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Problem Set 2: More Static Game Theory

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1. Nash Equilibrium

For each of the normal form games below, find all of the Nash equilibria. Which are Pareto Efficient?

a)

	L	R
U	10,5	11,0
D	5,3	12,5

b)

	L	R
U	3,1	2,9
D	7,-1	1,-3

2. Duopoly

A large number of musicians are making CDs. Let x_i denote the quality of the CD produced by musician i . Suppose that profits are $\pi_i = (x_i - \bar{x}_{-i}) - c(x_i - \gamma \bar{x}_{-i})^2 / 2$, where \bar{x}_{-i} is the average quality of other musicians CDs and $\gamma < 1$. Suppose there are N musicians. What is the Nash equilibrium quality of a CD? How does this change as N increases?

3. The Challenge

Stephen J. Seagull and Clod VandeCamp once again meet in a bar. Now Stephen must decide whether or not to challenge Clod to a duel. If he does not, both get a utility of 0. If Stephen does challenge Clod to a duel, Clod must decide whether to accept the

challenge or leave the bar. If he leaves the bar, he gets a utility of -1 and Stephen gets a utility of 10. If he accepts the challenge, both get a utility of -5. Draw the extensive form of this game. Find the normal form. Find all the Nash equilibria. Find all the subgame perfect equilibria.