Week 1

- Nash Equilibrium (NE)

  Best response (BR) : best response of player i given the action of everybody else (a_{-i})

  $a = \langle a_1, ..., a_n \rangle$ is a ("pure strategy") NE iff $\forall i, a_i \in BR(a_{-1})$

- Strictly dominant ($>$ for all)

  Very weakly dominant ($\geq$ for all)

- Pareto Optimality

  When an outcome $o \geq o'$ for all agents, and an agent strictly prefers o to o', then o Pareto-dominates o'.

  Pareto Optimality : an outcome o^* is Pareto-optimal is $\exists$ no outcome that Pareto-dominates it.

  - The NE is the only non-Pareto-optimal outcome.

- Mixed Strategies $\rightarrow$ expected utility

- Thm: every finite game has a NE (mixed strat).

- Iterated removal of strictly dominated strategies

- Correlated Equilibrium : a randomized assignment of (potentiall correlated) action recommendations to agents s.t. nobody wants to deviate, e.g. traffic light.