ECO 199 – GAMES OF STRATEGY
Spring Term 2004 – March 30
STRATEGIC MOVES – CONCEPTS AND MECHANISMS

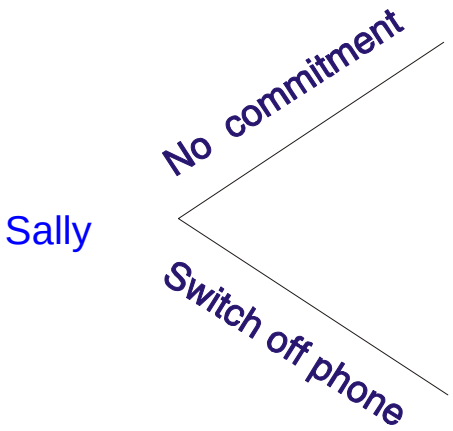
GENERAL IDEA

Suppose original game has a non-equilibrium situation
that is better for you than the equilibrium
(or expected selection from multiple equilibria)
Convert the game into a two-stage game such that
your action at the first stage changes the equilibrium
of the second stage (now subgame)
Types of moves -

1. Unconditional - commitment - fixes your second-stage action
2. Conditional - threat and promise
   Makes you second-mover at the second stage and
   fixes your response rule to the first-mover's action

COMMITMENT

1. Restrict one's own freedom of future action



		Sally	
		BHD	ABM
Harry	BHD	2 , 1	0 , 0
	ABM	0 , 0	1 , 2

		Sally
		ABM
Harry	BHD	0 , 0
	ABM	1 , 2

Commitment effectively changes the game
to seize first-mover advantage (if such exists)
Your commitment (first move) must be observable and irreversible

Don't have to draw two-stage tree explicitly;
can construct the logic of it using second stage alone

2. Change one's own payoffs

		Sally	
		BHD	ABM
Harry	BHD	2 , -1	0 , 0
	ABM	0 , 0	1 , 2

COMMITMENT TO DOMINATED STRATEGY

		U.S.A.	
		Restrained	Aggressive
Soviet Union	Restrained	3 , 4	1 , 3
	Aggressive	4 , 1	2 , 2

If no commitment, dominance solvable, outcome (2, 2)

If USSR commits to R, US responds R, outcome (3, 4)
Commitment in USSR's own interest
Difficulty – they may not believe US payoffs are as depicted

POSSIBLE FAILURE OF COMMITMENT STRATEGY

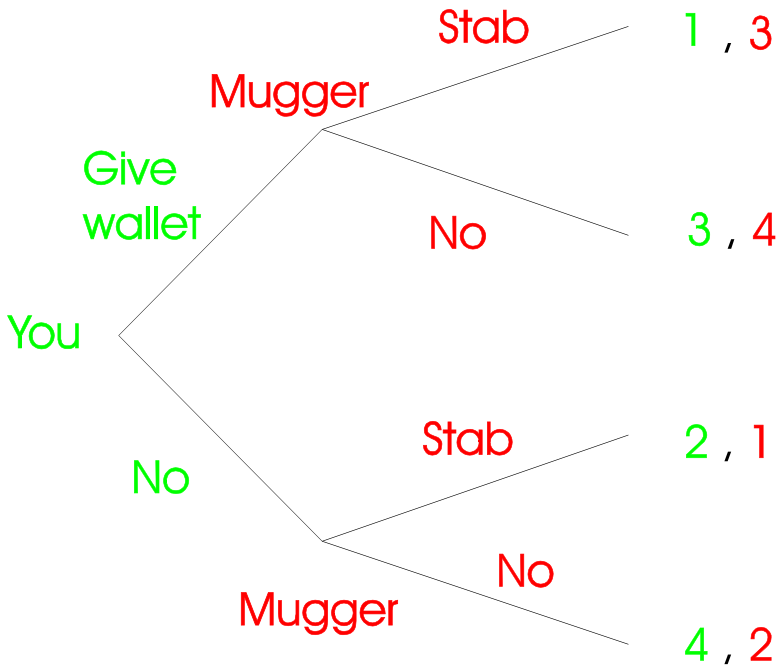
1. Communication – other does not see your commitment
2. Credibility – other does not believe your action irreversible
or your payoffs correct
3. Simultaneous and conflicting commitment actions

THREATS AND PROMISES

You must have the second move in the actual game to follow
Create a pre-game where you have the first move, and
there commit yourself to a “response rule” (strategy)
for your second move in the actual game
Issues – Availability of such prior action
Credibility of the “conditional commitment” made there

THREAT

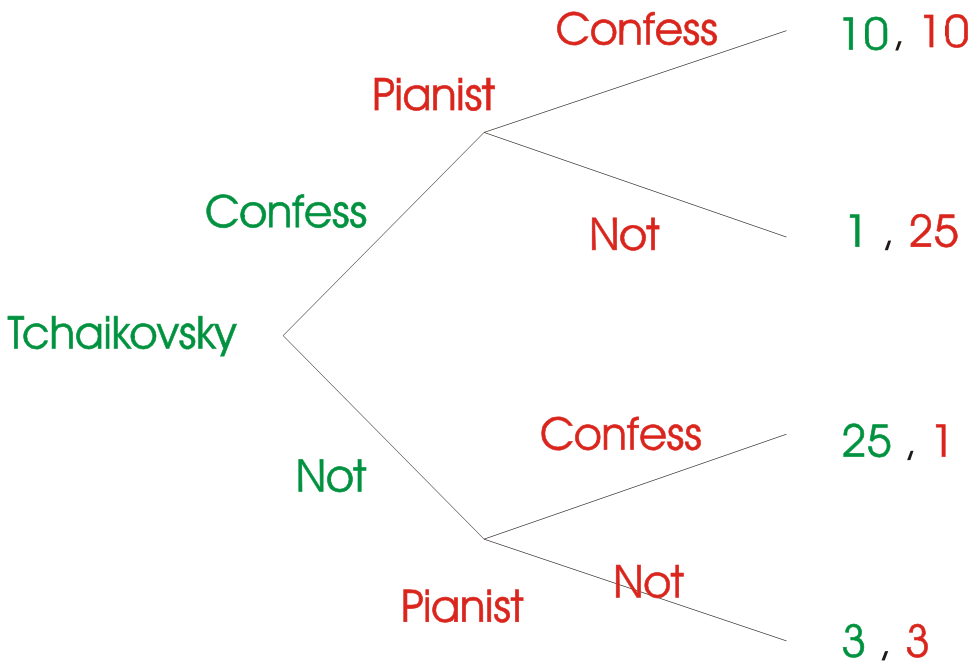
Mugger - “If you don’t give me your money, I will stab you”



Not optimal to carry out if actually put to the test
Threatened action is costly to threat-maker
So credibility problematic; must be acquired by some
other device like reputation, irrationality
Implicit promise – “If you do give me your money, I will not stab you”
automatically credible given these payoffs

PROMISE

Prisoner's dilemma with sequential moves
Rollback equilibrium is still Confess, Confess
Pianist's promise "If you don't confess, I won't either"



Not optimal to carry out if actually put to the test
    Making good on promise is costly to promisor
So credibility problematic; must be acquired by some
    other device like reputation, escrow account
Implicit threat – "If you confess, so will I" is automatically credible

General feature of threats and promises –
    Ex post fulfillment not in your interest
    So need some other prior action to achieve credibility
    How to do so is often a matter of art

COMBINATION OF THREAT AND PROMISE

One view of game in Congress on President Bush's first budget

		Republicans	
		Hardline	Flexible
Democrats	Flexible	Cell (a) 2 4	Cell (b) 3 3
	Hardline	Cell (c) 1 2	Cell (d) 4 1

(a) Best start for Bush, Democrats get credit for bipartisanship
(b) Compromise; everyone in Congress looks statesmanlike
(c) Bush's program blocked; Democrats some blame for gridlock
(d) Bad start for Bush; Democrats look fiscally responsible

Game is dominance solvable; outcome (a), payoffs (2 , 4)
Can Democrats do better?

Commitment – makes no difference, because
Republicans have dominant strategy and second move
Threat – "If you choose Hardline, so will we"
But implied promise not credible
Promise – "If you choose Compromise, so will we"
But implied threat not credible

So need to make both Threat and Promise explicitly
And make both credible using
repeated interaction or some other device