What is a game?

A (strategic form) game is a tuple hN,(Ai)i∈N ,(ui)i∈N i, where

• N = {1, 2, . . . , n} is the set of players (maximizers),

• Ai

is the set of actions of player i,

• A := {a| a = (ai)i∈N , ai ∈ Ai

, ∀i ∈ N} is the set of action

profiles,

• ui

: A → R is the payoff function of player i, i.e.,

(a1, . . . , an) 7→ ui(a1, . . . , an).

Note that the payoff ui

is a profit (to maximize) but can also be a cost

(to minimize).

An equivalent way of writing the action profiles is

(aj )j∈N = (a1, . . . , an) = (ai

, a−i),

where a−i = (aj )j∈N,j6=i

is the action profile of all players except i.