

**Pyokyeong Son**

**Submitted 4 Sept. 2022**

**We've examined a couple of games with multiple Nash equilibria—Chicken/Swerve and Battle of the Sexes. When there are two or more Nash equilibria, how should the rational player choose the strategy to actually employ?**

In games with multiple NE, one must employ alternative strategies—for example in chicken games, the rational player has no preference between the two NE, possibly requiring using external factors to convince the opponent to accept the advantageous outcome for oneself, or for a morally inclined player reformulate the game into one with a Pareto Equilibrium with dominant strategies to achieve optimum. In certain limited cases—like the Stag Hunt—where one NE rewards more utility to both players than another, pre-game coordination may be required to achieve Pareto optimum (PO)—as explained in the readings—, or one may take the risk to choose the payoff with PO though in some formulations betrayal may cause bigger losses.

Solutions almost always require a reformulation of the game and its incentives, or coordination outside the game, since the strictly defined rational player cannot resolve the dilemma with a given payoff matrix. Implementing such solutions also require incentives to do so, meaning a trusted common entity (or rarely, the opponent) is required. Trust may be a rational act as without it games may not reach PO without it; such common entities are effective in real life as the rational citizen will find payoff for cooperation better than for subverting the system. It may also be that upholding such social constructions—the constitution, credit ratings—by the individual are also self-interested as the preservation of systems are important to make many games played in society reach optimum which in turn benefit the player.

(249 words)