

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 five self-driving cars: Car1, Car2, Car3, and Car4 arrive at point A at 8:00, 8:09, 8:10, and 8:11, resp., while Car5 arrives at point B at 8:01. 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?