

EconS 503 - Microeconomic Theory II
 Homework #9 - Due date: Wednesday, April 24th, in class.

1. **Exercises from MWG:**

(a) Chapter 21 (social choice theory): Exercises 21.D.5 and 21.D.10.

2. **Strategic voting under majority rule.** Consider the following three group of voters (A , B and C) with their corresponding ranking of preferred candidates (x , y and z). There are 35% of type-A voters, 33% of type-B voters, and 32% of type-C voters.

A	B	C
<u>0.35</u>	<u>0.33</u>	<u>0.32</u>
x	y	z
y	z	x
z	x	y

(a) Show that majority voting yields to a Condorcet cycle if every individual votes for his most preferred candidate.

(b) Show that if some voters in group A vote for their second-best candidate y , rather than their first-best candidate x , they guarantee that their least preferred candidate z does not win. This will prove that majority rule is manipulable, that is, every voter does not necessarily vote for his most preferred alternative. An example suffices.

3. **Three examples of social welfare functionals.** In this exercise, we consider a setting with two alternatives x and y , and the following lexicographic social welfare functional

$$F(\alpha_1, \dots, \alpha_N) \begin{cases} \alpha_1 & \text{if } \alpha_1 \neq 0 \\ \alpha_2 & \text{if } \alpha_1 = 0 \text{ and } \alpha_2 \neq 0 \\ \alpha_3 & \text{if } \alpha_1 = \alpha_2 = 0 \text{ and } \alpha_3 \neq 0 \\ \dots & \dots \end{cases}$$

Intuitively, society selects the alternative that individual 1 strictly prefers. However, if he is indifferent between alternatives x and y , society follows the strict preferences of individual 2 (if he has a strict preference over x or y). If both individuals 1 and 2 are indifferent between x and y , the strict preferences of individual 3 are considered, and so on.

Determine whether or not this functional satisfies the three properties of majority voting (symmetry among agents, neutrality between alternatives, and positive responsiveness).