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Economics 504: Game Theory Problem Set (#1)

Static Games

For each of the following games find 1) all weak and strict dominant strategy equilibria 2) apply iterated **strict** dominance 3) find all pure and mixed Nash equilibria 4) indicate which Nash equilibria are trembling hand perfect and why

a)

2,1	0,0
0,0	1,2

b)

6,6	0,7
7,0	1,1

c)

3,3	2,2	1,1
2,2	1,1	0,8
1,1	8,0	0,0

d)

1,3	1,3
0,0	2,0

Dominance and Nash Equilibrium

Prove that a profile is a Nash equilibrium of a game if and only if it is the Nash equilibrium of the game in which strategies have been removed by iterated strict dominance. Prove that a Nash equilibrium of a game in which strategies have been removed by iterated weak dominance is a Nash equilibrium of the original game. Give an example of a Nash equilibrium of a game that is not a Nash equilibrium of the game where strategies have been removed by iterated weak dominance.

Correlated Equilibrium

Consider the game

0,0	2,1
1,2	0,0

Show that the correlated strategy profile

$\frac{1}{3}$	$\frac{1}{3}$
$\frac{1}{3}$	0

is in fact a correlated equilibrium