Microeconomics, Chapter 15 Concept Checks
Spring 2025

1. A narrow bridge connects points A and B, and it takes 10 minutes to cross. When a car is on the bridge, cars traveling in the same direction can enter, while those heading in the opposite direction must wait at the entrance. Consider four self-driving cars: Car1, Car2, and Car3 arrive at point A at 8:00, 8:09, and 8:18, resp., while Car3 arrives at point B at 8:10. Each passenger's utility function is $u(w) = -w$, where w is a waiting time. The social planner considers in what order the cars should cross the bridge.

(a) How would the utilitarian social planner let the cars move?

(b) How would the Rawlsian social planner let the cars move?

(c) Now suppose that their utility function is $u(w) = -w^2$. How would the utilitarian social planner let the cars move?

2. Two survivors, A and B, from a shipwreck arrived at a desert island. They have 10 bananas in total. A and B's utilities are $U_A(a) = \sqrt{a}$ and $U_B(b) = 2\sqrt{a}$, where a and b are bananas assigned to A and B, respectively.

(a) Describe the utility possibility frontier.

(b) The social welfare is given as $SW(U_A, U_B) = \min\{2U_A, U_B\}$. Draw social indifference curves.

(c) Find the socially optimal allocation. Is the socially optimal allocation Pareto efficient?