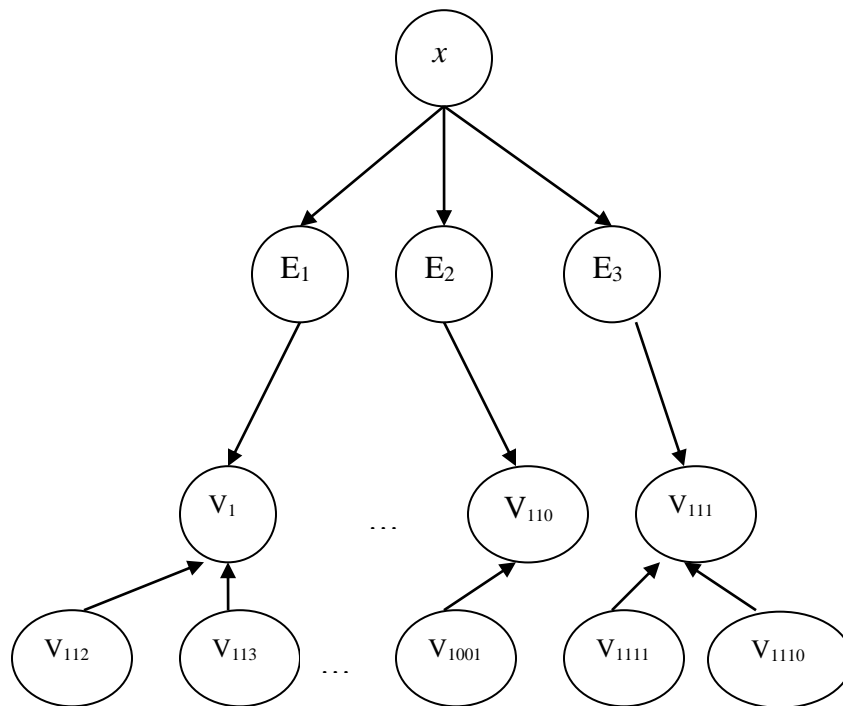


Fig 4.5 A causal network to illustrate decision making by independent members in a parliament

Again, we will assume the selection process acts to produce competent members and for simplicity, each individual will be said to be equally competent.

$P(D)$	$P(M)$
0.51	0.5799
0.55	0.8438
0.6	0.9791
0.65	0.9990
0.7	0.9999

Fig. 4.6 A table showing group competence for a parliament consisting of independent members.

4.24 Direct Representative Democracy

This is the first epistemically egalitarian system we consider. Eleven groups of 101 voters, make a decision on the issue at hand. It is then a task of a specified individual (represented in the diagram as V_{101}) to directly represent the majority opinion of the group to the parliament. The decision is then made amongst the eleven representatives in a parliament by a majoritarian procedure. The link between the representative and the group is assumed to be infallible in that it is not possible for the representative to inaccurately portray the group's majority decision. The votes of the other members determine that of the representative. The structure of the causal network will be replicated for each subgroup of 101 members.

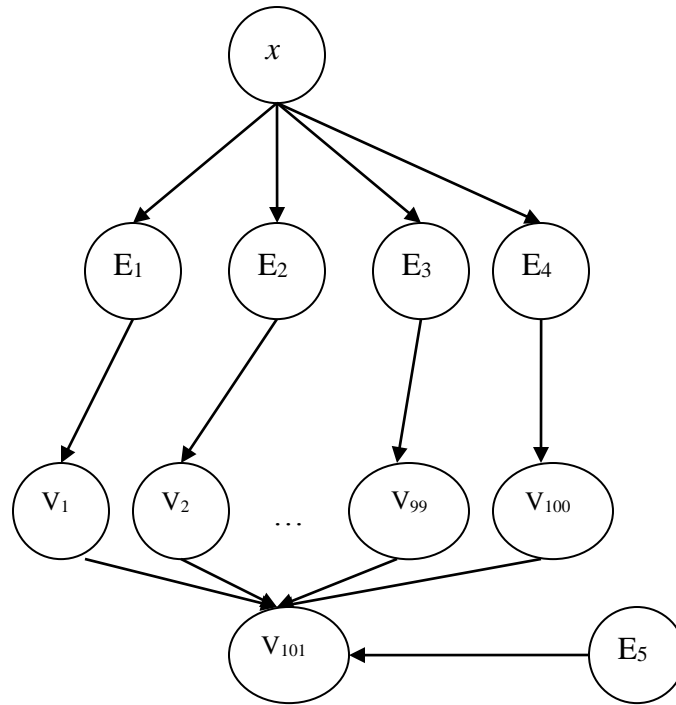


Fig 4.7 A causal network to illustrate the process of decision making by one member of a directly representative parliament

In the calculations, we will assume each individual to be minimally competent. The calculations for group competence are as follows;

$P(D)$	$P(M)$
0.51	0.7072
0.55	0.9967
0.6	0.9999
0.65	0.9999
0.7	0.9999

Fig. 4.8 A table showing the group competence of a directly representative parliament.

Direct Democracy

The fifth system, is the second example where each member of the society is considered to be of equal epistemic ability and possesses equal voting rights. In this example, each policy is presented to the wider public and each person casts a vote for one of two options and the majority

decision is chosen.

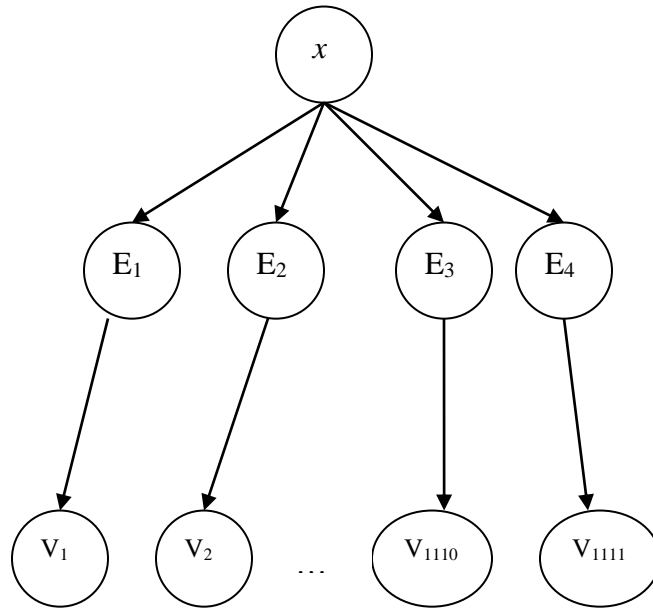


Fig 4.9 A causal network to illustrate decision making in a direct democracy.

Each voter is considered to be equally competent and that this value is greater than 0.5.

$P(DD)$	$P(M)$
0.51	0.8271
0.55	0.9994
0.6	0.9999
0.65	0.9999
0.7	0.9999

Fig. 4.10 A table displaying the group competence of voters in a direct democracy

For ease of comparison the results for each organisational form are combined in the table below.

P(I) ³²	P(M) Dict.	P(M) EE	P(M) IP	P(M) DR	P(M) DD
0.51	0.51	0.5271	0.5799	0.7073	0.8271
0.55	0.55	0.6331	0.8438	0.9967	0.9992
0.60	0.60	0.7535	0.9791	0.9999	0.9999
0.65	0.65	0.8513	0.9990	-	-
0.7	0.7	0.9218	0.9999	-	-
0.8	0.8	0.9883	0.9999	-	-
0.9	0.9	0.9997	0.9999	-	-

Fig 4.11 A table showing the competence of voting groups with different organisational structures

4.3 Against Epistocracy

For those that wish to defend democracy from an epistemic perspective, it is necessary to reject the conclusion of the epistocratic argument.

(P6) Thus, a group of epistemically superior members should be assigned the responsibility to make political decisions.

The epistemic democrat is equally committed to the first premise of the argument. The second premise is where objections are frequently focused. Firstly, whether in fact people can be epistemically superior to others. This is a contentious issue, yet it may well be plausible to assume one's experiences and education may have a bearing on one's competence. The more problematic issue is how we can know who are more competent. Should we assume with Mill that those in higher social positions are superior epistemically to manual labourers? We need not make such contentious subjects but can admit that epistemic inequalities, however divided, are possible. We can accept that voters may in some cases perform unequally but still claim that a democracy is a superior form of government by rejecting the implicit fourth premise that;

(P4) A subsection of these more knowledgeable individuals are more likely to reach a correct decision than the population combined.

³² P(I) here represents the competence of the individual / people taking the decision.

The data above can be used to illustrate this. As is shown, large groups of voters with low individual competence can have very high collective competences. Even if we accept (P3) of the epistocratic argument and the presence of extremely able individuals, a government ruled by a beneficent monarch or wise dictator is an inefficient form. Even if such a person was very able and their training or nature led them to outperform their compatriots by a large amount ($P(D) = 0.9$ compared to $P(DD\&DR) = 0.55$) then we still find it beneficial to adopt a democratic form of government.

$$0.9 \text{ (Dict.)} \ll 0.9967 \text{ (DR)} \ll 0.9992 \text{ (DD)}$$

Next consider the epistemic elite, were a process in place to select very competent members, they only outperform the democratic forms of government when their individual competence is very high ($P(EE) = 0.9$ compared to $P(DD\&DR) = 0.55$), and the difference between the reliability of the groups is very small.

$$0.9997 \text{ (EE)} \approx 0.9992 \text{ (DD)} \approx 0.9967 \text{ (DR)}$$

If the epistemic elite are thought to have a slightly lower competence ($P(EE) = 0.8$ or 0.7 compared to $P(DD\&DR) = 0.55$) they are outperformed by the democratic forms.

$$0.9883 \text{ (EE)} < 0.9967 \text{ (DR)} < 0.9992 \text{ (DD)}$$

$$0.9218 \text{ (EE)} < 0.9967 \text{ (DR)} < 0.9992 \text{ (DD)}$$

Even if a very low competence is assumed for the entire population ($P(DD\&DR) = 0.51$), democratic forms of government have a similar performance to epistemic elites with higher competences ($P(EE) = 0.65$ or 0.6).

$$0.7073 \text{ (DR)} < 0.8271 \text{ (DD)} < 0.8513 \text{ (EE)}$$

$$0.7073 \text{ (DR)} < 0.7535 \text{ (EE)} < 0.8271 \text{ (DD)}$$

The relations above challenge the implicit fourth premise of the epistocratic argument and shows the conclusion may not follow from its premises. If it is an aim of a democratic

system of government based on epistemic principles to maximise the probability of making a correct decision, to select only a proportion of the population will, under most circumstances, not increase this probability. As a comparison, a group of 11 voters with a competence of 0.800 will only have a collective probability of 0.988. A group of 1111 voters, with a competence of 0.55 under a directly representational system of governance will have a far higher performance on 0.9967. Further examples of how higher individual competence may not transfer to the wider groups are given above. The individuals selected will therefore have to be extremely able to outperform even small subsections of the society. If we assume a competent population, the collective decisions are almost certain to be true. Therefore even if we accept premise (3) and admit unequal epistemic performance (there seems no reason why we would not, the results of the theorem can be maintained with unequal (but symmetrical) competence in the voters) it need not follow that we accept premises (P4) and (P5) and can therefore reject in most cases the conclusion (P6).

4.3 Epistemic Democracy and Voting Structure

Returning to how a small society should organise itself, on the basis of the quantitative data in section 4.2, we can reject a federalist form of government where political decisions are made by a small, specially selected deliberative groups. A larger representative parliament will be epistemically superior because the selection effect (of choosing the more able members) is outweighed by the larger numbers involved in the decision making. An epistemic elite compares unfavourably with both forms of representative parliament. This has ramifications for the practice of whipped voting. If we have a group of eleven members at the top of a political party, they may well be more competent than their contemporaries ($P(EE) = 0.8$ compared to $P(IR) = 0.65$) yet, by dictating the opinion of the remainder of the parliament, collectively they are less efficient than if they were to vote individually. If the representatives are allowed to act as trustees and pursue their own reasoning, there is an epistemic benefit.

$$0.9883 (EE) < 0.9990 (IR)$$

Such features of parliaments, designed to ensure stable governance actually act as epistemic bottlenecks, restricting the use of the knowledge and expertise held by the members of a parliament. By letting members vote according to their own reasoning, as Mill and Burke suggest, the performance of the parliament improves.

Yet this trustee model need not be the ideal. What can clearly be seen from the table is that, under the assumptions of the model, the more democratic, inclusive forms of government outperform the epistocratic forms of government. This trustee form of representation, supported by Edmund Burke and John Stuart Mill, can be improved by a replacement with a direct form of representation. There is an epistemic benefit of letting representatives vote independently from their leaders but it is also important to acknowledge the epistemic cost of their divorcement from their constituents. This can be seen by comparing the performance of direct and trustee representation.

P(I)	P(M) IP	P(M) DR
0.51	0.5799	0.7073
0.55	0.8438	0.9967
0.60	0.9791	0.9999
0.65	0.9990	-

Fig 4.12 A table showing collective competences for directly representative and independent parliaments.

As can be seen from the table above, if the representative is equally competent as the constituency they represent, then by voting on their own reasoning the parliament is far less efficient. Even were we to assume the trustees to be more epistemically efficient (say 5% more likely to make a correct decision) the system of direct representation performs better. On purely epistemic grounds a shift from our current parliamentary system which fluctuates between two forms of epistocratic voting structures would be made more efficient by employing a directly representational structure. This would be a reversion of the role of politicians, instead of the opinion of their constituents being a contributory factor, they instead aim to make it the defining factor. It should also be noted that in our model, the population the representative is drawn from is a fairly small group. In a larger society, with far more members, we would likely see a large increase in the epistemic performance of a directly representational system.

Yet the calculations so far illustrate a very important point; to see the epistemic benefits of a democratic form of government we do not need very large populations. The results do not only apply to large scale democracies with millions of inhabitants but, under various other assumptions, hold in smaller social entities. The structures of other social intuitions, the hierarchies that exist in companies, armies and other institutions may hinder their epistemic performance. If a claim similar to **P1** holds within their domain of operation, and we can

consider them to make true or correct decisions, then a move to a more democratic structure may be of benefit.

We can then make a couple of more general claims from the quantitative data. If we were to reject premise (3) and argue that each individual in their epistemic capacities is equal (or approximately equal with an alternate version of the CJT), then democratic governments clearly outperform their elitist counterparts. The numbers for, an assumed equality between the elite and the wider population are shown below for competences of 0.51 and 0.60.

$$0.5271 (EE) < 0.7073 (DR) < 0.8271 (DD)$$

$$0.7535 (EE) < 0.9999 (DR) < 0.9999 (DD)$$

From the calculations of the theorem, and the previous discussion, two conclusions can be made for the groups considered;

(C3) If identical individual competence is assumed for each voter, more democratic forms of government are epistemically superior.

(C4) The competence of any epistemic elite must be far greater than the population to compensate for their smaller numbers.

In this way we can counter the epistocratic argument and make an epistemic case for democratic forms of government.

4.4 Applicability to Present Political Systems

For the reasons discussed in chapter 1 the results of the CJT can not be taken as accurate reflections of real voting groups. The primary difference is the absence, in real groups, of a probabilistic relation of Condorcetian independence. This relation is assumed in the models in section 4.2 and the probabilistic results that follow from them. This is with the exception of the dictatorial system as there is only one voter so no independence relation is necessary. The important question is how this independence relation will affect each voting group. If it were to alter each group's results equally, the conclusions and practical implications we have detailed would hold. Yet there is no reason to assume this would be the case.

To get a better idea of the results a theorem with a more defensible independence relation produces, the revised theorem given by Franz Dietrich and Kai Spiekermann (Dietrich 2010a) can be given as an example. A reformed theorem, with a revised notion of competence no longer gives the unrealistic conclusion that large groups are infallible, as the number of voters increases the group competence tends to a value below one. Yet it maintains the fundamental aspect of the CJT, that as we increase the number of voters, the group performs better epistemically. With reference to the results of the revised theorem, it is said that the ‘conclusions vindicate majoritarian democracy - it is worth listening to many rather than few - without being absurdly optimistic about the correctness of democratic decisions.’ (Dietrich 2010a). There is reason to think therefore that the fundamental relation, that more inclusive forms of government are epistemically superior holds even when the independence relation is accounted for.

There is also reason to believe that accounting for the independence relation may widen the gap between the forms of government. It is a positive feature of democracies that they contain a large and varied population. The evidential causes of the votes in a democracy is likely to be varied in many cases and a level of independent (lack of common causes in their reasoning) may be assumed. This may not be the case for epistemic elites and members of a parliament. The selection of the elite may often function by the identification of some similar background (in Mill’s case education) that may imply a similar reasoning process. By selecting a subpopulation each with a specific trait, we may be limiting our evidential profile that is present in the reasoning. Further, as the epistemic elite deliberate closely (at least in Hamilton’s ideal) one dominant member may emerge that could dictate the votes of others. This process (combined with the similarity of the evidence they employ) may reduce the competence of the group to that somewhere in the region of a single dictator. This feature may be rarer in a functioning democracy, due to the problems of affecting the views of large numbers of people without personal communication. It may be that accounting for independence increases the epistemic superiority of democracy, yet further work would be needed to argue convincingly for this claim. It therefore appears a reasonable assumption that the relations of epistemic efficiency between voting models will hold in real groups, even if we acknowledge the precise values given by the unrevised jury theorem will be inaccurate.

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