RIGHT STRATEGY, WRONG GAME

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Common Games

Prisoner's Dilemma

	Cooperate	Defect
Cooperate	3\3	1\4
Defect	4\1	2\2

Chicken

	Swerve	Persevere
Swerve	3\3	2\4
Persevere	4\2	1\1

Common Games

Prisoner's Dilemma

	Cooperate		Defect
Cooperate	3\3	→	1\4
	↓		↓
Defect	4\1	→	2\2

Chicken

	Swerve		Persevere
Swerve	3\3	→	2\4
	↓		↑
Persevere	4\2	←	1\1

Yom Kippur War

Soviet Perception of Preferences

	U.S.S.R. Diplomacy		U.S.S.R. Military Aid
U.S. Restraint	3\3	→	2\4
	↓		↑
U.S. Intervention	4\1	→	1\2

Nixon places military on worldwide alert to portray

	U.S.S.R. Diplomacy		U.S.S.R. Military Aid
U.S. Restraint	3\3	→	1\4
	↓		↓
U.S. Intervention	4\1	→	2\2

The Cold War

Is it a Prisoner's Dilemma…

	U.S.S.R. Negotiate		U.S.S.R. Attack
U.S. Negotiate	3\3	→	1\4
	↓		↓
U.S. Attack	4\1	→	2\2

or a game of Chicken?

	U.S.S.R. Negotiate		U.S.S.R. Attack
U.S. Negotiate	3\3	→	2\4
	↓		↑
U.S. Attack	4\2	←	1\1

The Cold War

Our perception of the game.

	U.S.S.R. Negotiate		U.S.S.R. Attack
U.S. Negotiate	4\3	→	2\4
	↑		↑
U.S. Attack	3\2	←	1\1

Real preferences and bluffs.

	U.S.S.R. Negotiate		U.S.S.R. Attack
U.S. Negotiate	4\4	→	2\3
	↓		↑
U.S. Attack	3\2	←	1\1
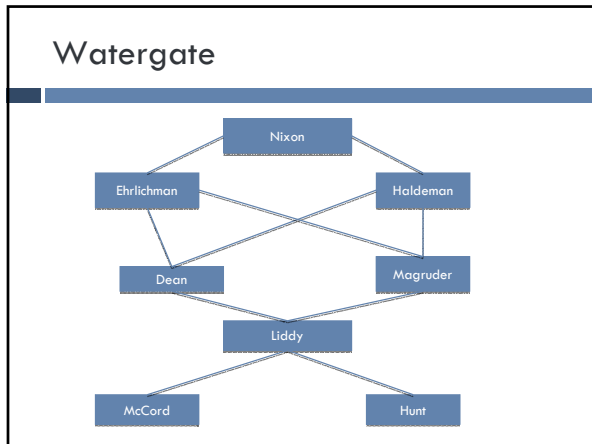
Watergate

Watergate

Dean & Magruder

	Magruder Silent		Magruder Talk
Dean Silent	4\4	←	1\3
	↑		↓
Dean Talk	3\1	→	2\2

Watergate

Dean & Liddy

	Liddy Silent		Liddy Talk
Dean Silent	(e\e)	→	1\4
	↓		↓
Dean Talk	(4\1)	→	e\e

Dean & Magruder (given talking Liddy)

	Magruder Silent		Magruder Talk
Dean Silent	3\3	→	1\4
	↓		↓
Dean Talk	4\1	→	2\2

Iran Hostage

Carter & Khomeni (as perceived by Carter)

	Khomeni Negotiate		Khomeni Obstruct
Carter Negotiate	4\3	→	2\4
	↑		↓
Carter Intervene	3\2	←	1\1

Carter & Khomeni (actual)

	Khomeni Negotiate		Khomeni Obstruct
Carter Negotiate	4\2	→	2\4
	↑		↑
Carter Intervene	3\1	→	1\3

Limitations of Mathematics

- Environmental impact statements…
  can tell you how much money can be made for each salamander killed, but cannot tell you if it is worth it.
- Voting Theory…
  can tell you which paradoxes may arise under which voting methods, but cannot tell you which method is most representative.
- Apportionment Theory…
  can tell you which paradoxes may arise under which apportionment methods, but cannot tell you which method is most fair.
- Game Theory…
  can provide you with the optimal strategy for a known game against a rational opponent, but cannot tell you which game you are playing.

What to do…

- Students need to be aware of both the power of mathematics in order to use it when appropriate
- But they must also be aware of the limitations of mathematics, so that others cannot use it inappropriately.