1 The Rules of the Game

Table 2: The Prisoner’s Dilemma

<table>
<thead>
<tr>
<th></th>
<th>Deny</th>
<th>Confess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deny</td>
<td>-1,-1</td>
<td>-10, 0</td>
</tr>
<tr>
<td>Confess</td>
<td>0,-10</td>
<td>-8,-8</td>
</tr>
</tbody>
</table>

Payoffs to: (Row,Column)
Players are the individuals who make decisions. Each player’s goal is to maximize his utility by choice of actions.

An action or move by player $i$, denoted $a_i$, is a choice he can make.

Player $i$’s strategy $s_i$ is a rule that tells him which action to choose at each instant of the game, given his information set.

Player $i$’s strategy set or strategy space $S_i = \{s_i\}$ is the set of strategies available to him.

A strategy profile $s = (s_1, \ldots, s_n)$ is a list consisting of one strategy for each of the $n$ players in the game.
Table 2: The Prisoner’s Dilemma

<table>
<thead>
<tr>
<th></th>
<th>Deny</th>
<th>Confess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deny</td>
<td>-1,1</td>
<td>-10,0</td>
</tr>
<tr>
<td><strong>Row</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confess</td>
<td>0,-10</td>
<td>-8,-8</td>
</tr>
</tbody>
</table>

Payoffs to: *(Row,Column)*

For (1) Simultaneous game, and (2) Sequential game in which Row moves first: what are the

Players
Actions
Strategies
Strategy Sets
Strategy Profiles
By player $i$’s payoff $\pi_i(s_1, \ldots, s_n)$, we mean either:
(1) The utility player $i$ receives after all players and Nature have picked their strategies and the game has been played out; or
(2) The expected utility he receives as a function of the strategies chosen by himself and the other players.

A strategy profile $s = (s_1, \ldots, s_n)$ is a list consisting of one strategy for each of the $n$ players in the game.

An equilibrium $s^* = (s_1^*, \ldots, s_n^*)$ is a strategy profile consisting of a best strategy for each of the $n$ players in the game.

The outcome of the game is a set of interesting elements that the modeller picks from the values of actions, payoffs, and other variables after the game is played out.
Table 2: The Prisoner’s Dilemma

<table>
<thead>
<tr>
<th></th>
<th>Deny</th>
<th>Confess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deny</td>
<td>-1,-1</td>
<td>-10,0</td>
</tr>
<tr>
<td>Confess</td>
<td>0,-10</td>
<td>-8,-8</td>
</tr>
</tbody>
</table>

Payoffs to: (Row, Column)

For (1) Simultaneous game, and (2) Sequential game in which Row moves first: what are Payoffs

Equilibria

Outcomes
Table 8: Ranked Coordination

\[
\begin{array}{c|c}
\text{Jones} & \text{Large} & \text{Small} \\
\hline
\text{Large} & 2,2 & \leftarrow -1, -1 \\
\text{Smith} & \uparrow & \downarrow \\
\text{Small} & -1, -1 & \rightarrow 1,1 \\
\end{array}
\]

Payoffs to: \((\text{Smith, Jones})\). Arrows show how a player can increase his payoff.

Table 9: Dangerous Coordination

\[
\begin{array}{c|c}
\text{Jones} & \text{Large} & \text{Small} \\
\hline
\text{Large} & 2,2 & \leftarrow -1000, -1 \\
\text{Smith} & \uparrow & \downarrow \\
\text{Small} & -1, -1 & \rightarrow 1,1 \\
\end{array}
\]

Payoffs to: \((\text{Smith, Jones})\). Arrows show how a player can increase his payoff.
You win by matching your response to those of as many of the other players as possible.

1 Circle one of the following numbers: 100, 14, 15, 16, 17, 18.

2 Circle one of the following numbers 7, 100, 13, 261, 99, 666.

3 Name Heads or Tails.

4 Name Tails or Heads.

5 You are to split a pie, and get nothing if your proportions add to more than 100 percent.

6 You are to meet somebody in New York City. When? Where?
The Battle of the Sexes

<table>
<thead>
<tr>
<th></th>
<th>Prize Fight</th>
<th>Ballet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Man</strong></td>
<td>↑</td>
<td>↓</td>
</tr>
<tr>
<td><strong>Prize Fight</strong></td>
<td>2,1</td>
<td>← 0, 0</td>
</tr>
<tr>
<td><strong>Ballet</strong></td>
<td>0, 0</td>
<td>→ 1,2</td>
</tr>
</tbody>
</table>

Payoffs to: (Man, Woman). Arrows show how a player can increase his payoff.

If there is time, do the sequential Battle of the Sexes, and maybe do Cheap Talk.