

Strategic Moves

ECON 420: Game Theory

Spring 2018

Cheap Talk

- ▶ Players may attempt to communicate their intentions before the game begins
- ▶ This adds a new first-stage to the game
- ▶ Communication may be *credible* or *non-credible*

Strategic Moves

- ▶ Any action that changes the rules of the game is a strategic move
 - ▶ Adding stages, changing payoffs, adding/removing choices
- ▶ Examples: Commitments, threats, promises
- ▶ The goal of a strategic move is to alter subsequent stages to the advantage of a player
- ▶ Strategic moves must be *observable* and *irreversible*

Unconditional strategic moves

- ▶ Sometimes useful for players to *commit* to a certain strategy
 - ▶ "Whatever you choose, I am going to do X "
- ▶ Creates a first-mover advantage for the player
- ▶ Example: Extra-credit game (splitting points)

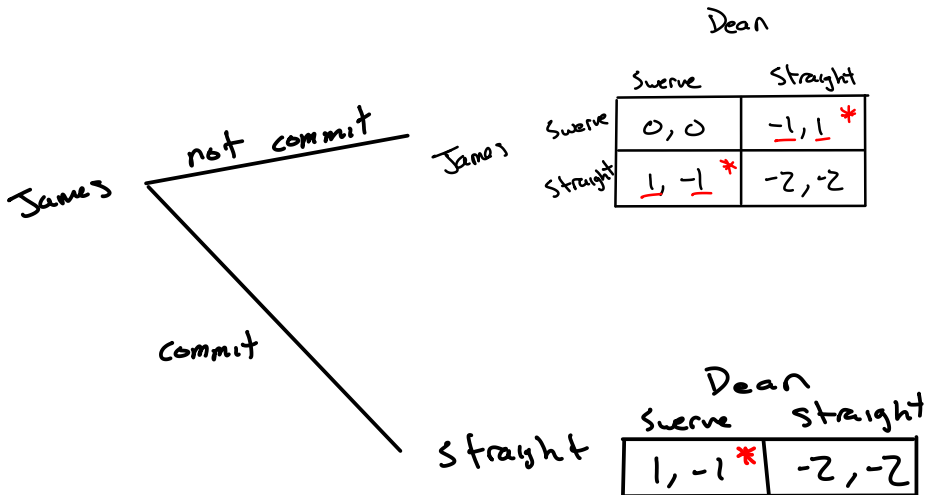
Conditional strategic moves

- ▶ Players may create *response rules*
 - ▶ "If you do X, I'll do Y"
- ▶ Player may be trying to *deter* or *compel* the other player to do something
- ▶ Players may *threaten* certain behavior
 - ▶ "If you do X, I'll do Y which will hurt you"
 - ▶ "No dessert if you don't finish your broccoli"
- ▶ Players may *promise* certain behavior
 - ▶ "If you do X, I'll promise to do Z, which will make you better off"
 - ▶ "Santa will bring you presents if you're good"

Credibility

- ▶ Threats must be costly for the player to carry out
 - ▶ Payoff is lower if the player follows through with a threat
 - ▶ Nobody wants to prevent their child from eating dessert
- ▶ To be credible, all players must remove that the high-payoff options will be removed from the game if the desired action is not taken
- ▶ Example: Doomsday device from Dr. Strangelove

Commitment example: Chicken



Commitment example: Chicken

		Dean	
		Suerve	Straight
James	Suerve	0, 0	<u>-1</u> , <u>1</u> *
	Straight	<u>1</u> , <u>-1</u> *	-2, -2

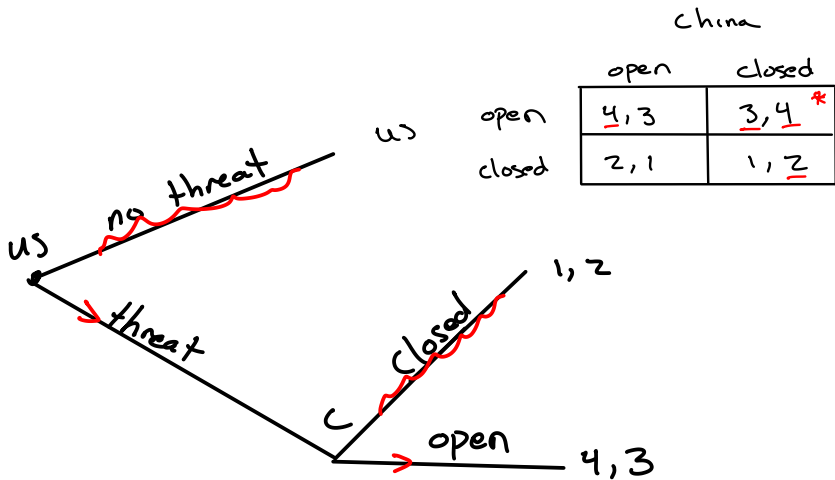
		Dean	
		Suerve	Straight
James	Suerve	-3, 0	-4, <u>1</u>
	Straight	<u>1</u> , <u>-1</u> *	<u>-2</u> , -2

James has a dominant strategy

Commitment

- ▶ The rollback equilibrium is dependent on the credibility of the commitment
- ▶ How can a player credibly commit in the game of chicken?

Threats example: Trade

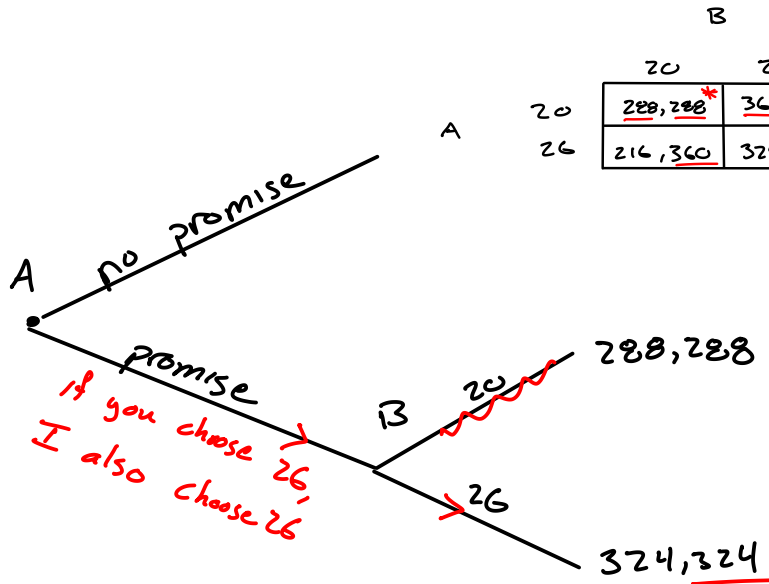


if china closes, then us closes

Dominance and threats

- ▶ China has a dominant strategy in the trade game (closed)
- ▶ But if the US can credibly threaten to close if China closes, then China plays their *dominated* strategy at equilibrium
 - ▶ Game rules have changed, strategies from original game not complete

Promise example: Restaurant pricing



	B	
	20	26
20	<u>288</u> , <u>288</u> *	<u>360</u> , 216
26	216, <u>360</u>	324, 324

Credibility

- ▶ Strategic moves are *observable* and *irreversible*
- ▶ But in all situations, the first-mover has an incentive to change their minds in the second stage
- ▶ Credibility requires reputation, or some commitment device

Promises and Threats

		China	
		Action	Inaction
US	A	3, 3	<u>2</u> , <u>4</u> *
	I	<u>4</u> , 1	1, <u>2</u>

US threat: Inaction if Inaction
→ implied promise isn't credible

US must threaten and promise