

### 1.4.3 Nash Equilibrium

John Forbes Nash formed probably the most important solving tool for games in his doctoral thesis. Formally called *Nash equilibrium of strategic games with ordinal preferences*. It expands on the ideas that we previously discussed and can be formulated as follows (Osbourne, 2004).

"...for every player  $i$  and every action  $a_i$  of player  $i$ ,  $a^*$  is at least as good according to player  $i$  preferences as the action profile  $(a_i, a_{-i}^*)$  in which player  $i$  chooses  $a_i$  while every other player  $j$  chooses  $a_{-i}^*$ . Equivalently, for every player  $i$ ,  $u_i(a^*) \geq u_i(a_i, a_{-i}^*)$ , for every action  $a_i$  of player  $i$ , where  $u_i$  is a payoff function that represents player  $i$ 's preferences.