

# Suggested paper topics

Math 19-01

Spring 2016

You have the option of writing a very short paper for this class (2 pages max!). No paper means that your quizzes are 10% of your final score; if you write the paper, then quizzes are 5% and the paper is the other 5%.

Here are some suggested topics for your paper. If you are already doing other coursework related to voting, then you can write your paper on something of your own choosing; just check with me first to be sure the topic is close enough to our course. As a rule of thumb, your paper should either have mathematical calculations in it or it should directly apply the topics and definitions we have learned in class.

## 1 Can turn in anytime

### 1.1 Arrow, Gibbard, Satterthwaite

Arrow, “[A Difficulty in the Concept of Social Welfare](#)” (1950)

Gibbard, “[Manipulation of voting schemes: A general result](#)” (1973)

Satterthwaite, “[Strategy-proofness and Arrow’s conditions: Existence and correspondence theorems for voting procedures and social welfare functions](#)” (1975)

Examine one of these classic papers and discuss how the original framing differs from Börgers’s description in our textbook.

### 1.2 Probability of ties

We skipped over Chapter 8 of our textbook, which discusses the probability that various election methods will end in a tie. Börgers shows that both the Beatpath method and Smithified Borda method have the following virtue: for a fixed number of candidates  $n$ , as the number of voters  $N$  gets large, the probability of a tie approaches zero. Compute the exact probability of a tied election in each system if there are  $n = 3$  candidates and  $N = 10$  voters.

Let’s call a method *virtually single-winner* if the probability of a tie is less than 1%. Explain why and how the Müller-Satterthwaite and Gibbard-Satterthwaite theorems would fail if the single-winner hypothesis were replaced with virtually single-winner.

## 2 Wait until material is covered

### 2.1 Blum

Edward Blum, “[The Unintended Consequences of Section 5 of the Voting Rights Act](#),” American Enterprise Institute (2007).

This argument, advanced by a right-wing think tank, holds that the Voting Rights Act of 1965, which was intended to protect black voters and ensure racial fairness in elections, actually creates unfair elections (and in particular hurts black voters). Focus on one chapter of the book (Intro, 1, 2, or 3) or on the Appendix, and using the information from class discussion, assess the strength of the argument.

### 2.2 Adams

Ross J. Adams, “[Whose Vote Counts? Minority Vote Dilution and Election Rights](#)” (1989)

Adams writes: “Ideally, there would be no need for the Gingles test. For a race dilution charge to stand, voters must cast their ballots along racial lines. So long as this unfortunate voting behavior persists, the Gingles test is a necessary instrument in the effort to dismantle racial barriers.” What do you think?

### 2.3 Malhotra–Raso

Neil Malhotra and Connor Raso, “[Racial Representation and U.S. Senate Apportionment](#),” Social Science Quarterly (2007).

Congressional representatives are elected in a manner proportional to population, but there are two senators for every state, from California to Wyoming, even though 70 times more people live in California. The authors consider how that intentional malapportionment differentially impacts racial minorities using a formula to create a number they call *RBA*, or racial bias due to apportionment. Examine the assumptions that go into the formula and assess whether you think it is a reasonable measure of bias.

### 2.4 Benford’s Law

Deckert, Myagkov, and Ordeshook, “[Benford’s Law and the Detection of Election Fraud](#)”  
Mebane Jr., “[Comment on ‘Benford’s Law and the Detection of Election Fraud’](#)”

This pair of papers argues both sides of the debate about whether Benford’s law can be used to detect election fraud. Read them both and explain what makes one more persuasive than the other.