

Chapter 18: Game Theory

best response := the choice that yields the highest payoff GIVEN the other player's action

Nash Equilibrium := the outcome to a game in which everyone best responds

↳ requires correct expectations of others' actions

Prisoner's Dilemma:

Player 1	Player 2	
	A	B
A	GOOD, worst	best, best
B	best, worst	BAD

if we both play A, we are both happy
BUT how do I trust you to also play A?
If you play A, I want to play B
So we both end up playing B

there is incentive to cheat

EX: Player 1

	Player 2	
	A	B
A	(10, 10)	(0, 15)
B	(15, 0)	(5, 5)

NE = B, B ; payoff = (5, 5)

dominant strategy := a strategy that is the BR no matter the other players' action

· if both players have dominant strategies, both playing their dominant strategies will be the NE

· if one player has a dominant strategy, they will play it $\frac{1}{2}$; the other will BR

maximin strategy := a strategy that maximizes the worst possible outcome (equivalent to avoiding worst possible outcome)

Coordination Games:

· neither player has a dominant strategy which leads to multiple equilibria

Player 1	Player 2	
	A	B
A	BEST, bad	WORST
B	WORST	bad, BEST

Anticoordination Games:

· neither player has a dominant strategy which leads to multiple equilibria

Player 1	Player 2	
	A	B
A	WORST	BEST, bad
B	bad, BEST	WORST

· w multiple equilibria, one can be better than the other for everyone

↑ MOST IMPORTANT FOR EXAM

OTHER TOPICS ↓

· ultimatum game

· repeated games

· strategies for repeated games