# OR 3: Lecture 2 - Normal Form Games

## Recap

In the [previous lecture](Lecture_1-Introduction.html) we discussed:

* Interactive decision making;
* Normal form games;
* Normal form games and representing information sets.

We did this looking at a game called "the battle of the sexes":



Celine and Bob with Information Set

Can we think of a better way of representing this game?

## Normal form games

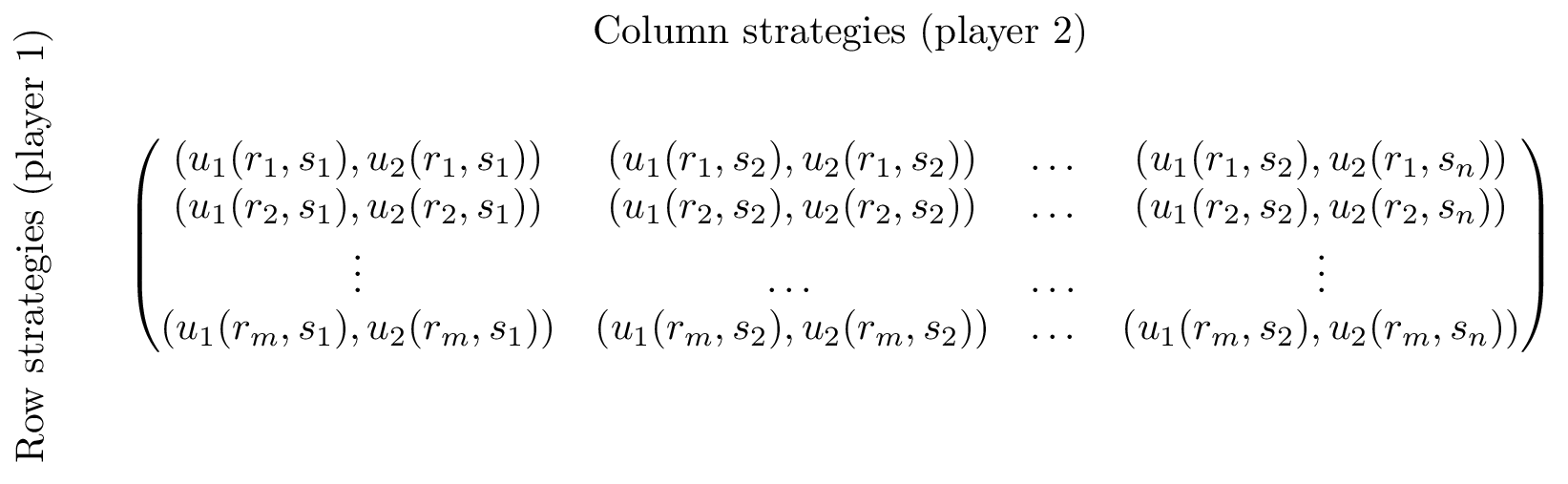
One other representation for a game is called the **normal form**.

### Definition

A player **normal form game** consists of:

1. A finite set of players;
2. Strategy spaces for the players: ;
3. Payoff functions for the players:

A natural way of representing a two player normal form game is using a **bi-matrix**. If we assume that and then the following is a **bi-matrix** representation of the game considered:



A bi matrix

### Some examples

#### The battle of the sexes

This is the game we've been looking at between Bob and Celine:

#### Prisoners' Dilemma

Suppose ...

#### Hawk-Dove/Chicken

Suppose...

#### Coordination

Suppose...

#### Pareto Coordination

Suppose...

#### Pigs

Suppose...