

Correlated Equilibrium

Definition

A **correlated equilibrium of a strategic game** $\{N, (A_i), (u_i)\}$ is

- a finite probability space (Ω, π) (Ω is the set of **states** and π is the probability measure on Ω)
- for each player $i \in N$ a partition of \mathcal{P}_i of Ω (player i 's **information partition**)
- for each player $i \in N$ a function $\sigma_i : \Omega \rightarrow A_i$ with $\sigma_i(\omega) = \sigma_i(\omega')$ whenever $\omega \in P_i$ and $\omega' \in P_i$ for some $P_i \in \mathcal{P}_i$ (σ_i is player i 's **strategy**)

such that for every $i \in N$ and every function $\tau_i : \Omega \rightarrow A_i$ for which $\tau_i(\omega) = \tau_i(\omega')$ whenever $\omega \in P_i$ and $\omega' \in P_i$ for some $P_i \in \mathcal{P}_i$

$$\sum_{\omega \in \Omega} \pi(\omega) u_i(\sigma_i(\omega), \sigma_{-i}(\omega)) \geq \sum_{\omega \in \Omega} \pi(\omega) u_i(\tau_i(\omega), \sigma_{-i}(\omega))$$