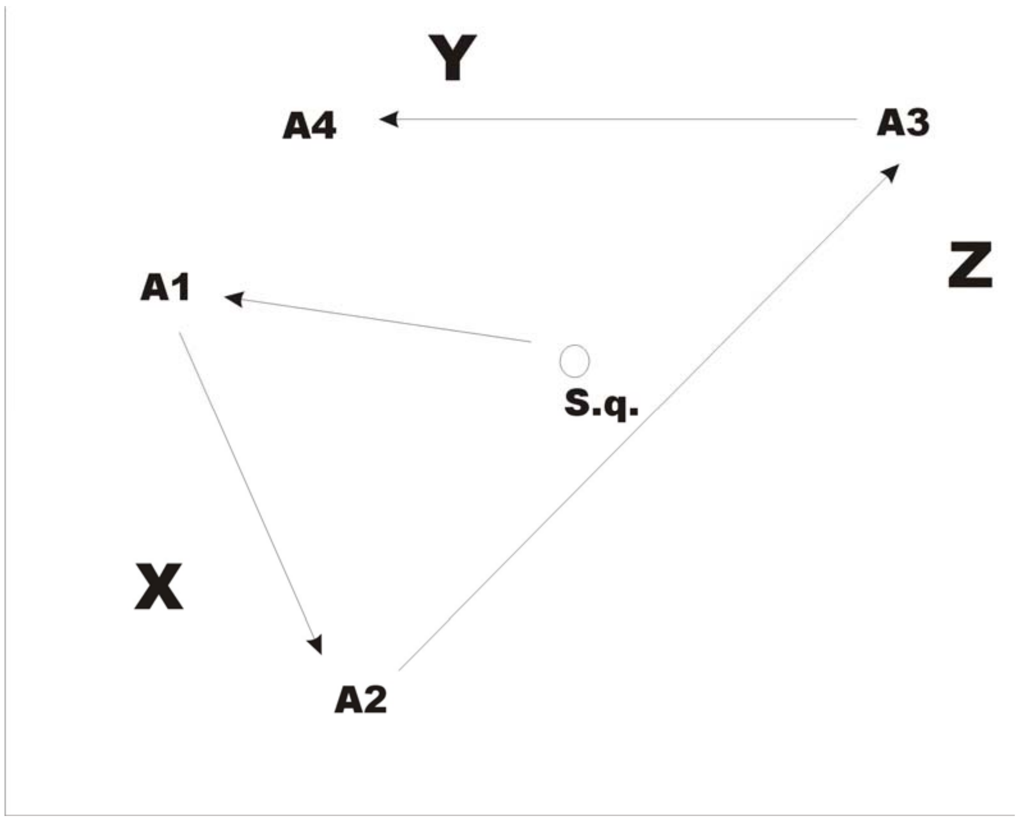
Multiple Dimensions

The Median Voter Theorem helps us make sense with the unidimensional spatial model—that is, when politics can be arrayed on a line.

What about multiple dimensions?

In the general case, there is NO ANALOG TO THE M.V.T.



Consider this example:

Two dimensions and three voters, X, Y, and Z.
The status quo is "s.q."

Suppose X proposes A1? Under majority rule, what is the outcome (A1 or sq?)

Suppose Z proposes A2? What is the outcome?
Suppose Y proposes A3? What is the outcome?
Suppose X proposes A4? What is the outcome?

McKelvey's Chaos Theorem

We can keep going and going and going with this example.

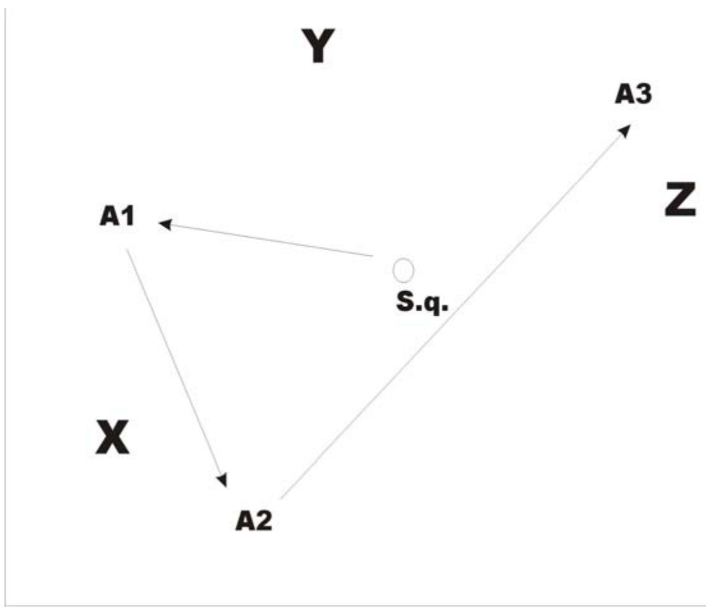
What is the overriding lesson? THERE IS NO STABLE EQUILIBRIUM HERE.

McKelvey's Chaos Theorem (proposed 1976):

(Named for extremely influential social scientist Richard McKelvey)

In multidimensional settings (except in extremely restrictive and unrealistic situations) there will be no majority rule empty-winset point. ***Instead there will be chaos—no Condorcet winner, anything can happen, and whoever controls the order of voting can determine the final outcome.***

The voting system is completely cycling. In two dimensions, equilibrium—a stable outcome—is achieved only through agenda setting, or clever manipulation of voting and amending.



Suppose three amendments are proposed: A1, A2, A3 and Z is the agenda setter. What should Z do? (A1 then A2 then A3).

Are Politicians Sheep?

From previous examples, it sounds like “YES”.

The correct answer is probably “NO.” (most of the time!)

Distinguish SOPHISTICATED VOTING from SINCERE VOTING.

What’s the main difference?

Politics often prompts STRATEGIC BEHAVIOR.

WHY??

AGENDAS/VOTING SCHEMES can be manipulated!

Gibbard-Satterthwaite Theorem: Suppose there is a group with at least 3 members considering at least 3 alternatives. Any member of the group may have any preference ordering over the 3 alternatives (universial domain). ***Every nondictatorial social choice procedure is manipulable for some distribution of preferences.***

Importance: this theorem gives us strong reason to suspect STRATEGIC BEHAVIOR and SOPHISTICATED VOTING.

THE FAMOUS STORY OF THE POWELL AMENDMENT

1956: Federal aid to public schools.

Status quo: No appreciable federal aid to schools.

Majority Party in House: Democrats.

What were their preferences? Increase aid.

Proposal *B*: School Construction Aid Bill

Amendment *A*: Adam Clayton Powell (D-NY): Deny federal funds to any state that fails to comply with decisions of the Supreme Court (i.e. racial segregation the main issue here).

"True Preferences"

Northern Democrats?
Southern Democrats?
Republicans?

Rules of House require a vote on *A*, the Powell Amendment then a Vote on *B*, the bill:

		Final Bill		
		Yea	Nay	
	Yea	132	97	229
Powell	Nay	67	130	197
		199	227	426

Sophisticated Voting

What's going on?

		Final Bill: Yea	Final Bill: Nay	
Powell	Yea	132	97	229
	Nay	67	130	197
		199	227	426

Who are the sincere voters?

Who are the strategic voters?

Illustrates an important point: sophistication is sometimes necessary to extract an outcome.

G-S Theorem teaches us to expect this!