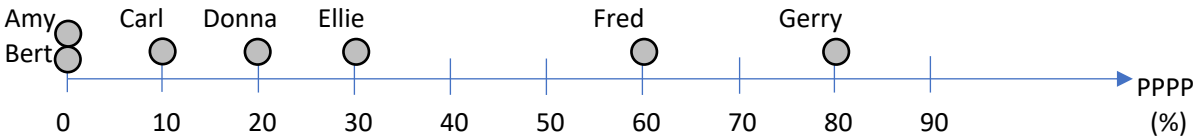
Economics 220, Jan 2022 **Your Name:** Dhyey Dharmendrakumar Mavani
Homework 8

1. Seven friends are planning a party, but disagree over how much pineapple juice should be in the punch – ie., the pineapple punch party policy (PPPP). Their ideal points are as depicted below, and their preferences are such that their utility diminishes equally on both sides of their ideal point (eg., they will be equally happy/unhappy if it is, say, 5% above or below their ideal point).



Is there a Pineapple Punch Party Policy Proposal (PPPPP) that is a Condorcet winner? If so, which is it? If not, why not?

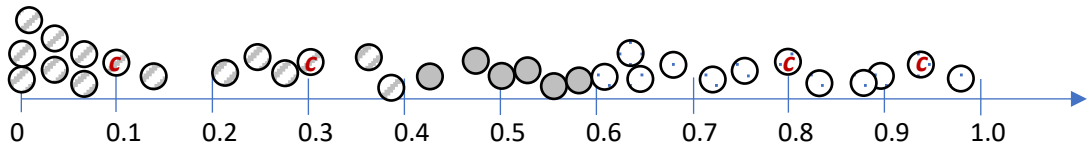
Yes, Donna's proposal is Condorcet winner because she is the median voter. PPPPP of 20% will win the majority vote in this case compared to PPPPP policies of any other percentages be it > or < 20%.

Suppose there is currently no pineapple juice in the punch (ie, the status quo PPP is 0%). Gerry (who loves pineapples, as you can see) has the option to propose a PPPPP and this proposal will be voted on against the status quo; if defeated, the status quo (0%) will remain. Naturally, Gerry wants to use his agenda power to get as close as possible to his preferred PPPP of 80%, but must obtain a majority to do so. Assume that if a voter is indifferent between voting yes or no on Gerry's proposal, they will vote yes. What PPPPP would enable Gerry to maximize his utility, and why?[1]

If $x < 20$, Carl, Donna, Ellie, Fred & Gerry prefer x.
If $x > 20$, 4:3 in favor of x because Carl says no.
Donna's ideal point is 20, so she will prefer any $x < 40$. as it is closer to her ideal point than PPPP = 0.
Therefore the max value of x for majority is $x = 40$. Any higher than 40, and x would be defeated by votes of ABCD.
Donna, the median voter, is therefore again the swing vote

[1] In the terms used by Shepsle, p.127-134, Gerry has agenda power in a closed-rule committee system.

2. An election with a primary: Two parties will first decide their candidates using a majority vote within their party, and then the overall electorate will choose between these two candidates to decide the eventual winner in a general election. The ideal points of all 33 voters are as shown below. The voters with ideal points in the range [0,0.4] are members of the "left" party (so they get to vote in the left primary) and those with ideal points in the range [0.6, 1] are members of the "right" party. The "independents" in between don't vote in primaries. The two primary candidates in each party are identified by a "c" below:



What is the ideal point of the median voter in each party?

Left Party: 0.1
Right Party: 0.77

What is the ideal point of the median voter in the overall electorate?

0.47

Assuming all voters vote honestly in both rounds of the election (ie., they vote for the candidate who is closest to their ideal point), which candidates will win the primaries in each party, and by what margin?

Left: candidate at 0.1 || Right: candidate at 0.8

Which candidate will win the general election, and by what margin?

0.8 − 0.47 = 0.33
0.47 − 0.1 = 0.37 → right side candidate is closer to median voter's ideal point.

Would your answers change if we assume all voters vote strategically in both rounds of the election (ie., they vote for whichever candidate will lead to a winner in the general election who is closest to their ideal point)?

The answers might change. Due to Hotelling-Downs model, we can see a policy convergence towards the overall median. because a candidate close to the median voters requested policy beats everyone. in general election.

3. Consider a two-dimensional policy space with three voters - A, B and C - who have the ideal points shown below, and utility functions such that their indifference curves are circles centered on their ideal points, as shown below

(i) Shade in an area to show the set of points that would represent a Pareto-improvement over policy x.

✓ The area shaded by lines

(ii) Shade in an area to show the set of points that would defeat policy x under majority rule.

✓ Blue shaded region (including the one from (i))

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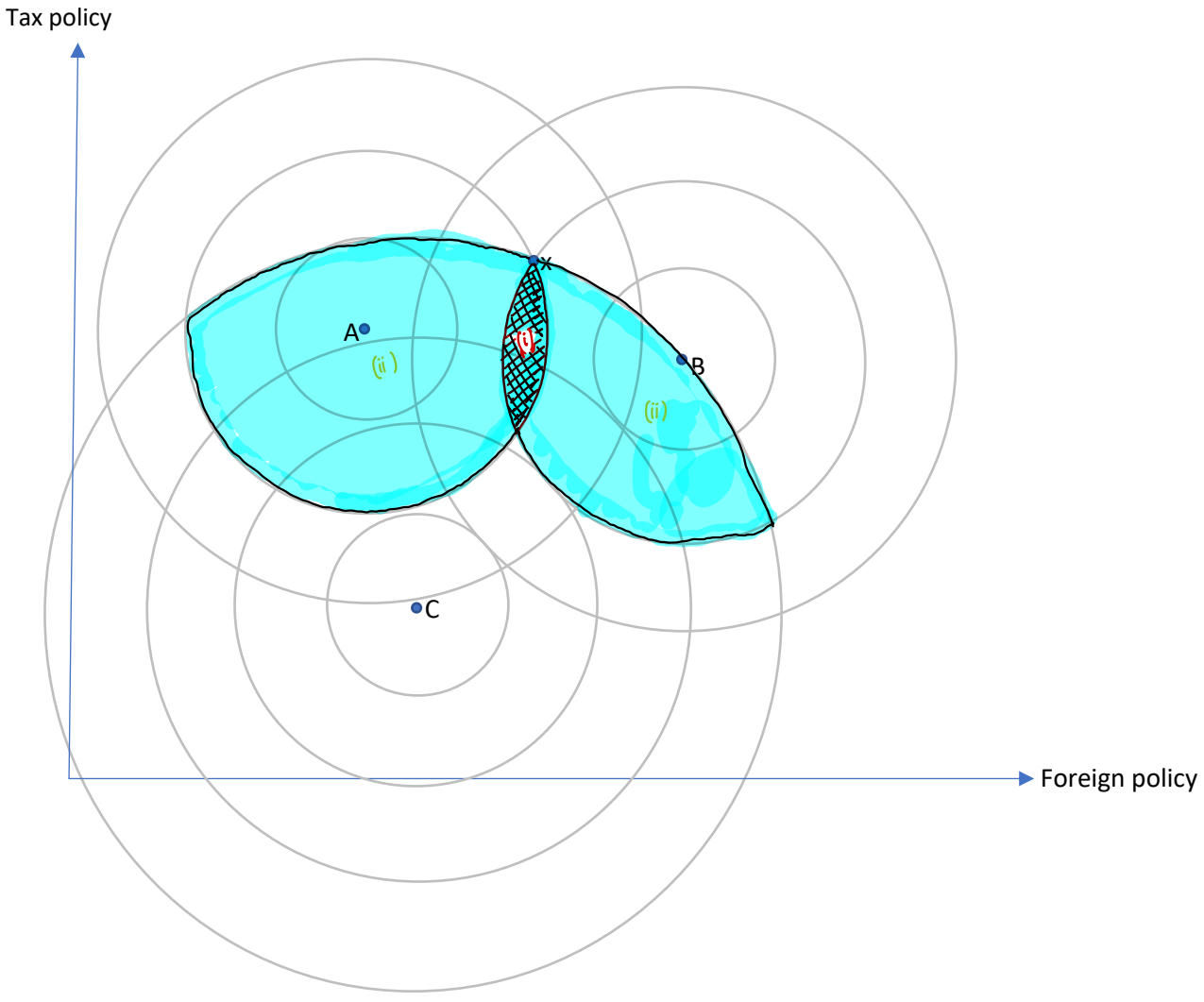

4. Consider a two-dimensional policy space with three voters - A, B and C - who have the ideal points shown below, and utility functions such that their indifference curves are as shown below

Suppose you are voter B. Beginning with status quo point s, with as few steps as possible, design an agenda of proposals, each to be voted on against the current policy, such that you are ultimately able to reach your ideal point B.

Policy X is preferred over S by A&C not B [Thus, majority].
Now, Policy Y is preferred by A and B (not C). Then, Policy B is finally preferred to Y by B and C (not A). From McKelvey's theorem, we can say that we can almost always find such a path