


Article

# Should We Vote in Non-Deterministic Elections?

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**Abstract:** This article investigates reasons to participate in non-deterministic elections, where the outcomes incorporate elements of chance beyond mere tie-breaking. The background context situates this inquiry within democratic theory, specifically non-deterministic voting systems, which promise to re-evaluate fairness and power distribution among voting blocs. This study aims to explore the normative implications of such electoral systems and their impact on our moral duty to vote. We analyze instrumental reasons for voting, including prudential and act-consequentialist arguments, alongside non-instrumental reasons, assessing their validity in the context of non-deterministic systems. The results indicate that non-deterministic elections could strengthen the case for voting based on prudential and act-consequentialist grounds due to their proportional nature and the increased influence of each vote. We conclude that, while non-deterministic elections strengthen our duty to vote overall, they do not strengthen it for all the arguments in the literature. This paper contributes to the discourse on electoral systems by critically evaluating the moral obligation to vote in non-deterministic elections.

**Keywords:** political philosophy; voting; non-deterministic voting systems; democracy; moral obligation; instrumental value



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## 1. Introduction

### 1.1. Motivation

The concept of voting in democratic elections is fundamentally rooted in the principle of collective decision-making, where each vote contributes to the selection of political leadership and policy direction. Traditional deterministic voting systems, where the outcome is directly decided by some form of majority principle, have long served as the backbone of democratic processes worldwide. However, recent promising formal research into non-deterministic voting systems, which introduce elements of randomness into the election outcome beyond the mere resolution of ties by lot [1–4], could lead to some of these systems being implemented in practice, with under-examined implications for democratic theory.

In deterministic frameworks, concerns about the ‘tyranny of the majority’, the marginalization of minority voices, and the possibly violent consequences persist [5–8], leading to debates about the fairness and inclusivity of such systems. Non-deterministic elections, by incorporating chance, promise a potential re-evaluation of fairness by offering a unique approach to power distribution among voting blocs [4]. This reimagined fairness could mitigate some traditional criticisms of democratic voting systems, including the disenfranchisement of minority groups and the disproportionate influence of majority power.

Moreover, this investigation is driven by the need to understand how the traditional arguments for our duty to vote hold up for non-deterministic electoral systems. How does the possibility that anyone’s vote could be the decisive one, regardless of the overall vote distribution, affect voters’ prudential and moral reasons to vote? As societies grapple with declining trust in democratic institutions, rethinking the mechanics of voting could offer novel solutions or, conversely, unveil new challenges.

This paper aims to delve into these complex questions, offering an analysis of non-deterministic elections' normative implications and their potential to reshape our understanding of democratic participation. Through this exploration, we seek not only to contribute to the academic discourse on electoral systems but also to provoke thoughtful consideration of a potential future of democracy.

### *1.2. What Are Non-Deterministic Elections?*

The theoretical literature discusses many different voting systems for collectively picking one candidate out of a number of two or more candidates. Some systems (such as Approval Voting, Range Voting, or the system called 'Majority Judgment') are based on the idea of evaluating candidates on some scale, others (such as Copeland's, Tideman's, or Schulze's systems) are based on the idea of comparing pairs of candidates. Some systems (like Plurality Voting, Approval Voting, the Borda Score, or Copeland's method) use simple forms of aggregate scores to make a decision, others (like Majority Judgment or Tideman's and Schulze's systems) use more complicated rules.

Despite this diversity of systems and the fact that some systems have significantly better theoretical properties than others (e.g., Majority Judgment is seen as clearly better than the predominant system of Plurality Voting by many scholars), most of them, including almost all the systems that are ever used in practice, are deterministic in the sense that the result of an election almost never depends on anything else than the votes cast. Only in the case of certain ties (such as exactly equal vote counts) might such a deterministic voting system resort to a coin toss or similar random process, and only to resolve that tie. In the case where there are only two alternatives (candidates or proposals), which is what we will assume for simplicity, all these methods boil down to Majority Rule: the alternative that more voters prefer over the other wins.

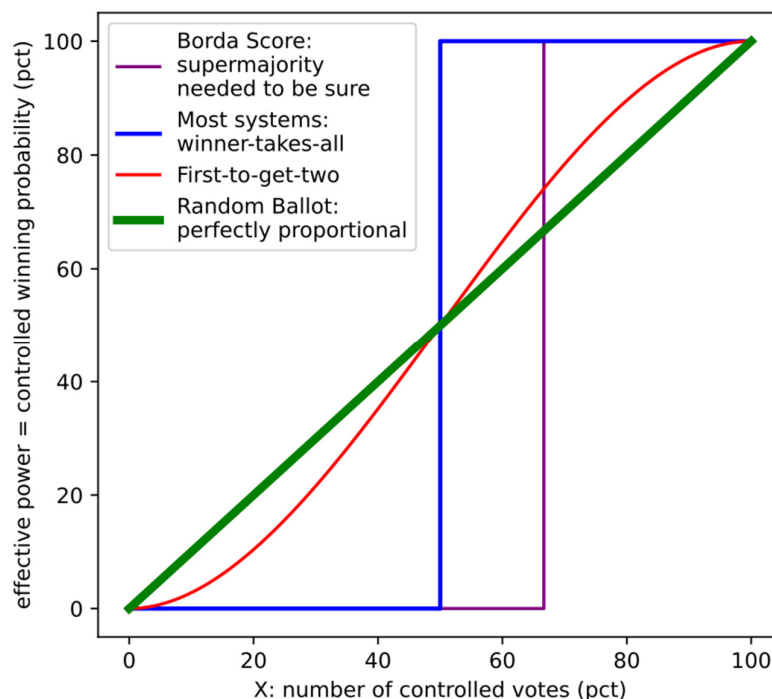
By contrast, a non-deterministic election uses a voting system that employs chance for more than just breaking ties. The simplest example is the 'Random Ballot'<sup>1</sup> method for single-winner elections: each voter submits a standard ballot, and then one ballot is drawn uniformly at random to determine the winning candidate [9]. Many other non-deterministic systems have been proposed, e.g., to increase the level of fairness or representativity as compared to deterministic single-winner systems, or to incentivize voters to support compromise candidates [1–4].

One allure of such systems that we will see is relevant to the question of this paper is the ability of non-deterministic voting systems to mitigate a potential 'tyranny of the majority'. In almost all the deterministic systems currently in use, controlling a mere 51% of the ballots grants 100% power, potentially leaving the remaining 49% without power. Some deterministic methods require controlling an even higher share of the ballots to make sure that one's candidate will win: when using the 'Borda score' voting system, one needs to control two-thirds of the ballots, a supermajority, for this.<sup>2</sup> When using the 'Random Ballot' voting system, by contrast, controlling 51% of the vote only translates into a 51% chance of getting one's favorite candidate. Any group controlling  $X\%$  of the vote, whether in a majority or a minority, controls exactly  $X\%$  of the winning probability. In this sense, the 'Random Ballot' method distributes power in a perfectly proportional way.

The historical antecedent of modern non-deterministic systems can be traced back to ancient Athenian democracy, where sortition (the selection of political officials by lot) was a foundational principle. This method was predicated on the belief that all citizens had equal capacity to contribute to governance, thereby diluting the concentration of power and mitigating against the emergence of a ruling elite [10]. Similarly, the concept of citizens' assemblies, which are selected randomly from the populace today, echoes this practice [11].

Not all non-deterministic systems are perfectly proportional, though; for instance, assume we were to elect a candidate using a method where the submitted ballots are drawn one after another until two of the ballots drawn so far support the same candidate [4]. Then, we could again ask how much of the winning probability some group of voters that controls  $X\%$  of the ballots will be able to control. We could then plot this percentage as a

function of X and call that the ‘effective power curve’ of the voting method. As it turns out, the resulting effective power curve of this method would be somewhere in between that for ‘Random Ballot’ (which is a straight line representing a directly proportional relationship between the amount of votes and prospective power) and that of most standard voting systems (which is a step function switching from 0 to 100% as X crosses 50%), see Figure 1.



**Figure 1.** Effective power of a group of voters controlling X% of the vote for different voting systems, measured as the amount of the winning probability controlled by the group (adapted from [4]).

### 1.3. Outline of the Paper

In this discourse, we will revisit the rationale behind participating in a (deterministic) election and assess whether those arguments hold the same weight in relation to non-deterministic voting systems. While the main context we have in mind is the election of a single candidate to some office (a ‘single-winner election’), most of our arguments can be extrapolated to other collective decision problems, such as referenda or parliamentary elections where the major concern is which coalition will obtain a parliamentary majority or be able to form the government. Additionally, we will presume that the election in question is conducted equally and freely, and that the election’s outcome will, to a reasonable extent, be actually realized or come into effect, as this examination focuses on the intrinsic characteristics of elections rather than the influence of corruption or manipulation.

## 2. Instrumental Reasons to Vote in Non-Deterministic Elections

### 2.1. Prudentialist and Act-Consequentialist Versions of the Main Argument

#### 2.1.1. The Deterministic Case: Lomasky and Brennan vs. Parfit

Many individuals believe that there is a moral duty for citizens in a democracy to vote, and abstaining from voting is considered a moral shortcoming. In this paper, we will analyze various arguments both in favor of and against this perspective.

In the paper ‘Is there a duty to vote?’, Lomasky and Brennan critique two main arguments in favor of voting that rely on the instrumental value of voting: the ‘argument from prudence’ and the ‘argument from act-consequentialism’ [12]. The argument from prudence asserts that individuals should vote to promote their own interests. It goes something like this:

Premise 1: You ought to promote your own interests whenever you can.

Premise 2: Voting according to your interests is an opportunity to promote your interests.  
 Conclusion: You ought to vote according to your interests. In particular: You ought to vote.

The argument from act-consequentialism is the same, except that it swaps your own interests with the interests of others.

The underlying idea is that the outcome of an election significantly impacts both individual and collective welfare. However, critics of voting argue that the second premise of these arguments is flawed [12]. While the benefits of one's preferred candidate winning are substantial, the probability that an individual vote will be pivotal—decisive in determining the election outcome—is exceedingly low.

The term 'pivotal' refers to a vote making a difference when the candidate wins by a single vote. In reality, such situations are extremely rare, and the likelihood of an individual vote influencing the outcome is close to zero. So, while the benefits of a favored candidate winning are evident, the actual impact of an individual vote is highly improbable.

Philosopher Derek Parfit concedes this point but claims that while it weakens the prudence argument, the act-consequentialists' argument remains valid [13]. Parfit's rationale revolves around the idea that when assessing the impact of an action on a single individual or a few people, concerns about extremely slim probabilities may be deemed unreasonable.

For one thing, he argues that worrying about a 1 in 1,000,000 chance of personal harm is irrational. By extension, voting solely out of self-interest might also be seen as irrational due to the minute chance of one's vote making a meaningful difference.

On the other hand, Parfit also contends that when an action affects a large group, even minuscule probabilities become significant. He uses the example of a nuclear engineer contemplating a 1 in 1,000,000 chance of causing a million casualties. In such cases, the potential consequences are so dire for a vast number of people that even remote possibilities warrant consideration. Applying this reasoning to elections, where the stakes are high and impact everyone in the country, Parfit argues that the social benefits of the right party winning justify the time spent voting despite the slim chance of individual influence. Voting, with its minimal personal cost, offers a tiny opportunity to have a substantial positive impact on numerous individuals in the country [13].

Brennan and Lomasky, however, challenge this perspective. They argue that the analogy to the nuclear engineer is flawed. While it may be reasonable to expend 15 min to avert a 1 in 1,000,000 chance of a nuclear catastrophe, the decision problem in an election involves significantly more uncertainty. In most elections, the outcomes are not as clearly defined, and one candidate's victory is not inherently disastrous for the supporters of a different candidate. In societies with essentially two-party systems, candidates tend to align closely with the preferences of the 'median voter' (which is known as 'Duverger's law'), minimizing the potential for extreme consequences. While the outcomes may vary, the difference between the rival candidates is not typically substantial, making the comparison with life-or-death scenarios less applicable in the electoral context. Even in societies with more pluralistic systems, where candidates' platforms can differ significantly from the 'median voter' [14], extreme consequences are often prevented by constitutional and legal constraints.

### 2.1.2. Prudentialist and Act-Consequentialist Arguments in Non-Deterministic Elections

Notice that the main reason why the chance of influencing the election can be argued to be vanishingly small is because both Parfit and Brennan/Lomasky tacitly assume that the voting system in use is a deterministic one rather than a non-deterministic one. In a non-deterministic voting system, every single additional vote may influence the election because it may (and usually will) change the winning probabilities of the candidates. We argue that this implies that both the prudential and the act-consequentialist arguments are strengthened in the context of a non-deterministic voting system.

For example, if the 'Random Ballot' system is used and the value of an election outcome is measured in the utilitarian way, as the expected value of the elected candidate weighted

by their winning probabilities, then any single voter's influence is proportional to  $1/N$ , where  $N$  is the number of voters actually voting, independently of *how* they vote. Other proportional non-deterministic voting systems also lead to a voter influence proportional to  $1/N$  [4].

As long as the expected vote shares of the two leading candidates are not extremely similar, this measure of influence in a non-deterministic election,  $1/N$ , can be expected to be much larger than the corresponding measure of influence in a deterministic election (the probability of being pivotal). Hence, the prudential and act-consequentialist arguments for a duty to vote are typically stronger in non-deterministic elections.

### 2.1.3. Alternate Ways to Contribute to the Common Good

We would like to highlight a broad issue that pertains to all attempts to support the act-consequentialist argument. Let us assume, for the sake of discussion, that the premises of the act-consequentialist argument are accurate. Granting that one should act to promote the public good and that voting aligns with this goal, it does not necessarily establish a duty to vote. This is because there are numerous alternative ways to contribute to the public good.

Acknowledging the importance of promoting the public good does not mandate engagement in voting specifically. While voting is a means of contributing to the public good, it does not imply an obligation to choose this specific action over others. There are alternative actions that can achieve similar benefits to voting. Encouraging others to vote, for instance, can be as impactful or even more so than casting a single vote. If one persuades multiple people to vote, the overall impact might surpass that of an individual who votes but does not influence others. Therefore, the most that can be asserted based on the act-consequentialist argument is that voting is a commendable action, but it may fall into the realm of supererogation—going beyond basic moral duties. Consequently, any defense of the second premise of the act-consequentialist argument, demonstrating that voting contributes to the public good, does not inherently establish a strict duty to vote.

## 2.2. Fallibility and Epistemic Democracy

### 2.2.1. Voter Fallibility

Brennan and Lomasky's second point of critique that challenges the arguments in favor of a duty to vote is the fallibility of the judgment of voters. Political outcomes are inherently unpredictable, despite a candidate's commitment to certain policies, as unforeseen events can significantly alter the ability to fulfill these promises, casting uncertainty on the tangible benefits of any given platform, which diminishes the expected utility of voting. Therefore, Brennan and Lomasky argue that a moral obligation to vote hinges on specific prerequisites: being an informed and reliable evaluator of political platforms, having substantial evidence that one platform could detrimentally impact society more than another, and the election being sufficiently competitive to suggest that a vote could sway the outcome.

However, the uncertainties tied to political promises and outcomes, as well as the evaluation of political platforms, are applicable to both deterministic and non-deterministic voting systems. The unpredictability of realizing policy goals due to external factors remains constant, irrespective of a voting system's structure. Consequently, their proposed conditions for justifying a duty to vote do not change between deterministic and non-deterministic frameworks.

What is more relevant to non-deterministic elections is the fallibility of voters' judgments regarding competing candidate platforms. While widespread agreement exists about the undesirability of a nuclear accident, the same consensus does not extend to political matters such as whether the candidate of the Progressive or Conservative party would be more beneficial for a country. Intelligent individuals hold divergent views, and acknowledging the potential for error in one's own judgments is essential. The subjectivity and variability of political opinions make it challenging to assert with certainty which candidate's platform aligns best with the overall welfare of the collective. Brennan argues that the fallibility of



individual judgements not only undermines our duty to vote, it actually gives us a duty to *abstain* from voting [15].

### 2.2.2. Do We Have a Duty to Abstain from Voting?

Brennan argues that a considerable number of voters, not out of selfishness but due to negligence, cast ill-informed votes. Since political parties tailor their proposals to appeal to the average voter, this ignorance leads to the implementation of misguided policies. He asserts that abstaining from voting is superior to voting poorly since a poorly cast vote contributes to flawed policies that harm everyone. Brennan suggests that if one is not adequately informed, the responsible course of action is to abstain—to not ‘pollute the polls’ with uninformed votes.

However, much like the arguments advocating for the duty to vote, Brennan’s argument encounters the challenge that an individual vote holds negligible sway. If the vote does not have any impact, it also cannot inflict any harm, so why should there be a duty to abstain from something that genuinely would not make a difference or cause harm? Unfortunately, while this counterargument works for deterministic elections, it does not for non-deterministic elections since they give many voters, who would otherwise be powerless, a positive power, and also generally increase the power of most individual voters. If the ‘polluting the polls’ argument held, it *would* be an argument for abstention in non-deterministic voting systems.

### 2.2.3. Problems with a Duty to Abstain from Voting Relating to Minority Groups

So does the argument hold? One problem with this argument is that it seems to encourage the disenfranchisement of minorities. According to Brennan, those who are least educated, and therefore should abstain from voting, often belong to disadvantaged groups, such as the poor and minorities. Discrimination and oppression can limit educational opportunities for these groups, particularly if they are struggling with economic hardships. Consequently, on Brennan’s account, it appears that mostly those who are already disadvantaged would bear the moral obligation to refrain from voting.

Brennan bites the bullet. He acknowledges this concern but contends that while minorities have been poorly served, advocating for policies that enhance education and opportunities for them does not necessarily imply that they should vote at the same rates as other groups. For instance, if, statistically, poor people of color are less politically informed than affluent white people, Brennan argues that a higher proportion of people of color should abstain from voting. Despite recognizing the adverse consequences of discrimination, Brennan maintains that this should not lead to the conclusion that unqualified individuals, due to their political ignorance, should participate in shaping policies.

He draws an analogy to professions like surgery or law, where unfair advantages resulting from discrimination should be rectified through improving education and opportunities. Just as it would be inappropriate to address racial injustices in these professions by allowing unqualified individuals to work as surgeons or lawyers, Brennan asserts that allowing politically ignorant individuals to vote would similarly be counterproductive. If minority groups, due to discrimination, are predominantly politically uninformed and irrational, Brennan argues that efforts should be focused on improving their circumstances rather than on compelling them to vote, which might lead to uninformed and potentially detrimental decisions, both for the country and for individuals within those groups. If individuals lack political knowledge, they may struggle to make informed decisions that could genuinely enhance their well-being.

One concern with this argument is that if a specific minority group tends to abstain from voting, the government might become less attentive to their needs. While Brennan suggests that educated experts could advocate for minority communities, the practicality of this assertion is questionable. In reality, many educated experts might prioritize other issues, and people generally tend to be more aware of problems that directly affect them.

Therefore, if minority groups were to disengage from voting, their voices might not be heard and their concerns could be overlooked.

#### 2.2.4. Problems with a Duty to Abstain from Voting Relating to Feasibility and Self-Knowledge

Another objection to Brennan's argument is its feasibility. Achieving the level of knowledge he deems necessary for voting in a general election seems impractical. General elections involve decisions about diverse aspects of running a society, such as defense, taxation, healthcare, housing, crime rates, public transport, international relations, the environment and much, much more. Even if one is well educated in certain areas, ignorance is inevitable in others. The vast array of topics involved in governance implies that becoming an expert in everything is impossible within the confines of an individual's lifetime. This raises the question of whether a voter needs expertise or whether a level of knowledge less than expertise suffices.<sup>3</sup>

A final concern regarding Brennan's argument is rooted in the well-established Dunning–Kruger effect in psychology [16]. This phenomenon indicates that individuals who lack competence in a specific field often overestimate their proficiency and remain unaware of their own ignorance, leading them to believe they are competent. Consequently, if people were to embrace Brennan's argument, those ignorant of their lack of knowledge would likely continue voting. In contrast, individuals who are competent and well educated in a particular field tend to underestimate their abilities. This occurs because as they gain more education, they become increasingly aware of the vastness of their field and how much more there is to learn. This self-awareness may lead them to perceive themselves as less competent than they actually are. Consequently, many of these well-informed individuals might consider themselves ignorant and refrain from voting. Paradoxically, if Brennan's argument were widely accepted, it might result in a less-informed electorate, with a higher proportion of ignorant voters persisting in voting due to their unwarranted confidence, while the educated, aware of their limitations, choose to abstain. Even if one agrees with Brennan's assertions, the practical implications of promoting his argument could inadvertently undermine its intended purpose.

So while the 'polluting the polls' argument would be stronger in a non-deterministic voting system than in a deterministic one if it were valid, the problems with feasibility and minority disenfranchisement let us reject the argument as invalid.

#### 2.2.5. Epistemic Democracy

While we can reject a duty to abstain from voting, it does not necessarily mean we have a positive duty to vote. Voters are still fallible, which Brennan and Lomasky argue may reduce the expected utility of an individual's vote. They propose that specific conditions must be met for a duty to vote to be justified. One of these conditions, related to fallibility, is being a reliable judge of candidates' platforms.

Let us view these arguments through the eyes of the theory of epistemic democracy, which, in its most extreme form, basically interprets an election as a collective estimation of the epistemic question about which candidate would lead to objectively higher social welfare. It then aims to calculate the probability  $P$  of electing the objectively 'best' candidate in dependence of the voting system, the number of voters  $N$ , and each individual voter's probability of voting for the best candidate. So-called 'Jury Theorems' provide formulas for this probability in special cases [17].

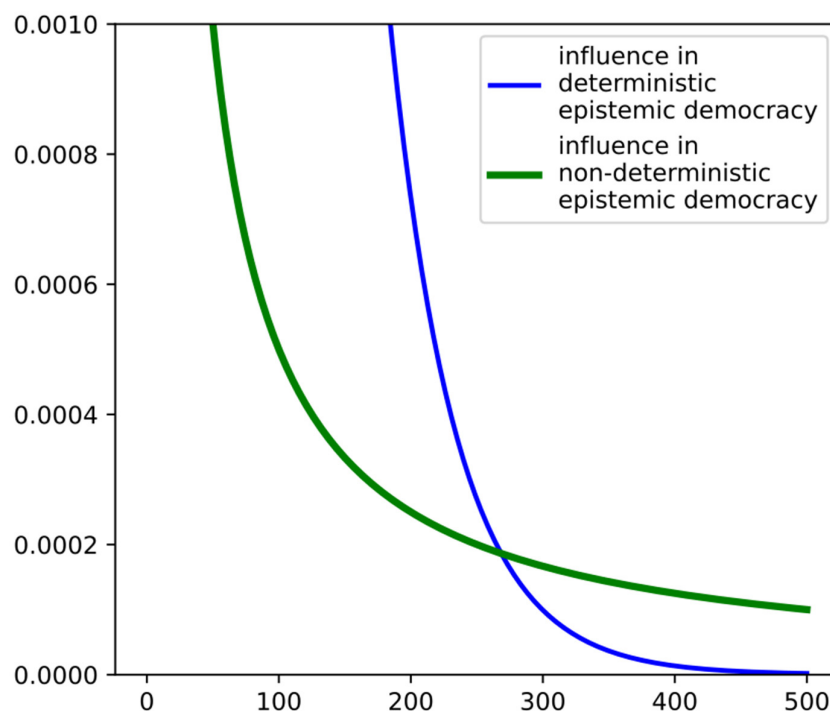
In the simplest case, where there are only two candidates and all the voters have the same level of 'competence'  $p$ , interpreted as the probability of voting for the best candidate, Condorcet's Jury Theorem shows that  $P$  is a smoothly increasing function of both  $N$  and  $p$  as long as  $p > \frac{1}{2}$ , and a smoothly decreasing function of  $N$  and  $p$  when  $p < \frac{1}{2}$ . More precisely, one can easily see that any voter whose competence  $p$  is greater than  $\frac{1}{2}$  can properly increase the probability that the best candidate will win by voting rather than not voting. The voter's marginal contribution to  $P$  (and hence to the expected utility of

the whole election) is positive but decreases exponentially fast as the number of voters increases, which can be held against the argument for a duty to vote.

However, the voter’s marginal contribution to  $P$  is also generally the larger, the smaller voters’ average competence is. In other words, if voters are generally more fallible, each voter’s consequentialist duty to vote increases in the epistemic democracy interpretation of elections, contrary to Brennan and Lomasky’s argument.

### 2.2.6. Epistemic Democracy with Non-Deterministic Elections

If the ‘Random Ballot’ method is used instead, the probability of the best candidate winning is simply the average of the individual voters’ probabilities of detecting the best candidate. Hence, a voter who has a lower-than-average competence  $p$  would actually make the collective estimate worse when voting rather than not voting. Likewise, a voter with higher-than-average competence  $p$  has a positive influence, and that influence is proportional to  $(p - q)/N$ , where  $q$  is voters’ average level of competence. Note that this quantity decreases much slower with a growing  $N$  than in the deterministic case, where it was decreasing exponentially fast with a growing  $N$ . Therefore, in the epistemic democracy interpretation, for a large  $N$ , non-deterministic voting systems offer a voter more influence than deterministic systems. For a voter who believes they are more competent than average, this would imply a larger consequentialist argument for voting than in the deterministic case. Figure 2 shows this in an example with moderately competent voters.



**Figure 2.** A more than averagely competent voter’s positive influence of voting (vertical axis) in an epistemic democracy election in which the voter has a 65% probability of detecting the better of two candidates and the other voters, on average, have a 60% probability of detecting the better candidate, as a function of the number of voters  $N$  (horizontal axis). If  $N$  is large enough, the influence is much larger in a non-deterministic election using ‘Random Ballot’ than in a deterministic election. Influence (vertical axis) is measured here as the increase in the probability that the better candidate is elected from voting rather than not voting:  $y = \text{Pr}(\text{better candidate wins} \mid \text{voter votes}) - \text{Pr}(\text{better candidate wins} \mid \text{voter abstains})$ .

At the same time, it also seems to imply that voters who are less competent than average should *not* participate in non-deterministic elections from an epistemic democracy point of view. In a sense, their larger direct decision-making power in non-deterministic elections



also increases the risk of worsening the outcome. Still, the counterarguments against a *duty to not* vote that we have presented above still hold in the epistemic democracy case.

Let us finally remark that the epistemic democracy perspective also suffers from other severe challenges that are beyond the scope of this paper [18].

### 2.3. Influence of Voting on the Size of the Winner's Mandate

#### 2.3.1. Deterministic Elections

Another justification for the duty to vote argues against the common assumption that the primary goal of voting is to secure (or at least make more probable) the victory of a particular candidate. Instead, proponents of this viewpoint suggest that voters should aim to maximize the 'mandate' of their favored candidate if they win, or to minimize the mandate of the winning candidate if one's favored candidate loses [19].

While it is acknowledged that an individual's vote is highly unlikely to directly determine the overall winner, proponents assert that it still plays a role in shaping the mandate of the victorious candidate because the number of votes a candidate receives can be seen as a natural proxy for their mandate. This perspective reflects how many individuals approach elections, where a decisive victory is often perceived as more favorable than a narrow one. Conversely, a loss might be viewed positively if it is less severe than anticipated.

Advocates argue that the mandate is crucial because it is commonly believed that an elected official's effectiveness is linked to the size of their mandate. A candidate with a larger share of votes is thought to be more adept at implementing policies and efficiently carrying out their responsibilities. Additionally, even if a candidate loses, a substantial mandate is seen as contributing to their effectiveness as an opposition figure.

However, the main challenge to this argument arises from the skepticism among political scientists regarding the hypothesis that a party's mandate significantly influences its efficiency [20]. The ability of a party to enact policies is not inherently tied to the margin by which it wins [21].

Furthermore, even if one assumes the validity of the mandate hypothesis, an individual's contribution to the mandate is minuscule and virtually imperceptible.

This raises the question of whether voting, with such a negligible impact on the mandate, is a worthwhile endeavor. Is there an ethical duty to engage in an activity that appears to make an almost undetectable difference?

#### 2.3.2. Non-Deterministic Elections

In the case of non-deterministic elections, the basic arguments regarding the mandate size are in principle the same. Although the absolute vote counts may not perfectly determine the winner, these counts still constitute available data that can be readily interpreted as the size of the mandate of the elected candidate. Just like in deterministic elections, increasing the mandate of one's favorite candidate in the possible case that they should win, and decreasing the mandate of other candidates in the possible case that one's favorite does not win, could have an effect, and one could argue whether that effect is positive or negative or negligible.

In deterministic elections, the winning candidate typically automatically has a rather larger mandate than the losing candidates—either by definition (if the used system is Plurality Voting or Approval Voting or something similar) or as a statistical fact (if the system used is a more elaborate one, e.g., a Condorcet-type system based on rankings). In non-deterministic elections, a large mandate is still more likely than a small mandate, but there is a significantly higher chance than in deterministic elections that the winning candidate might have a relatively small mandate. This might then reduce the probability that the outcome of the election will be accepted by the opponents. Therefore, it seems especially important to increase one's favorite's potential mandate if that mandate can be expected to be small. This might be seen as increasing the duty to vote more for supporters of minority candidates than for supporters of majority candidates in order to avoid the

outcome that the winner has a very small mandate, while in deterministic elections, it might seem that supporters of majority candidates have a higher duty to vote than the others.

#### 2.4. Saving Democracy

Anthony Downs presents a final defense of the instrumental value of voting known as the ‘saving democracy’ argument [22]. This line of reasoning emphasizes the importance of living under a stable, democratic government and contends that democracy only functions effectively when a sufficient number of people participate in the electoral process. The argument suggests that failing to vote may undermine and weaken democracy. The underlying notion is that as the voter turnout decreases, the elected candidate(s) may become less responsive to the people and less inclined to prioritize their interests. Therefore, even if an individual’s vote does not directly influence the election outcome, it contributes in a small way to the preservation of democracy and good governance. The argument posits that a high voter turnout is crucial for keeping the government attentive to the needs and desires of the populace. This argument does not depend on whether the system is deterministic or non-deterministic.

However, this ‘saving democracy’ argument encounters a challenge that is similar to the one faced by the mandate argument: the impact of an individual abstaining from voting is negligible, given that one person’s contribution is minuscule. Beyond this issue lies a deeper question: why should we desire a more democratic society in terms of voter participation? The argument assumes that a decrease in the proportion of voters could undermine democracy, but this assumption is not entirely self-evident.

Consider the analogy that one way to enhance democracy could be to hold general elections daily, yet this extreme frequency is not deemed necessary. General elections are commonly held relatively infrequently, once every few years, without detriment to the democratic system. This prompts the question of why the quality of democracy should be directly linked to the proportion of eligible voters who actively participate.

Critics argue that what truly keeps elected candidates honest is not merely citizens voting but the knowledge that citizens possess the right to vote. Even if only a small percentage exercises this right, the potential for increased participation acts as a safeguard for democracy. Therefore, the assumption that a decrease in the proportion of voters automatically weakens democracy faces skepticism. The argument for ‘saving democracy’ through increased voter turnout may encounter challenges in terms of its foundational assumptions and their implications, independently of whether the system is deterministic or non-deterministic.

### 3. Non-Instrumental Reasons to Vote in Non-Deterministic Elections

#### 3.1. Generalization

##### 3.1.1. A Kantian Perspective

The preceding arguments all rely on the instrumental value of voting, but there are also justifications for a duty to vote that do not rely on this. One such justification is called the ‘generalization argument’. The core of this argument lies in contemplating the consequences if nobody voted—democracy would crumble. Therefore, the reasoning goes, individuals should vote because the preservation of democracy is inherently valuable [12].

This perspective could be expounded upon through a Kantian lens. According to Kant, one should not act based on any principle that one cannot will to become a universal law. The principles guiding individual behavior should be ones that one would be comfortable with everyone adopting. Applying this idea to voting, if everyone lived by a principle like ‘vote only if it involves no sacrifice of your own interests,’ there would be no voters and, consequently, no democracy.

However, the generalization argument encounters challenges. Firstly, it appears overly broad. For instance, if nobody worked in farming, we would all starve, and if nobody built homes, we would all be homeless, yet this does not compel everyone to become a farmer or a construction worker. Moreover, the argument’s validity may hinge on the

reasons individuals choose not to vote. If someone abstains from voting due to principled disagreement with all the viable parties, deeming it futile to vote for an assured loss, this reason can be generalized. If the guiding principle is 'do not vote if your political stance is inadequately represented,' democracy would endure without universal participation.

In essence, while the generalization argument underscores the potential collapse of democracy without voting, its broad applicability and sensitivity to individual reasons for abstention raise questions about its effectiveness as a standalone justification for a duty to vote.

### 3.1.2. Free-Riding

Perhaps a better way to think about the generalization argument is from the perspective of free-riding. We generally agree that being a free-rider—benefiting from the efforts of others without contributing—is morally defective. Public goods like roads, funded through taxation, present a clear case where evading these taxes while still enjoying the benefits from the public goods is deemed unethical.

In extending this concept to voting, we could argue that a properly functioning democracy is a public good from which we all benefit. For a democracy to exist, there must be active participation, making voting a crucial component. Abstaining from voting is then akin to free-riding on the provision of this public good, and therefore, it is deemed immoral. If you benefit from a public good such as a democracy, so the argument goes, you should contribute your fair share to its preservation.

There are, however, potential shortcomings in applying this reasoning too broadly. In many instances, it is acceptable to abstain from participating in practices that are considered public goods. Take the example of benefiting from the efforts of farmers without being a farmer oneself. While abstaining from farming, one can still support farmers by buying food from them.

In evaluating whether abstaining from voting is a form of free-riding, one must consider the impact on others. Unlike taxes, where non-payment can incrementally harm others, abstaining from voting may not necessarily burden fellow citizens. In fact, abstention could be argued to reduce electoral competition, potentially benefiting those who do vote by increasing the impact of their votes. Therefore, the free-rider argument may not provide a definitive justification for the duty to vote.

### 3.1.3. A World without Voters

While it is true that the absence of voters would result in the absence of democracy, our typical associations with non-democratic systems are those of authoritarian and repressive regimes. However, this assumption might not align with the scenario in question, where individuals still possess the *right* to vote but just choose not to exercise it. The evaluation of whether such a society would be good or bad hinges on the specific details of the situation. It is conceivable that in a society where everyone refrains from voting, it may signify that things are already favorable for everyone and there is no perceivable risk of any candidate adversely impacting the situation.

Therefore, the intuitive notion behind the generalization argument, suggesting that the absence of voting would lead to the demise of democracy and be inherently negative, becomes less straightforward. The assessment of the desirability of such a scenario is contingent upon the underlying circumstances, challenging the assumption that a lack of voter participation universally implies a negative outcome for society. It seems like the generalization argument does not offer us a standalone justification for a duty to vote. Since nothing in the argument is affected by whether you use a deterministic or non-deterministic system, the generalization argument is equally strong in both cases. As such, it also does not provide a standalone justification for the duty to vote in non-deterministic systems.

### 3.2. Expression

#### 3.2.1. A Duty to Express Yourself?

An additional line of defense for the moral obligations surrounding voting centers on the argument that voting is essentially an expressive act. This aligns with the expressive theory of voting, positing that citizens participate in elections not solely to influence government policies but also as a means of self-expression. Not all our actions aim for positive instrumental outcomes; we often engage in expressive activities to shape our identity, signal values, or align with specific communities or movements.

Consider actions like sending a flower to a hospitalized friend. While this act does not aim to enhance the therapeutic outcomes, it serves as a gesture of support. Analogously, individuals may be morally obligated to express such support as friends; failing to do so might incur blame for not fulfilling the duties of friendship. Think also about sacramental or commemorative activities like observing a two-minute silence on Remembrance Day. As citizens, we are expected to express respect for those who sacrificed their lives for the country.

Applying this notion to democracy, proponents argue that citizens have a responsibility to participate in elections to express support for the democratic process. Democracy, a crucial enterprise benefiting society, was not effortlessly bestowed; rather, it was the result of centuries of struggle. Refusing to vote is seen as expressing indifference, signaling that the democratic process is inconsequential to an individual.

The argument draws parallels with situations where people remind others of the sacrifices made for their rights, such as the common response to non-voters: 'People fought and died for your ability to vote.' Voting, in this context, is like a socially significant ritual, a way to express agreement with the legitimacy of democracy and pay homage to those who fought for it. Failing to vote is likened to neglecting to stand during the two-minute silence on Remembrance Day, portraying a dismissive stance toward a matter of profound societal importance [23].

So, a question arises: do we genuinely have a moral obligation to engage in expressive acts like voting? Consider the analogy with the two-minute silence on Remembrance Day. If, in a public place, everyone is solemnly observing the silence, and an individual decides to disrupt it by screaming and shouting, that would undoubtedly be disrespectful. However, if someone chooses to stay at home and not participate, it seems reasonable; there does not appear to be an inherent duty to partake in the two-minute silence. The obligation is more about refraining from disrupting those who are participating.

Drawing parallels with voting, it becomes less evident why there should be an obligation to participate. Moreover, there is a question about whether individuals truly perceive voting as an expressive act in the sense discussed. Voting is a private and anonymous activity, offering no explicit expression to others. Effective expressions of political allegiances can be achieved through actions like putting up flyers, displaying flags, participating in political debates, or attending political events.

#### 3.2.2. Strategic Voting

The expressive view of voting also faces challenges in explaining the prevalence of strategic voting, where individuals vote for a party they dislike merely to block what they perceive as the worst option. In such cases, individuals compromise their preferences and values, which seems incompatible with the notion that voting is primarily an expressive act.

So, if we accept a duty to express your opinion via voting 'honestly', it becomes interesting how much this duty would interfere with the simultaneous duty to vote in a way that furthers one's interests, which might differ from voting honestly due to strategic effects. Voting systems in which the incentive to vote strategically is lower would then seem preferable to those where it is higher. For example, this is often seen as one reason for preferring the 'Approval Voting' system (where one can vote honestly and strategically at the same time by approving more than one candidate) over the common 'Plurality Voting' system [24].

Some non-deterministic voting systems, e.g., ‘Random Ballot’, incentivize much less strategic voting than typical deterministic systems such as ‘Plurality Voting’, and for them, one might more easily acknowledge a duty to vote honestly. At the other end of the spectrum of systems, some non-deterministic voting systems use ballot designs for which it is not even clear what an honest expression of preferences would look like. The ‘Maximum Partial Consensus’ system, for example, does not ask voters for their opinions or preferences but allows them to make binding commitments to approve candidates under certain conditions [4]. For such systems, one cannot as easily construct a duty to express oneself ‘honestly’ through voting.

#### 4. Conclusions

In this paper, we looked at whether the arguments for a duty to vote in deterministic elections become stronger or weaker for non-deterministic elections. The results are summarized in Table 1.

**Table 1.** Summary of the relationship between the arguments for the duty to vote and the underlying voting system.

| In the Case of Non-Deterministic Elections, the Argument for a Duty to Vote... |                    |                      |                  |                      |                                    |
|--|--------------------|----------------------|------------------|----------------------|------------------------------------|
| Becomes Weaker   | Varies in Strength | Stays Equally Strong | Becomes Stronger |                      |                                    |
|  |                    |                      | ✓                | Prudence             | Stronger instrumentalist arguments |
|  |                    |                      | ✓                | Act-consequentialism |                                    |
|  | ✓                  |                      |                  | Mandate              | Weaker instrumentalist arguments   |
| ✓  |                    |                      |                  | Polluting polls      |                                    |
|  |                    | ✓                    |                  | Saving democracy     | Non-instrumentalist arguments      |
|  |                    | ✓                    |                  | Generalization       |                                    |
|  |                    | ✓                    |                  | Expression           |                                    |

The arguments for prudence and act-consequentialism appear to be strengthened in the context of non-deterministic voting systems. This enhancement can be attributed to the unique nature of non-deterministic systems, which, by introducing elements of randomness and uncertainty, amplify the value of participation as an exercise in promoting one’s interests (prudence) and contributing to the collective welfare (act-consequentialism). For similar reasons, the ‘argument from mandate’ increases for minority candidates, although not majority ones. The more proportional nature of non-deterministic systems magnifies the prospective impact of each vote, thereby reinforcing the instrumentalist rationale for voting as a means to achieve desirable outcomes.

However, the polluting polls argument, which argues for abstention from voting due to the dangers of uninformed voting leading to adverse outcomes, and the saving democracy argument, which underscores the importance of high voter turnout for the preservation of democratic systems, do not strengthen the duty to vote in non-deterministic elections. Still, the arguments themselves appear rather weak.

Non-instrumentalist arguments like the generalization argument, which posits a universal duty to vote to prevent democratic collapse, and the argument form expression, which values voting as an act of self-expression and civic participation irrespective of the outcome, are unsurprisingly not affected by a change from a deterministic to a non-deterministic system.

Given that the duty is mostly strengthened by valid instrumentalist arguments and unaffected by non-instrumentalist arguments, it seems like our duty to vote is stronger in non-deterministic elections than in deterministic ones.

Through continued exploration of these themes, future research can further elucidate the complexities of voting behavior and the evolving nature of democratic participation.



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## Notes

- <sup>1</sup> While this method is often called ‘random dictator’ or ‘lottery voting’ in the literature, we prefer to call it ‘Random Ballot’ to avoid the incorrect connotations of the word ‘dictator’.
- <sup>2</sup> Assume you control  $X\%$  of the votes, want to make sure that option A wins, you do not know how the other  $100-X\%$  will vote, and there are  $K$  many options overall. No matter how you vote, the average rank of A within your  $X\%$  of votes will be at least 1, and there will be some option B other than A that has an average rank of at most  $K/2 + 1$  within your  $X\%$  votes. The other  $100-X\%$  of voters might provide A with a rank of  $K$  and B with a rank of 1, in which case the overall average rank of A will be at least  $X\% \cdot 1 + (100 - X\%) \cdot K = K - X\% \cdot (K - 1)$  and that of B will be at most  $X\% \cdot (K/2 + 1) + (100 - X\%) \cdot 1 = 1 + X\% \cdot K/2$ . So, to guarantee that the latter is larger than the former,  $1 + X\% \cdot K/2 > K - X\% \cdot (K - 1)$ , you need to have  $X\% > (K - 1)/(3K/2 - 1) \approx K/(3K/2) = 2/3$  as claimed.
- <sup>3</sup> In the context of subject-matter decisions, this issue can be addressed by systems such as delegative voting (e.g., Brill 2018), ‘quadratic voting’ (Lalley and Weyl 2018), or ‘perpetual voting’ (Lackner 2020).

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