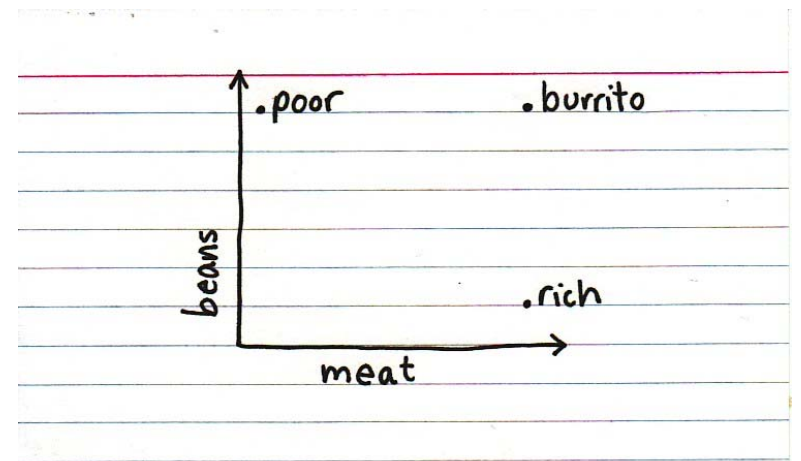


# Spatial Theory in 2-space

17.251

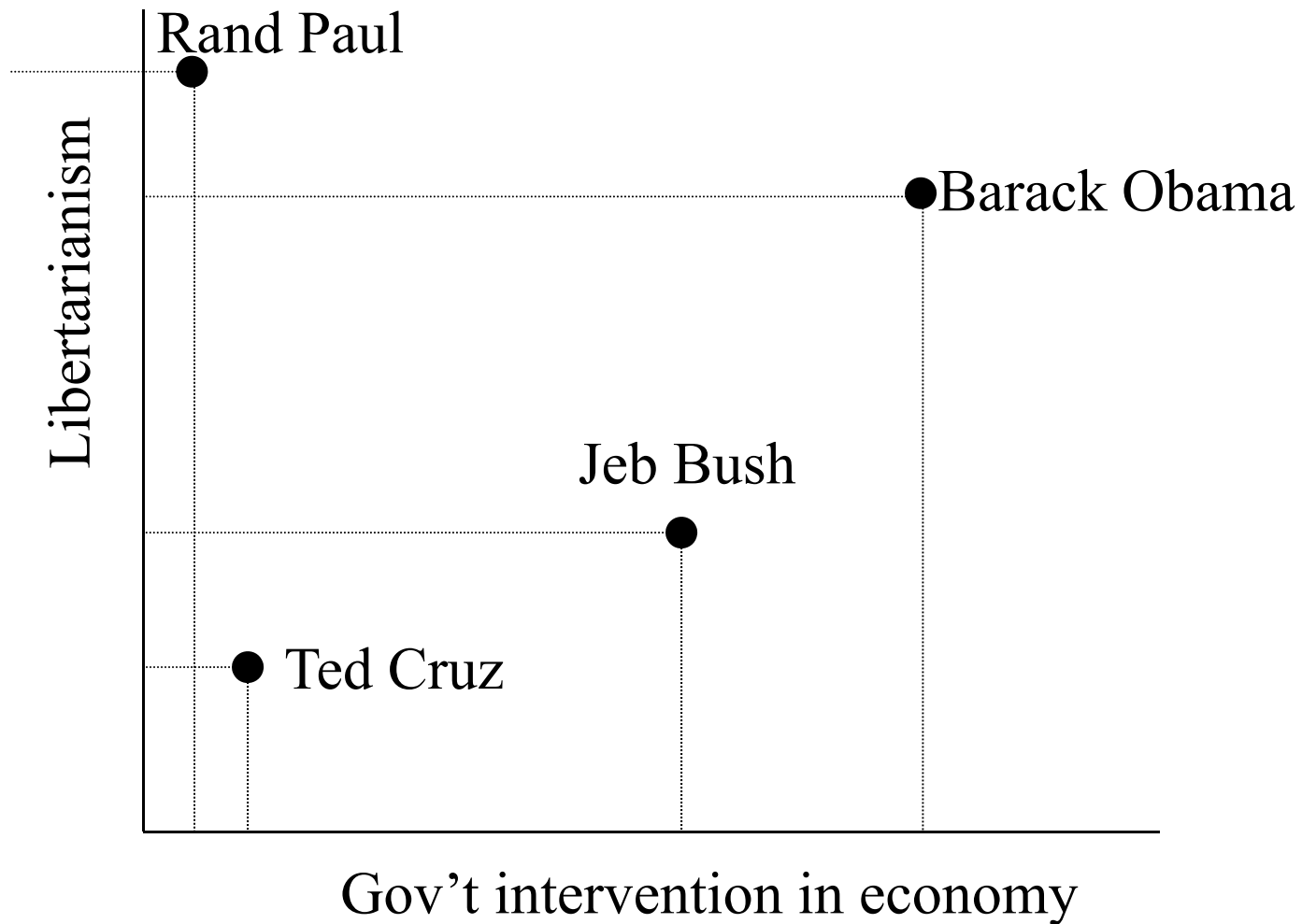
Fall 2016



# Throat-clearing

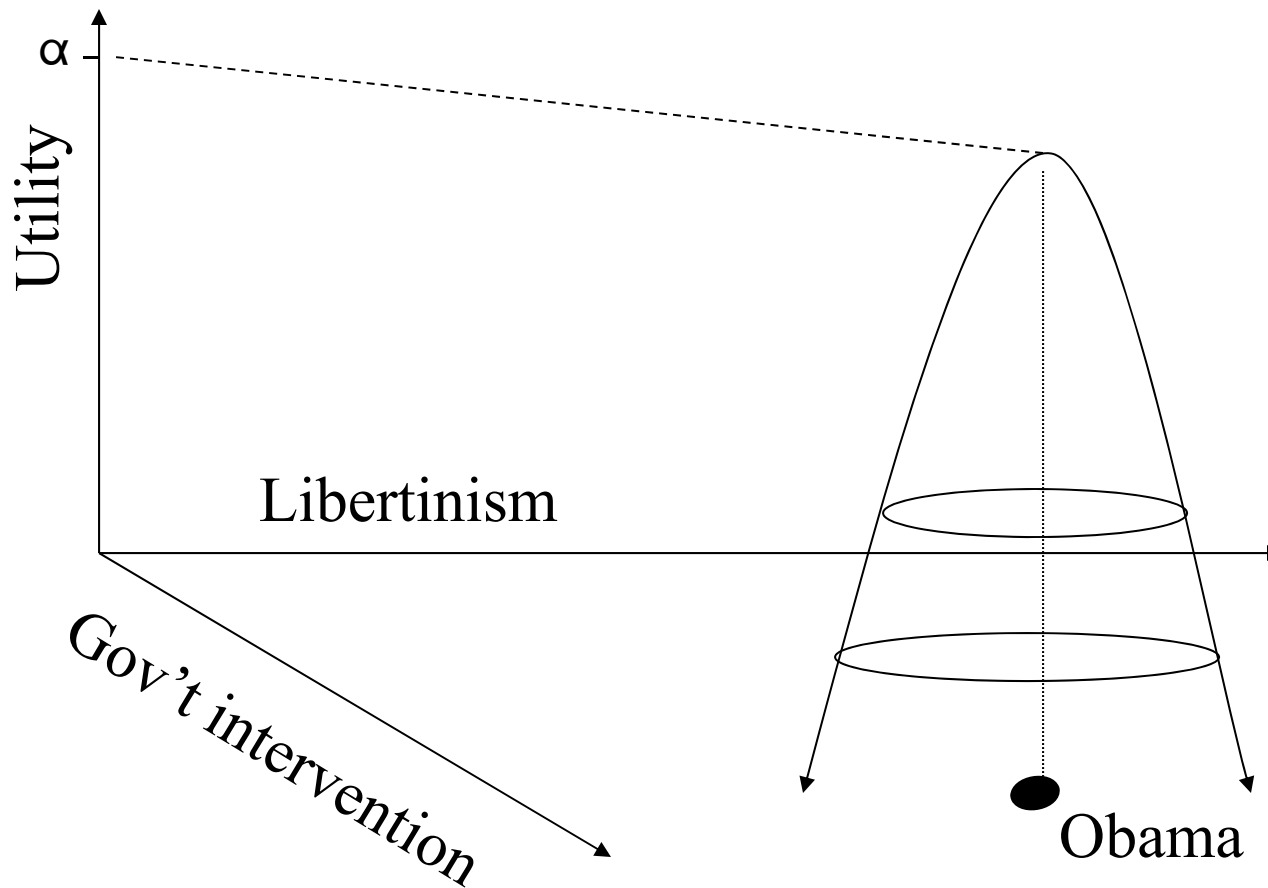
- Fundamental finding of unidimensional spatial model
  - Pure majority rule: the median prevails
  - More generally: the pivot prevails
- Fundamental finding of multidimensional spatial model
  - The center doesn't hold
  - Preferences can't induce equilibria
  - $\therefore$  institutions (or something else) must enter to provide stability

# Basic set-up: Ideal points



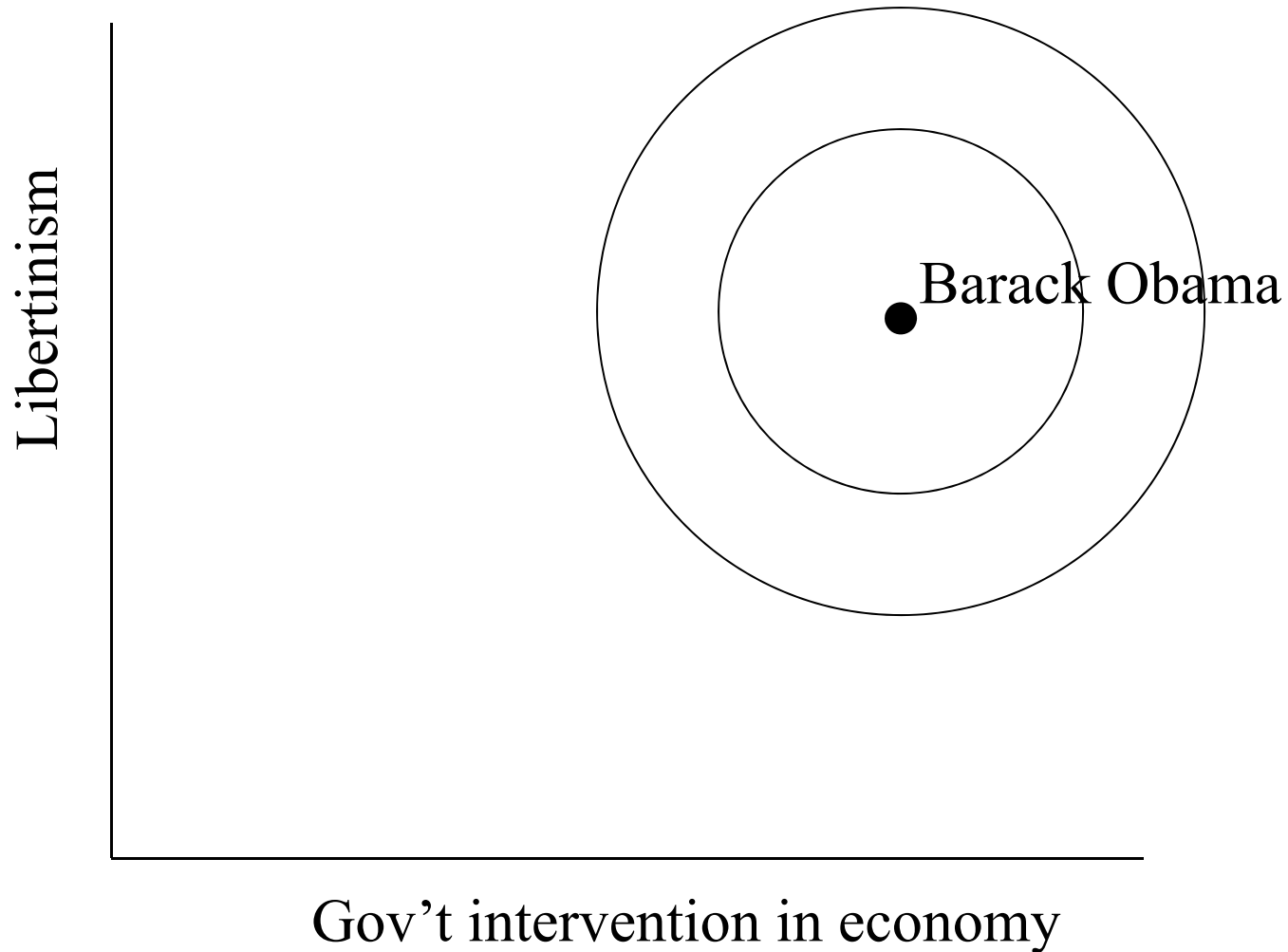
# Basic set-up: Utility curves

$$U_{Obama} = \alpha - \beta(x_{Obama} - x)^2 - \gamma(y_{Obama} - y)^2 \pm \delta(x_{Obama} - x)(y_{Obama} - y)$$



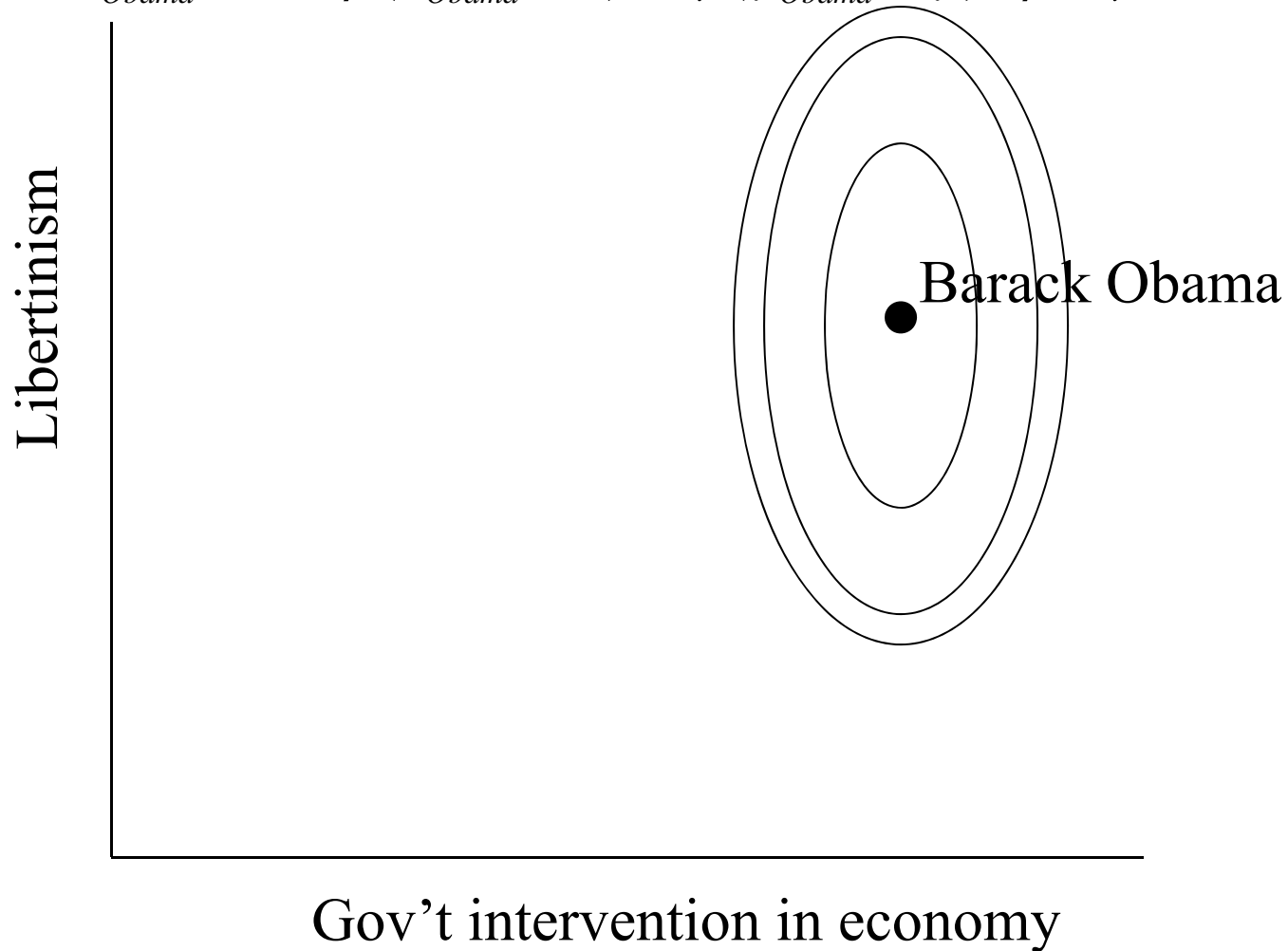
# Basic set-up: Indifference curves

$$U_{Obama} = \alpha - (x_{Obama} - x)^2 - (y_{Obama} - y)^2$$



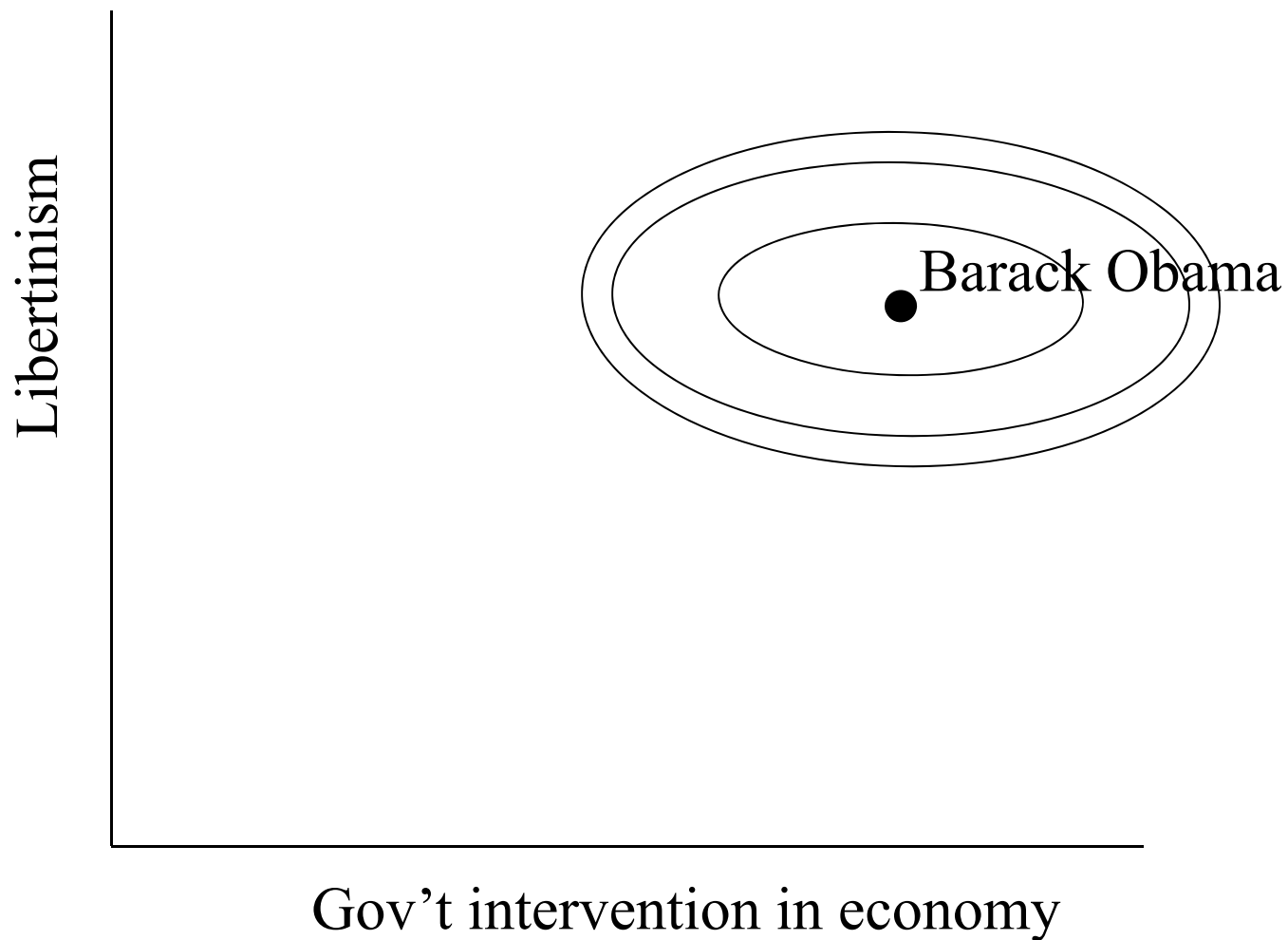
# Basic set-up: Indifference curves

$$U_{Obama} = \alpha - \beta(x_{Obama} - x)^2 - \gamma(y_{Obama} - y)^2, \beta > \gamma$$

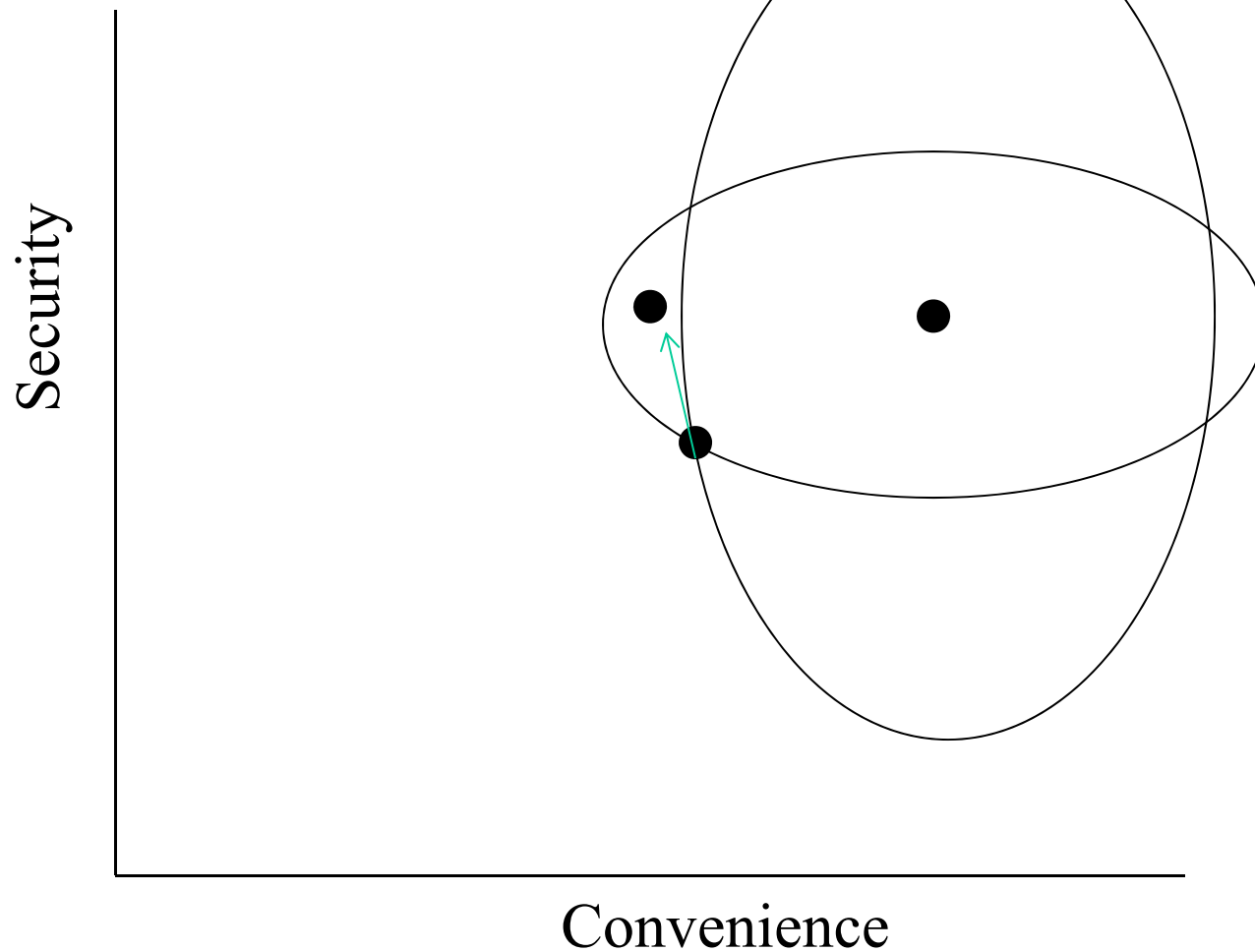


# Basic set-up: Indifference curves

$$U_{Obama} = \alpha - \beta(x_{Obama} - x)^2 - \gamma(y_{Obama} - y)^2, \beta < \gamma$$



# Why this makes a difference: Voter ID (the Wall?)





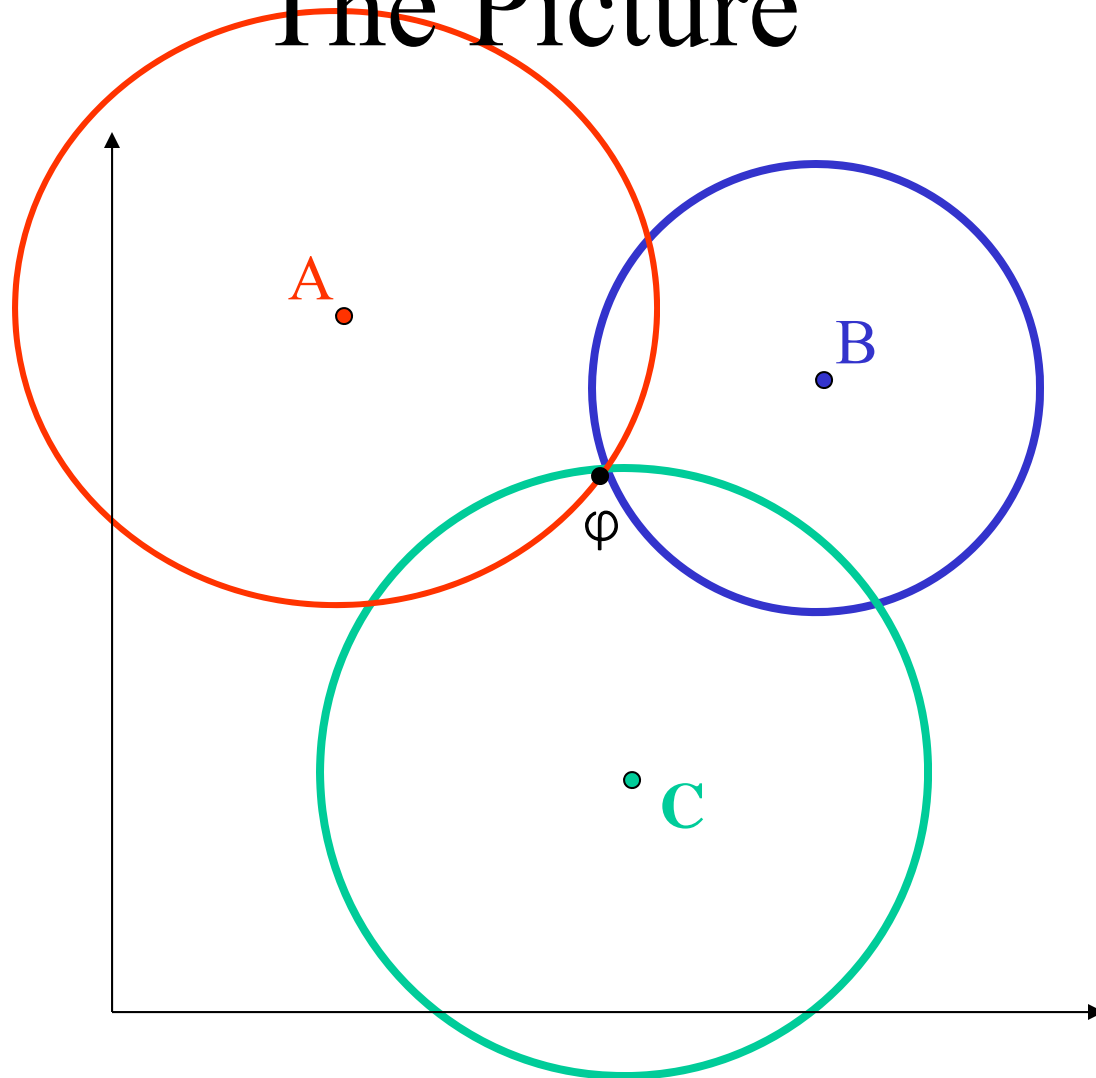
# The Simple Euclidean System: The Equation

$$U_i = a - (x_i - x)^2 - (y_i - y)^2$$

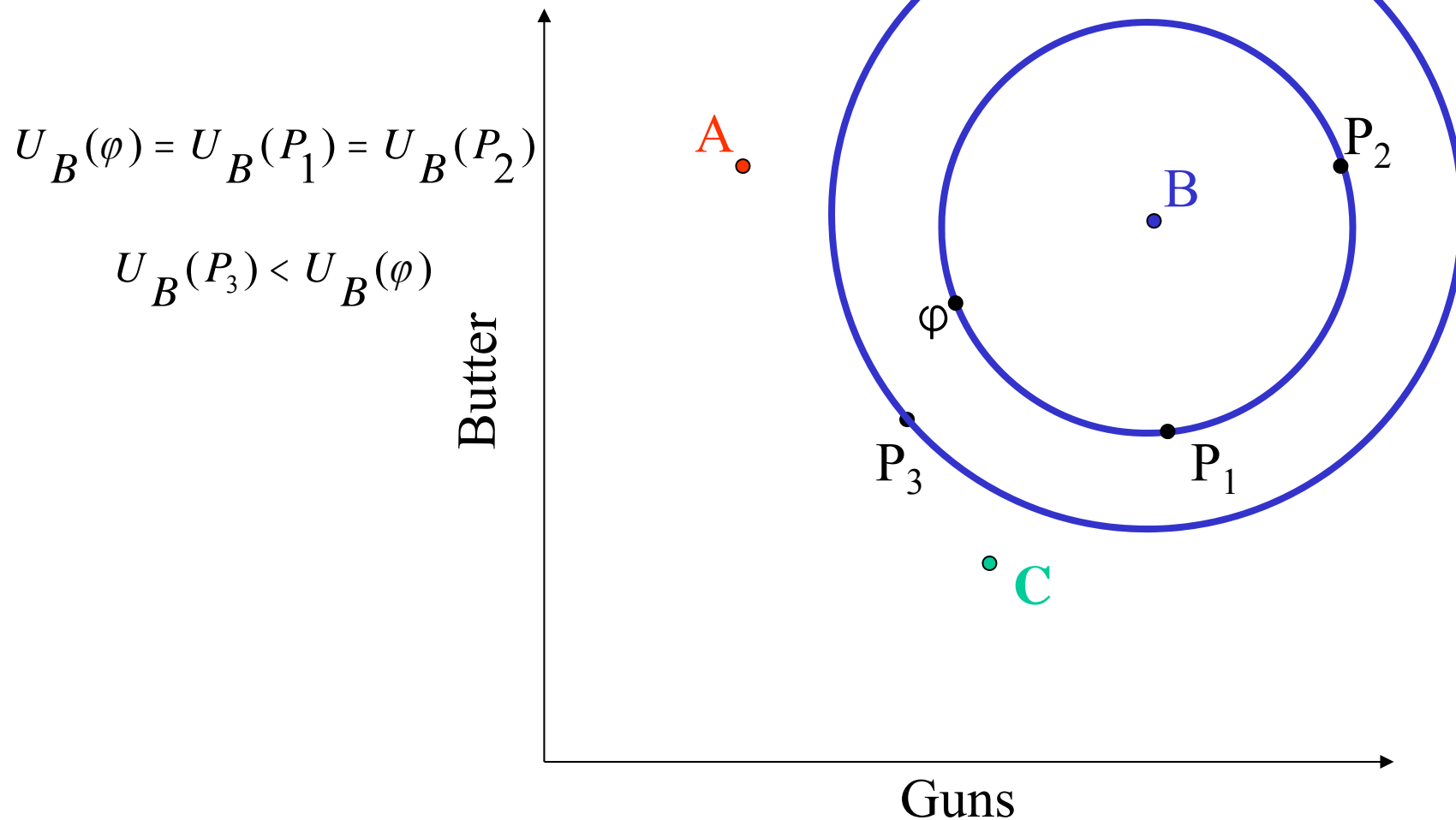
$$U_i = -(x_i - x)^2 - (y_i - y)^2$$

# The Simple Euclidean System: The Picture

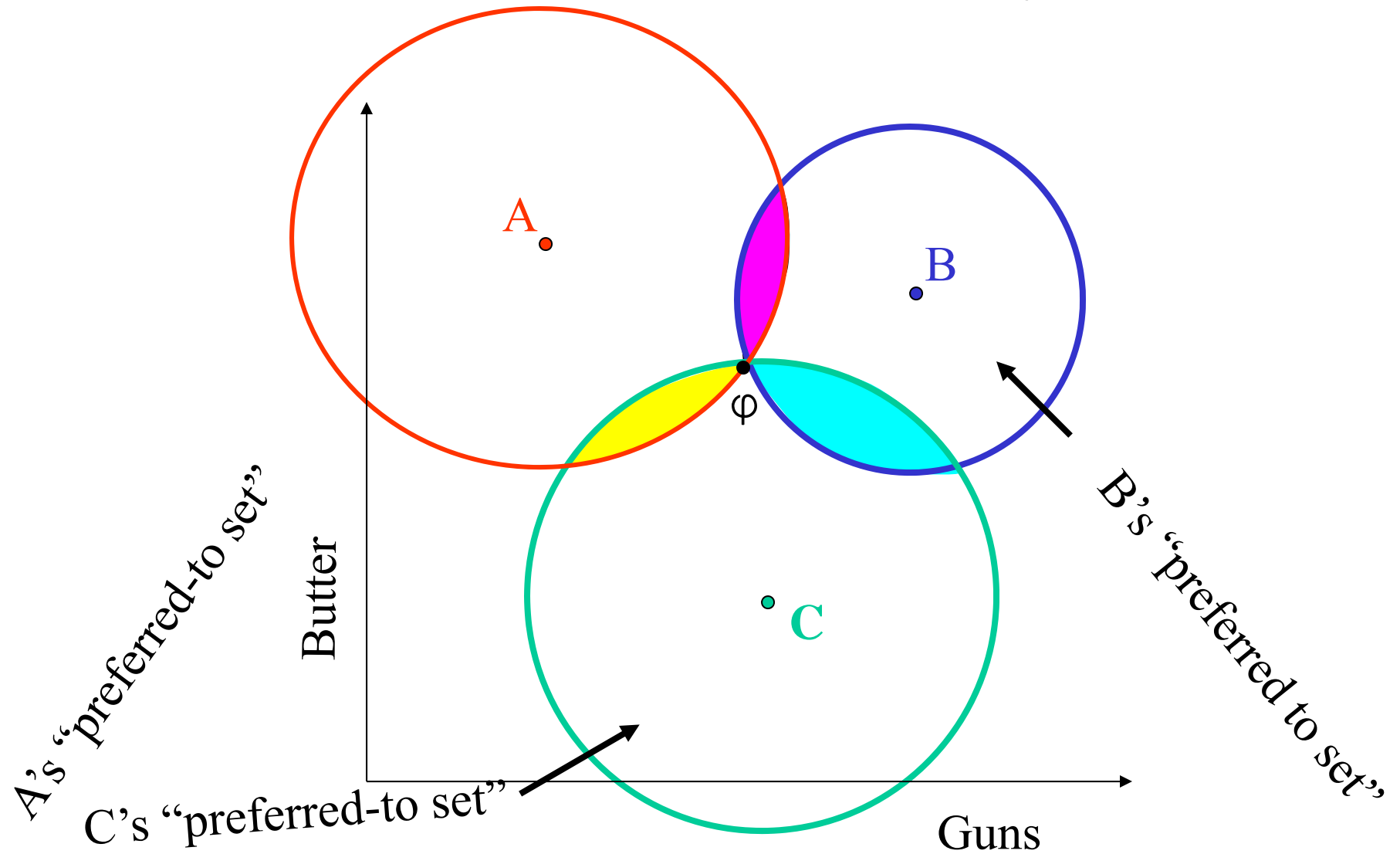
Ideal points  
Status quo  
Indifference  
curves



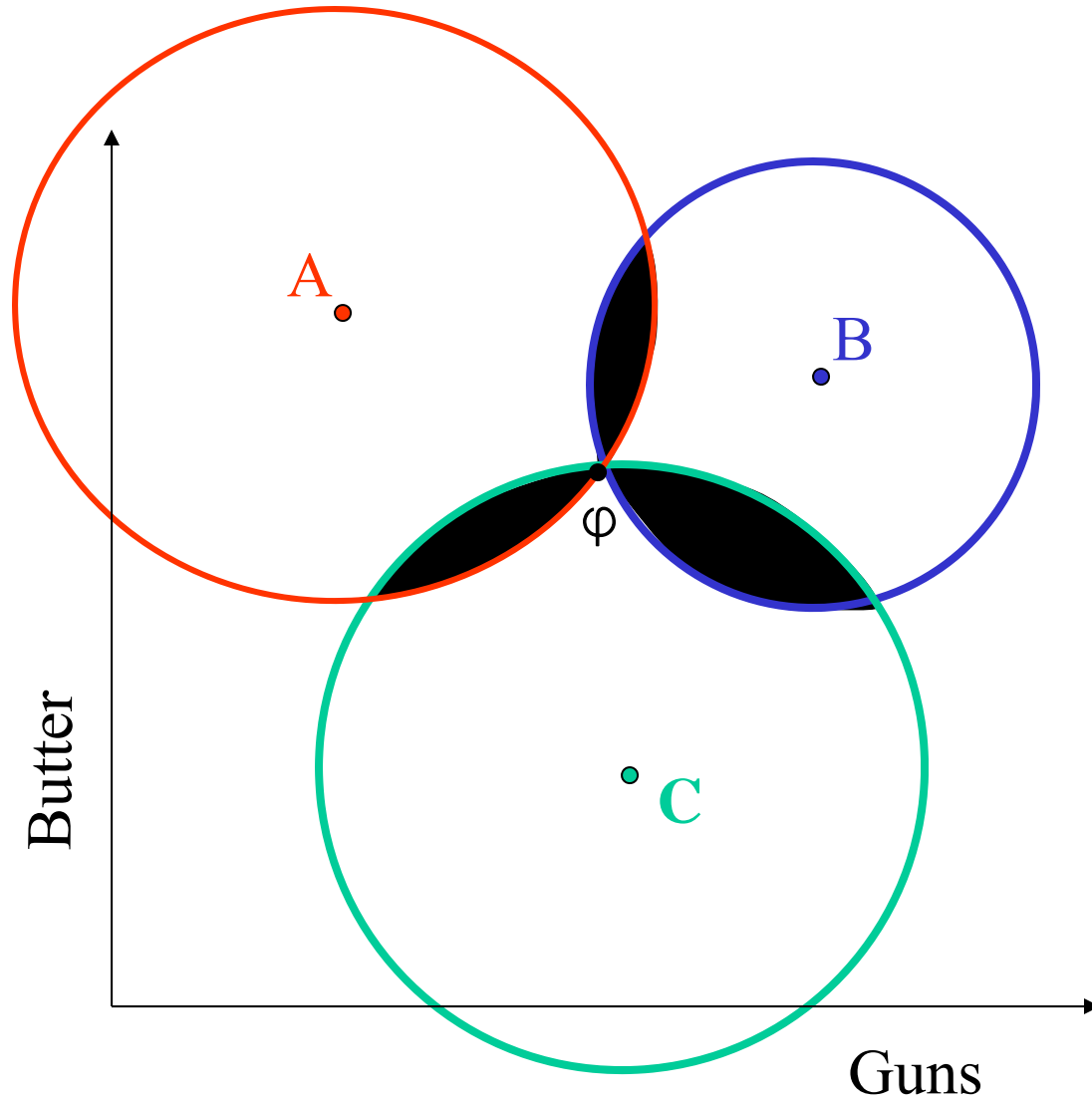
# The Simple Euclidean System: Preference relations



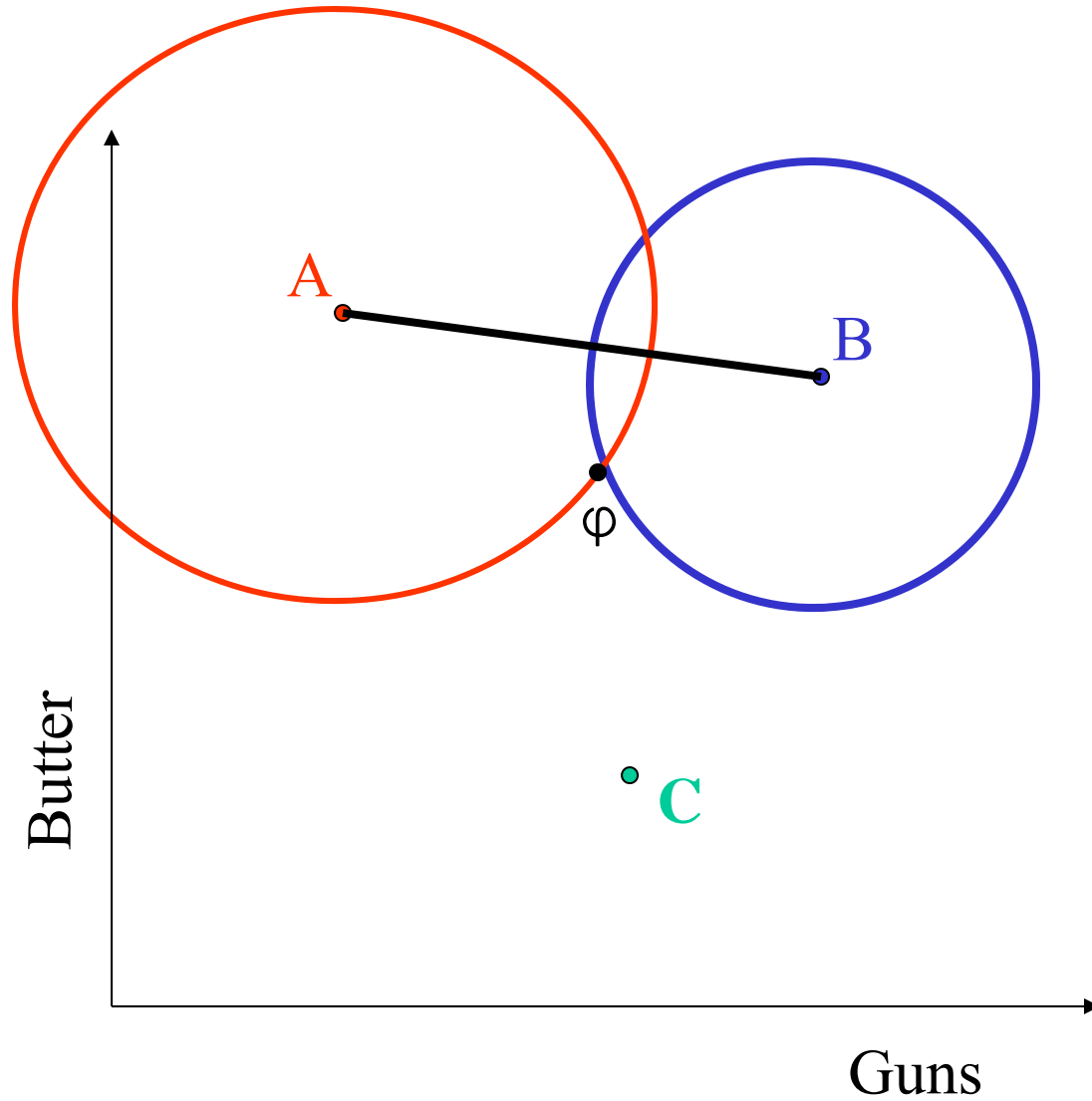
# The Simple Euclidean System



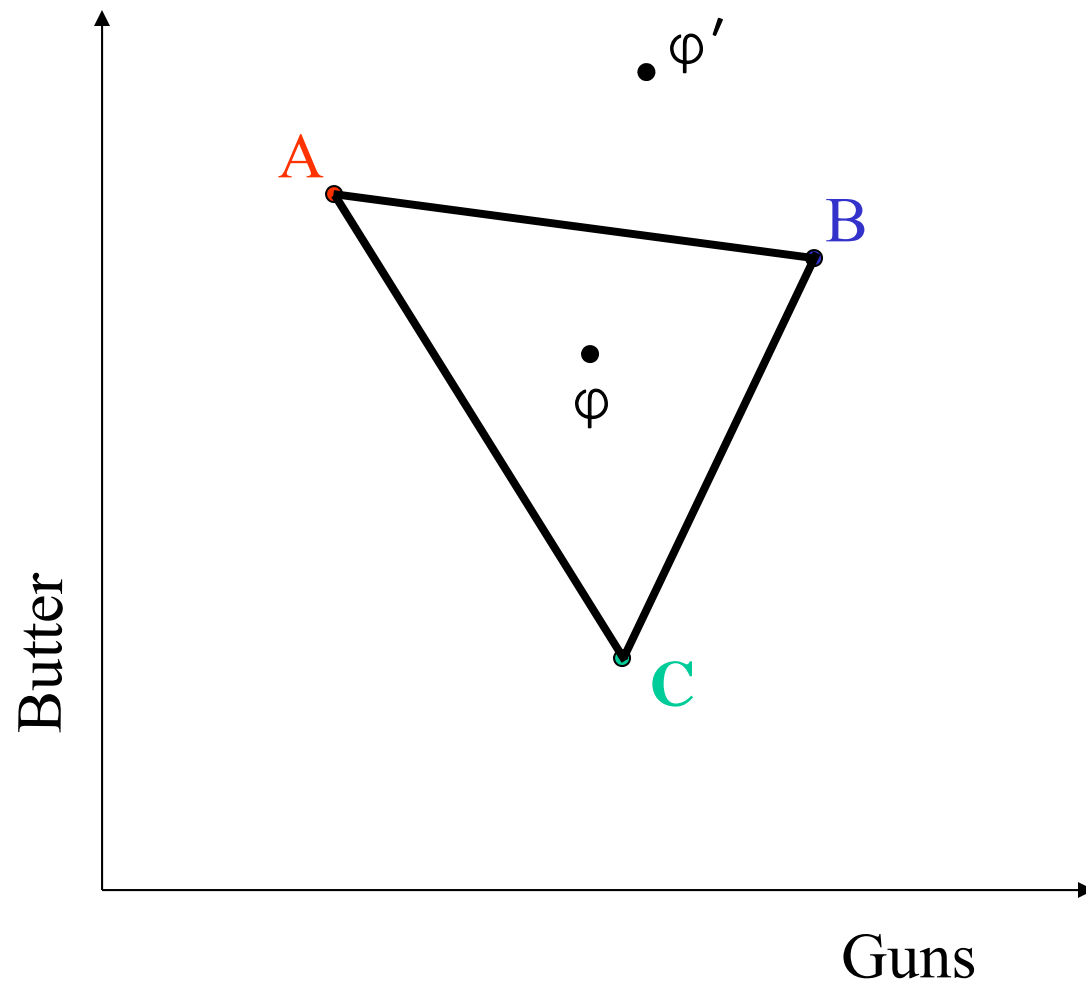
# The Win Set, $W(\varphi)$



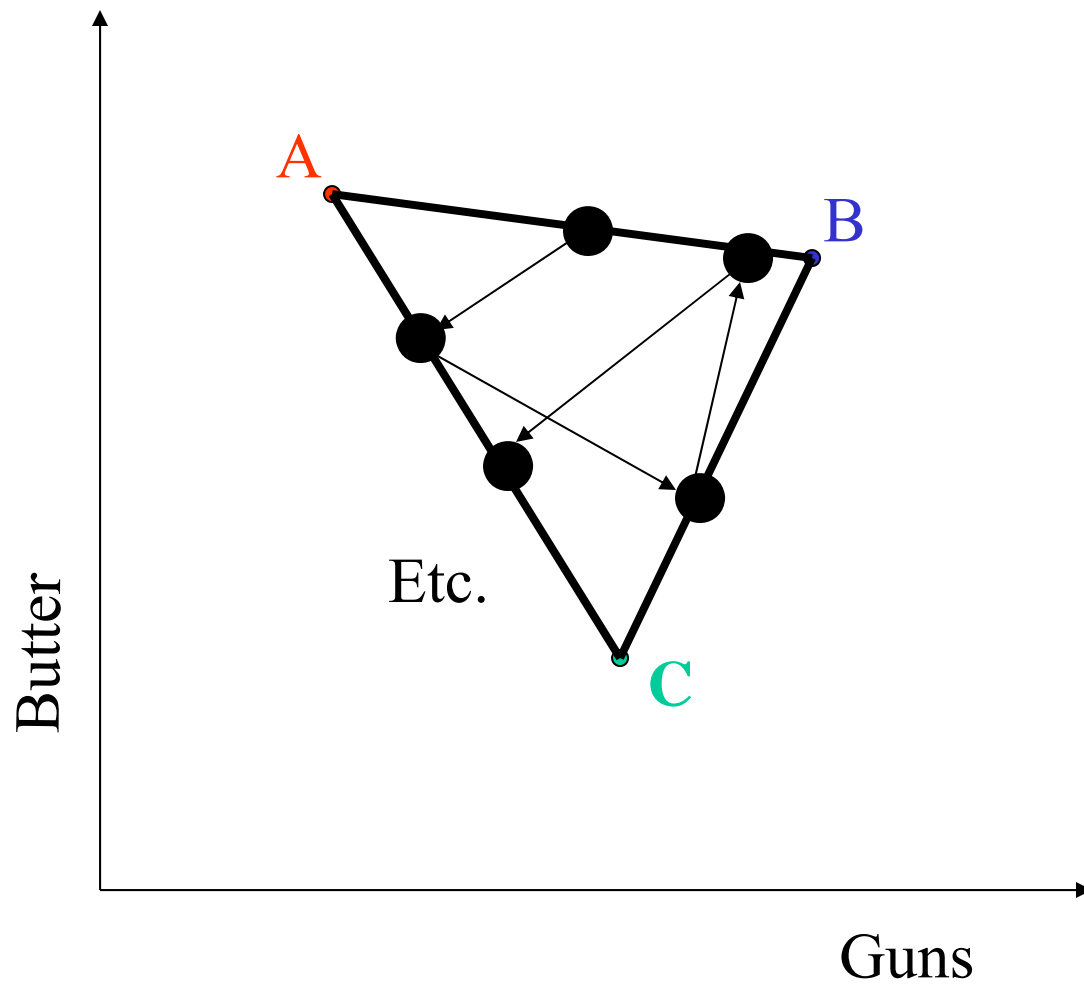
# The Contract Curve



# The Pareto Set



# You are always off a contract curve





# McKelvey Chaos Theorem

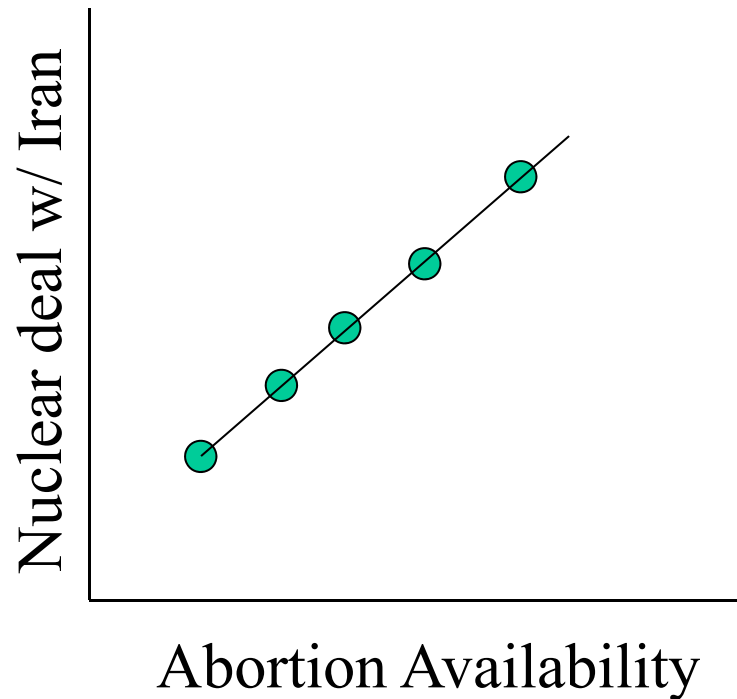
- With multiple attributes and multiple decisionmakers
  - There is no equilibrium of tastes
  - Anything can happen
  - I.e., the median voter result doesn't hold
- This is really important

# What Might Induce Stability?

- Tastes
- Uncertainty
- Impatience
- Rules

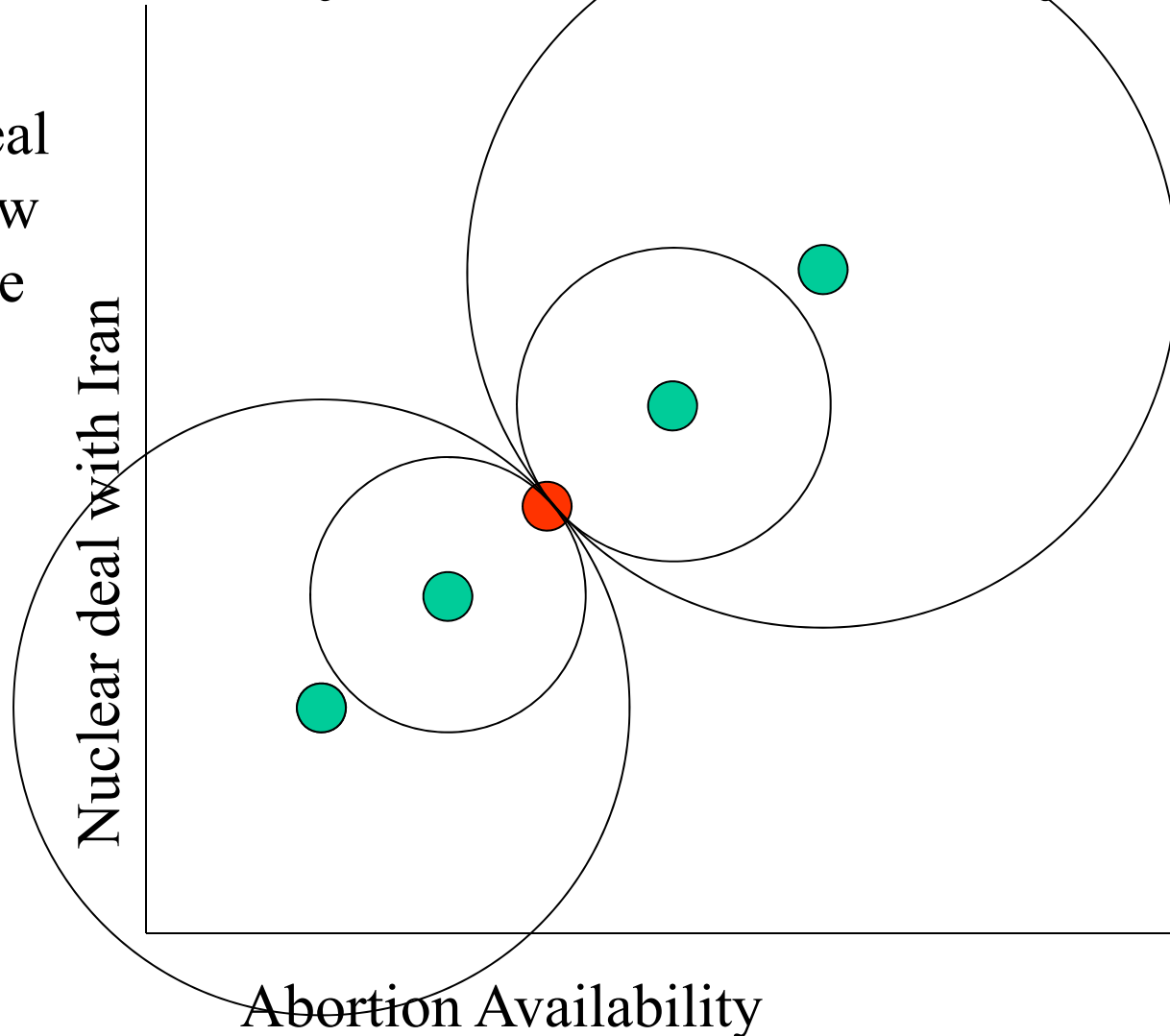
# Tastes may induce stability

- Ideology
- “Median in all directions”

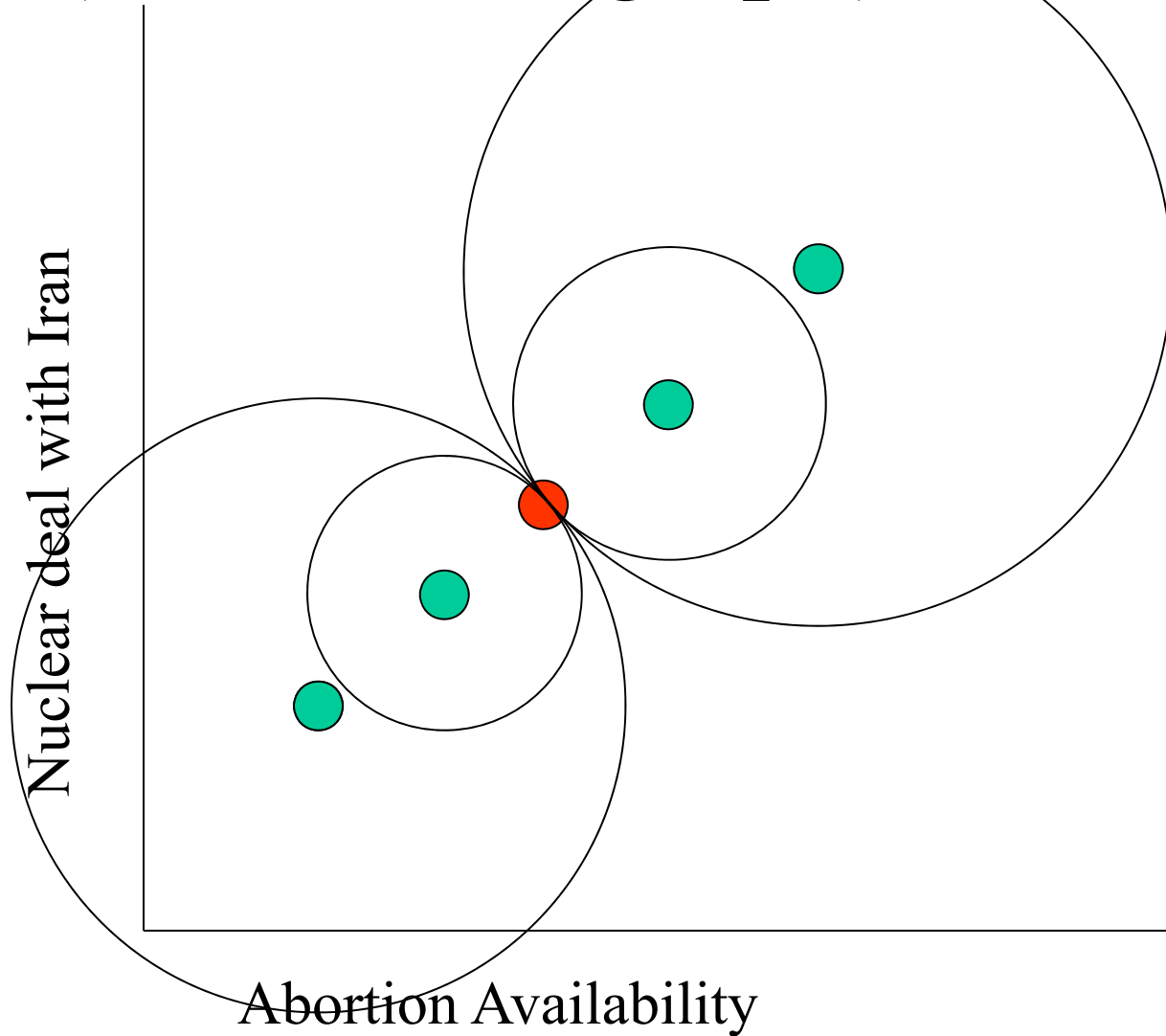


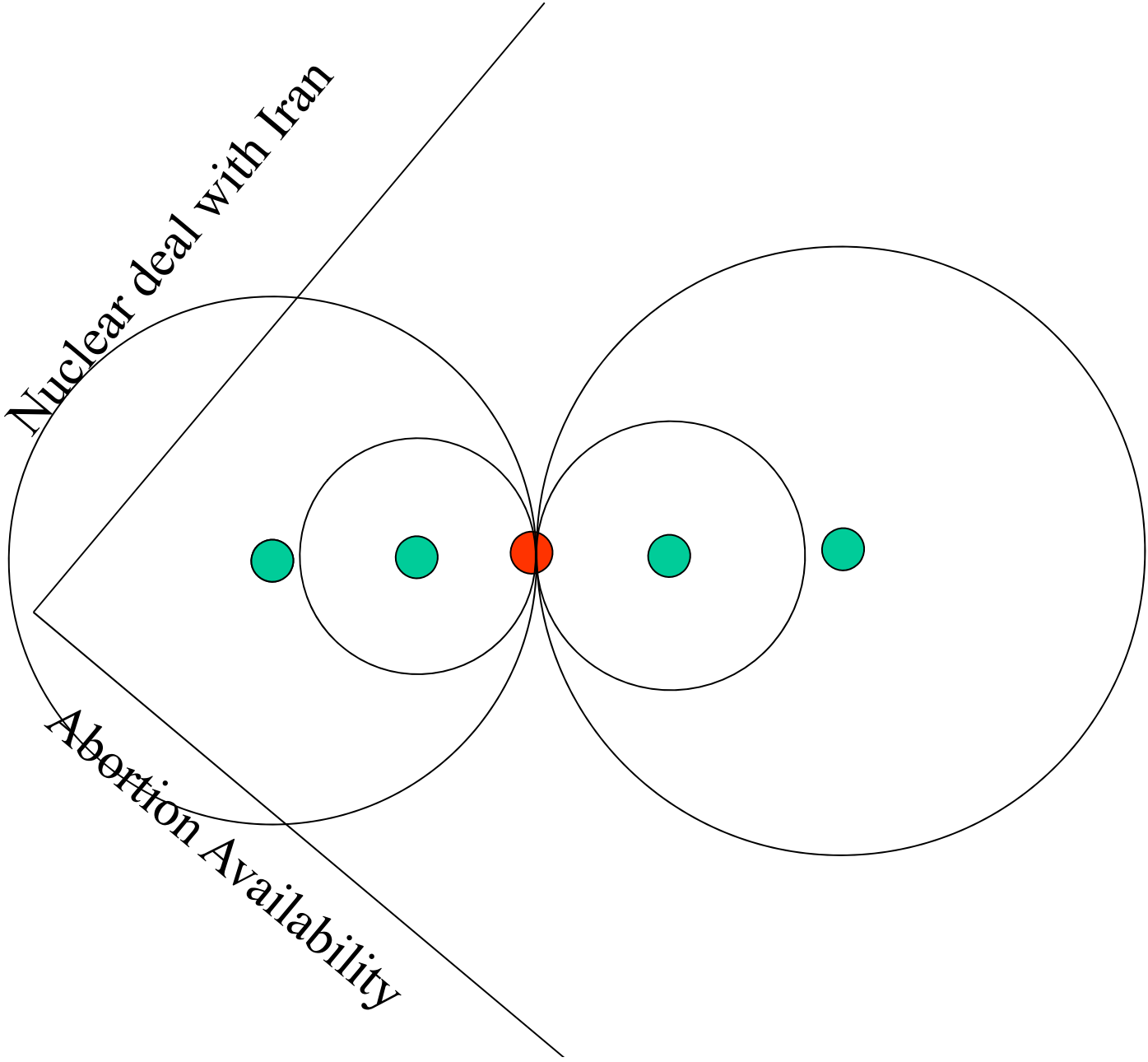
# Tastes may induce stability

(Make s.q. the “median’s” ideal point, then draw the indifference curves)

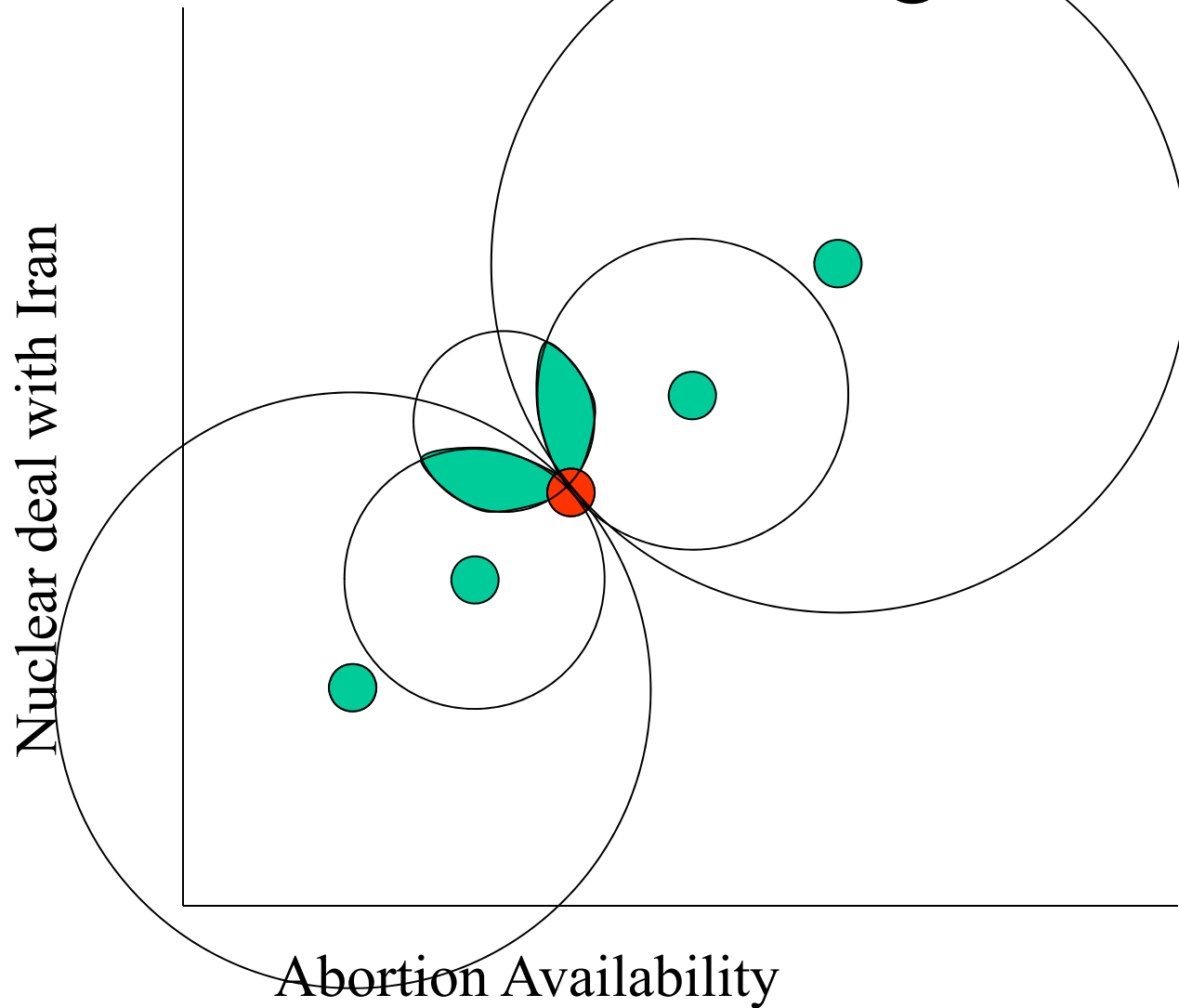


(Rotate this graph)

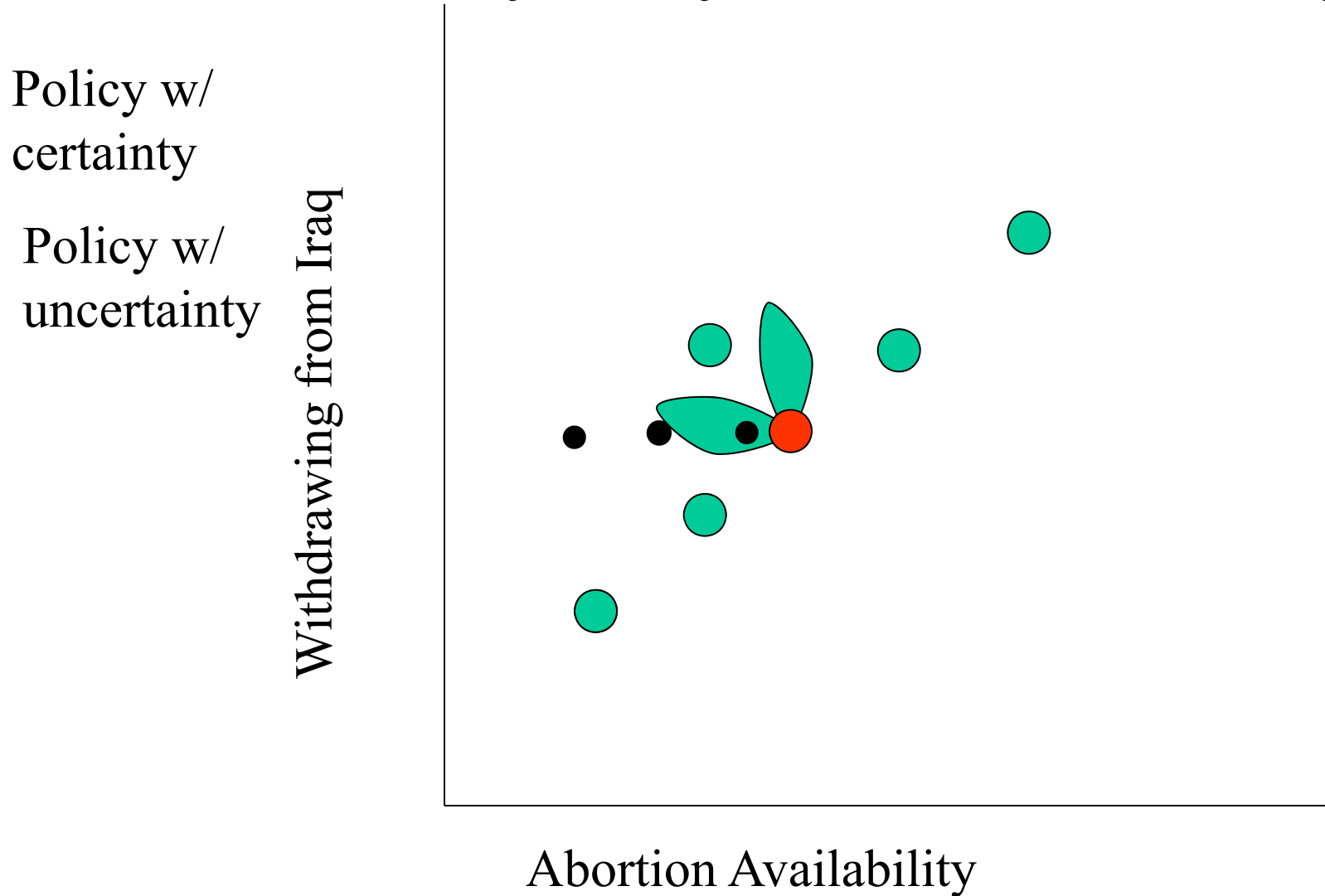




# The result is knife-edged



# Uncertainty may induce stability

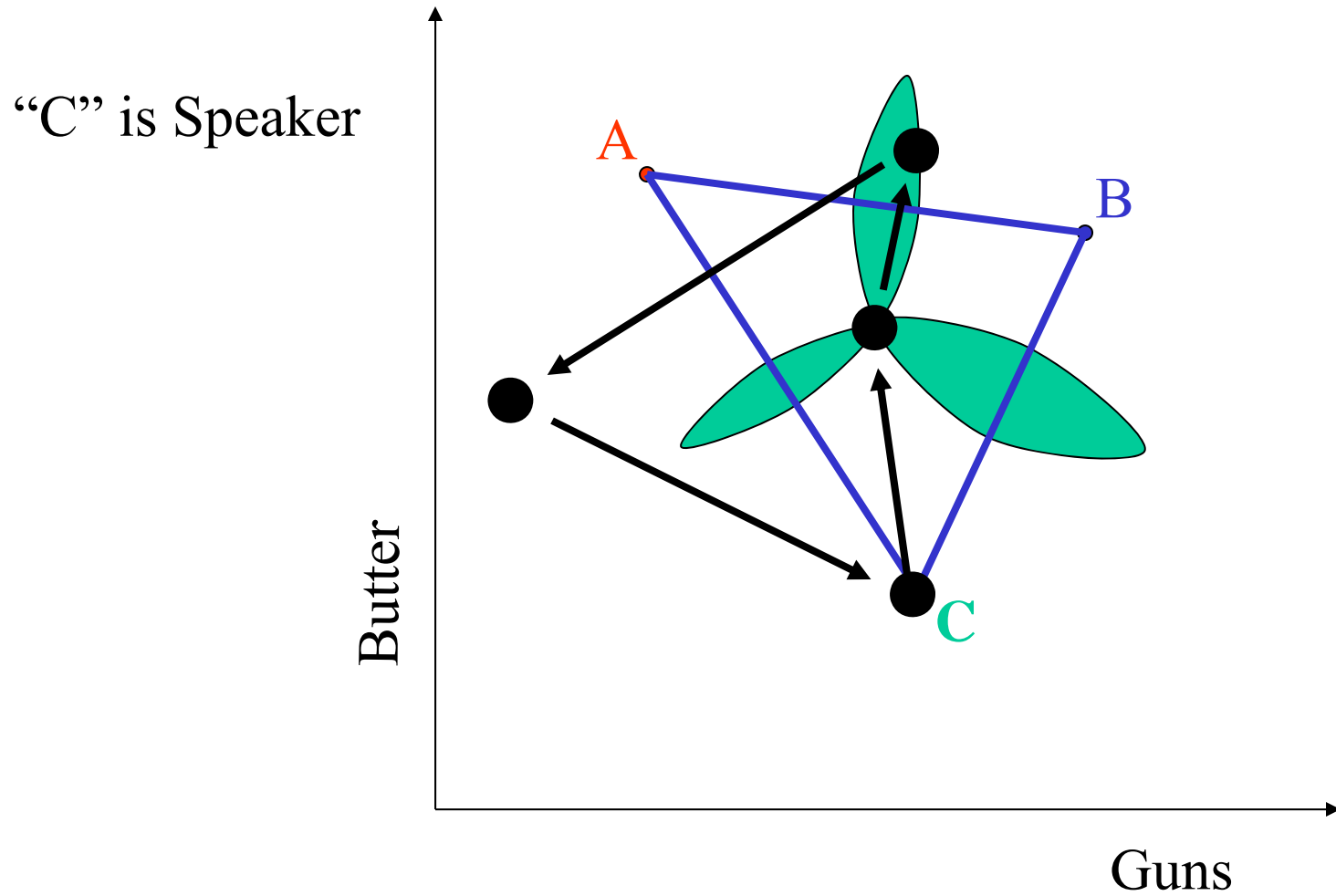




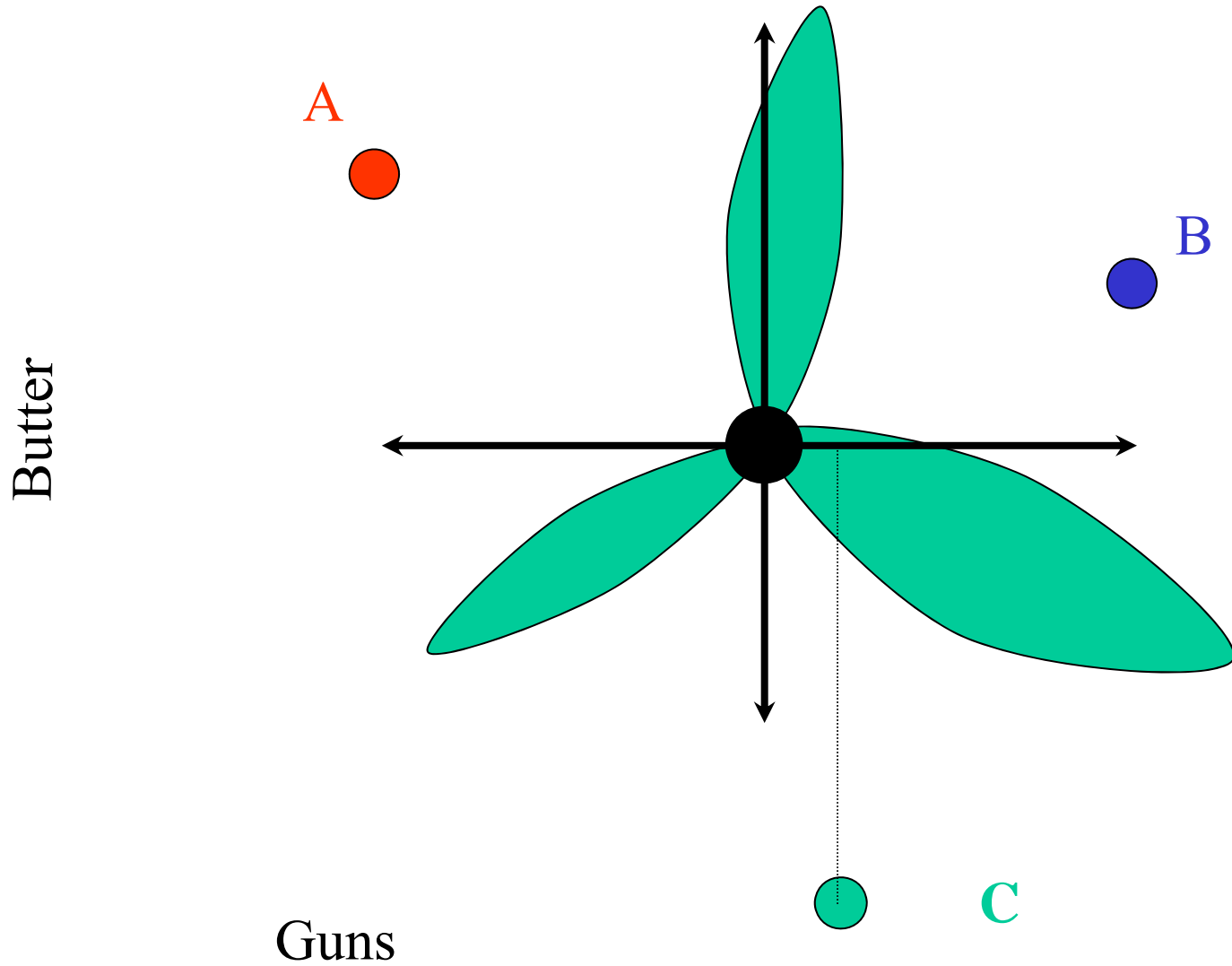
# Rules may induce stability

- Floor rules, e.g.
  - vote on status quo last
    - Not stability so much as guarding against “anything can happen”
  - Germaneness rules
- Committees

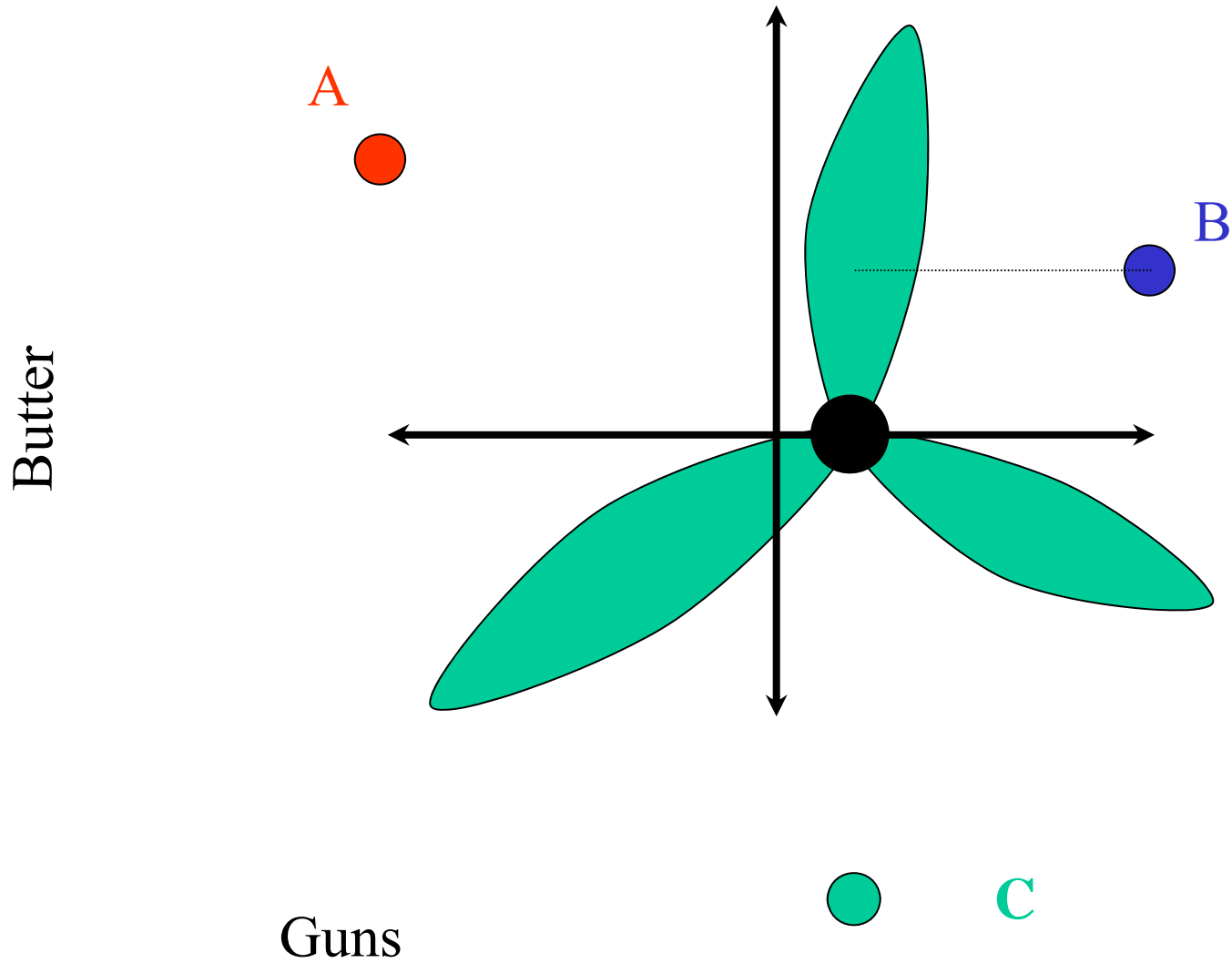
# Status quo last



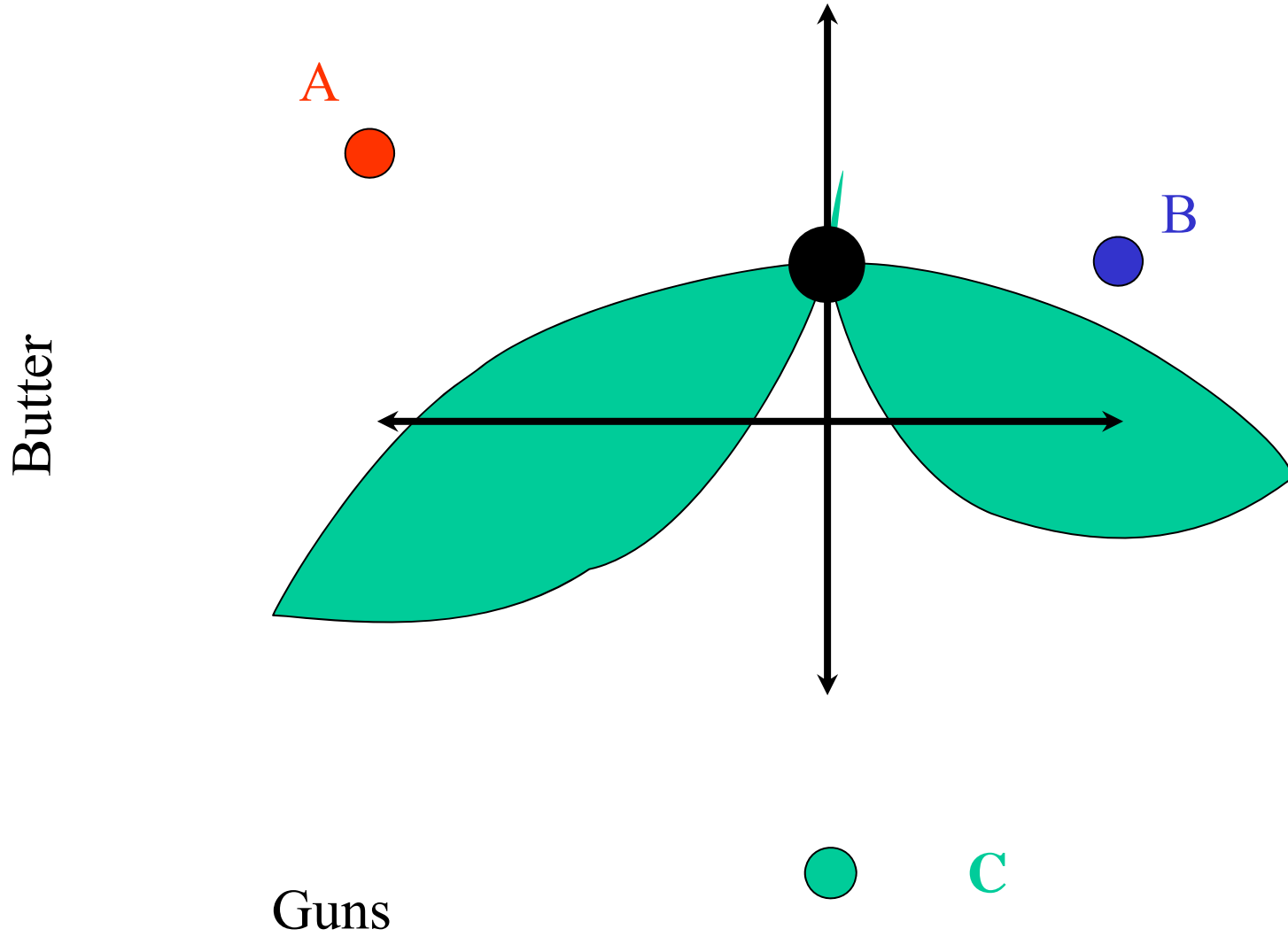
# Germaneness



# Germaneness



# Germaneness



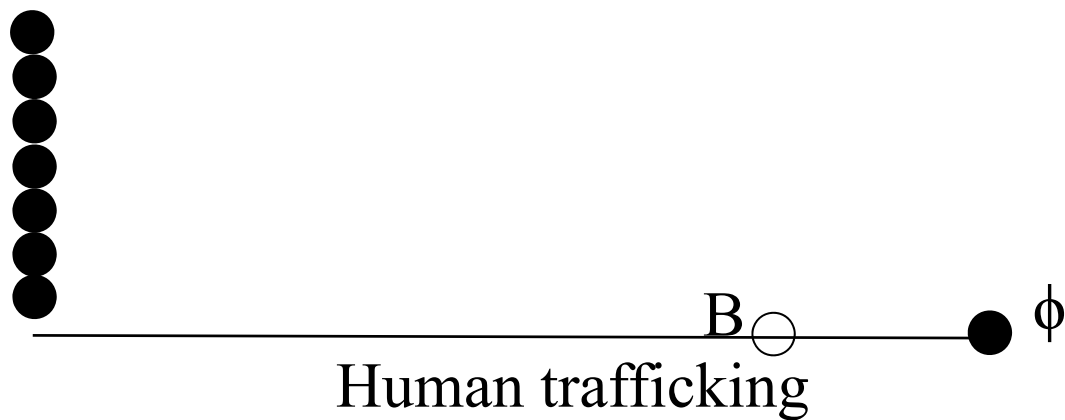
# Stability-inducing powers of leaders and committees

- Committees reduce dimensionality
- Committees and leaders have agenda-setting powers

# Examples of Multidimensionality in Action

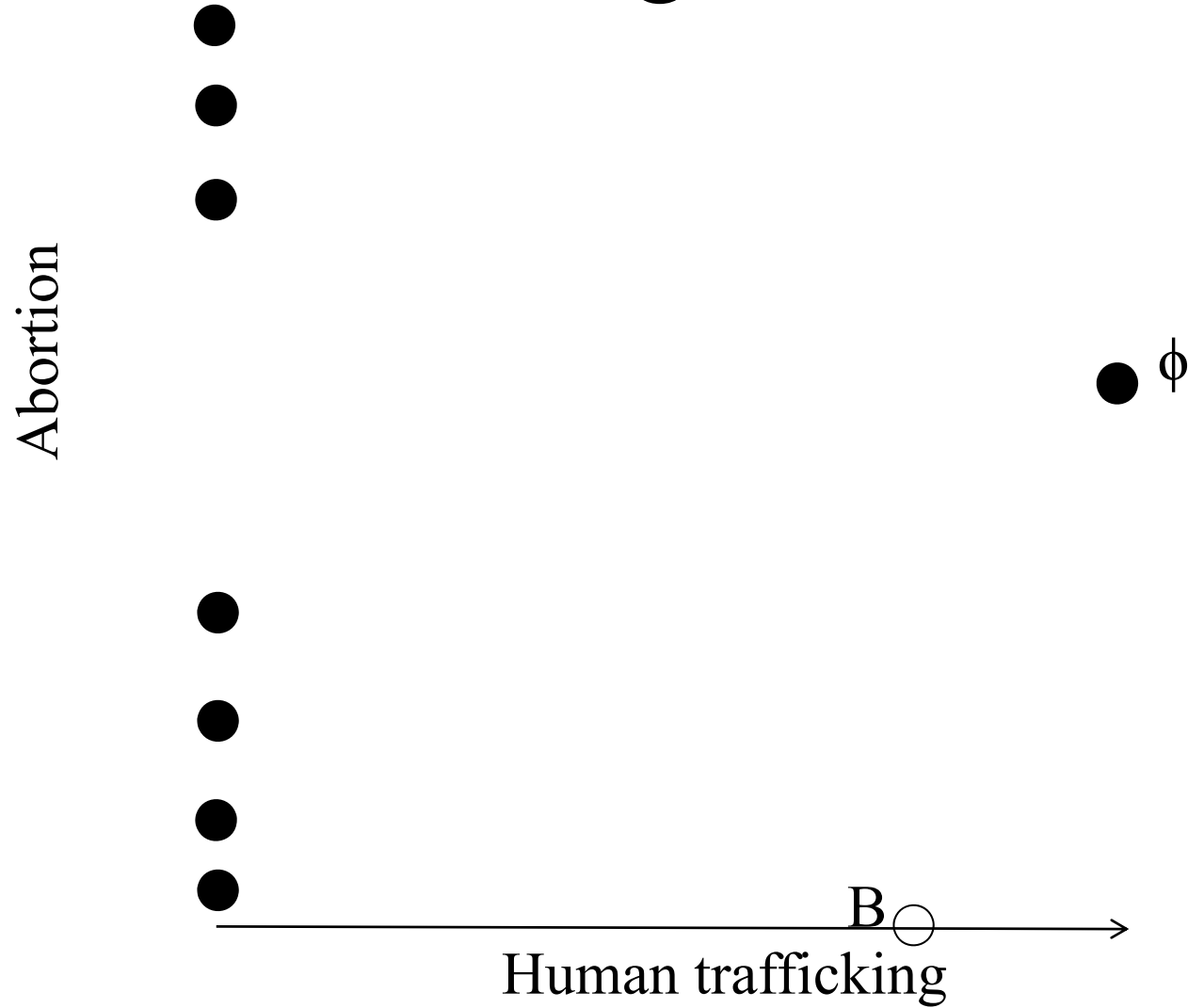
- Informal decisionmaking
- Riker's "heresthetics"
  - Heresthetics: the strategic introduction of "extraneous" issues
    - Classic example: Popular election of Senators
  - Human trafficking

# Simple human trafficking bill





# Abortion gets introduced



# Unresolved Issues

- Salience
- Sophistication

Abortion



$\phi$

B

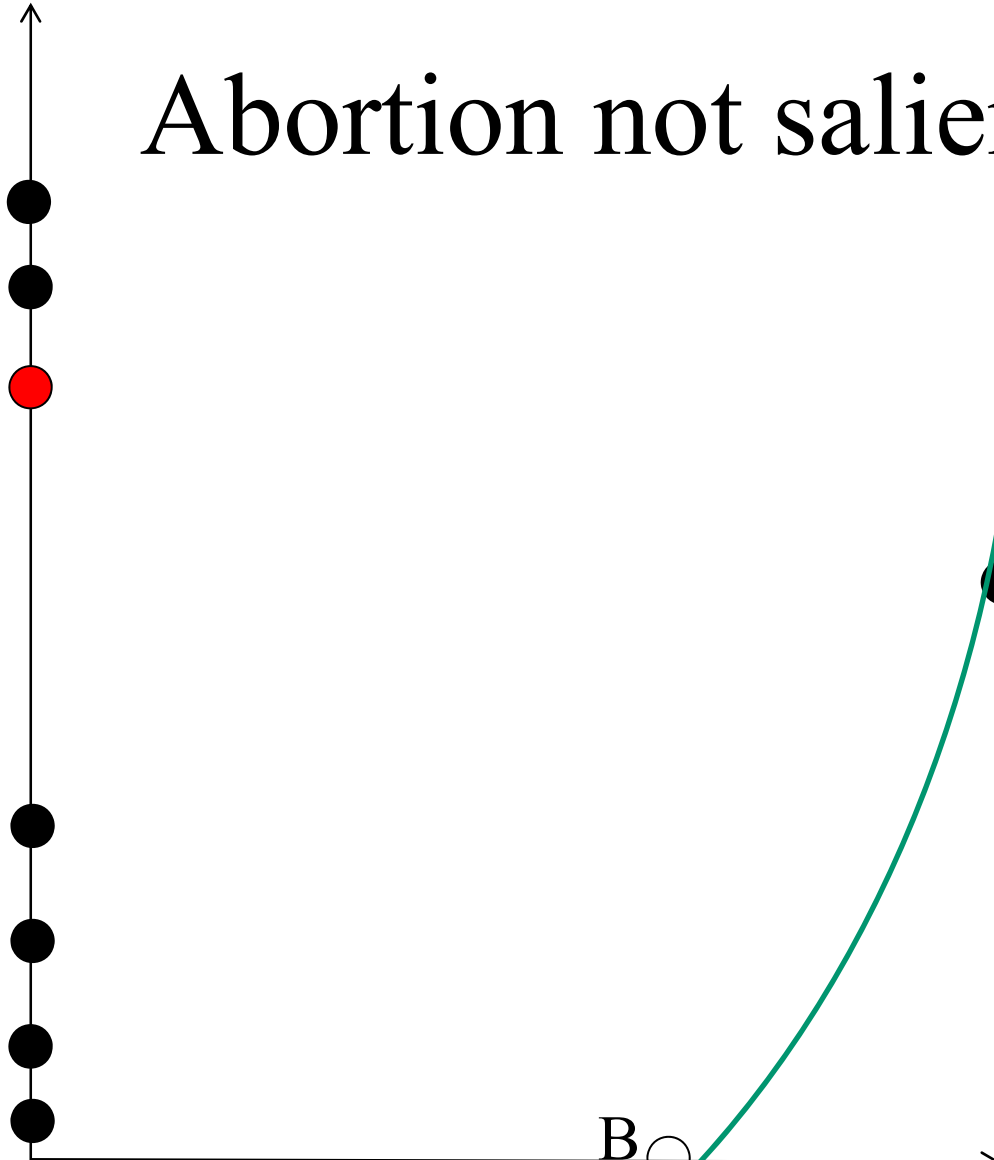


Human trafficking



Abortion not salient

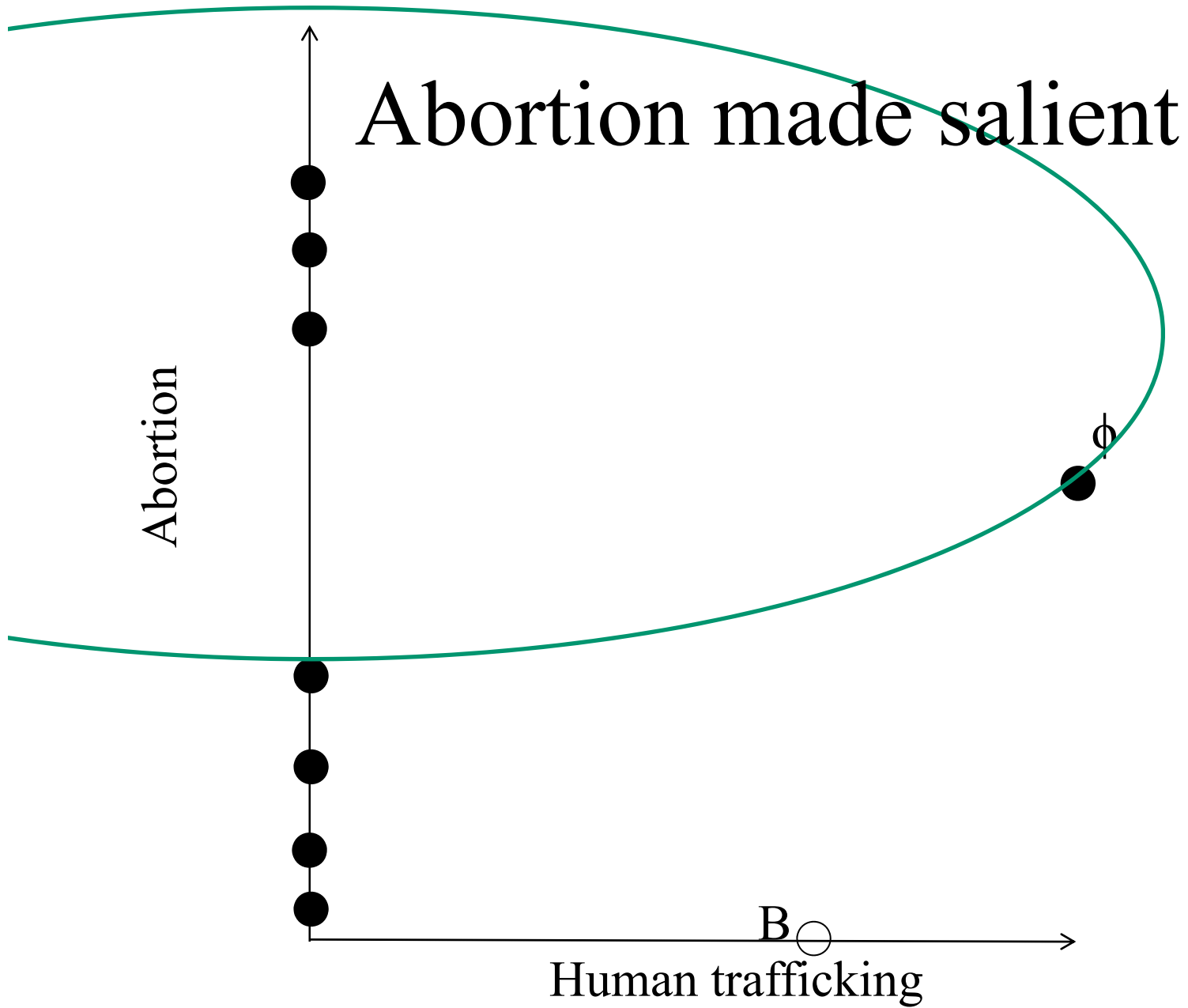
Abortion



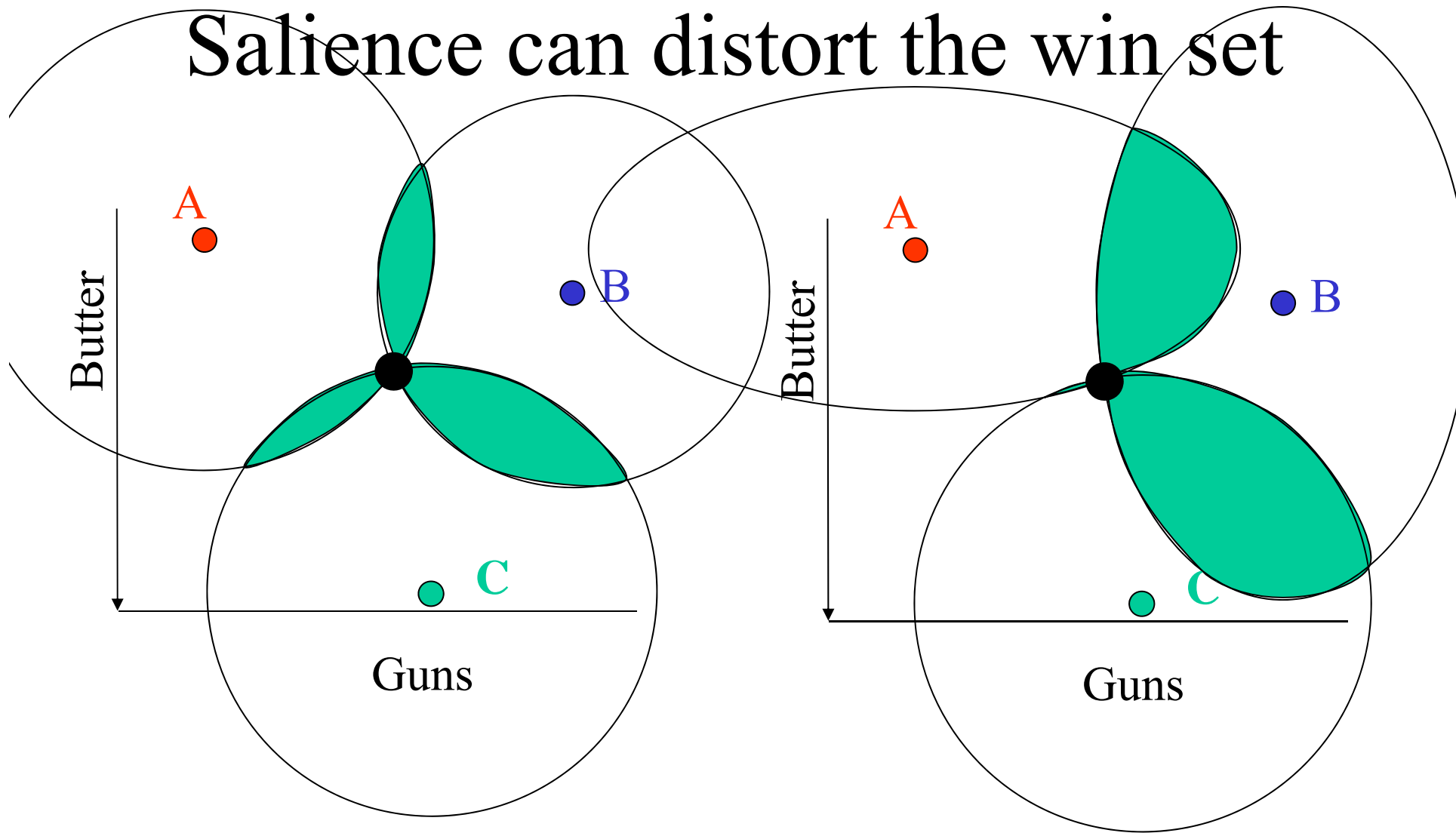
Human trafficking

B

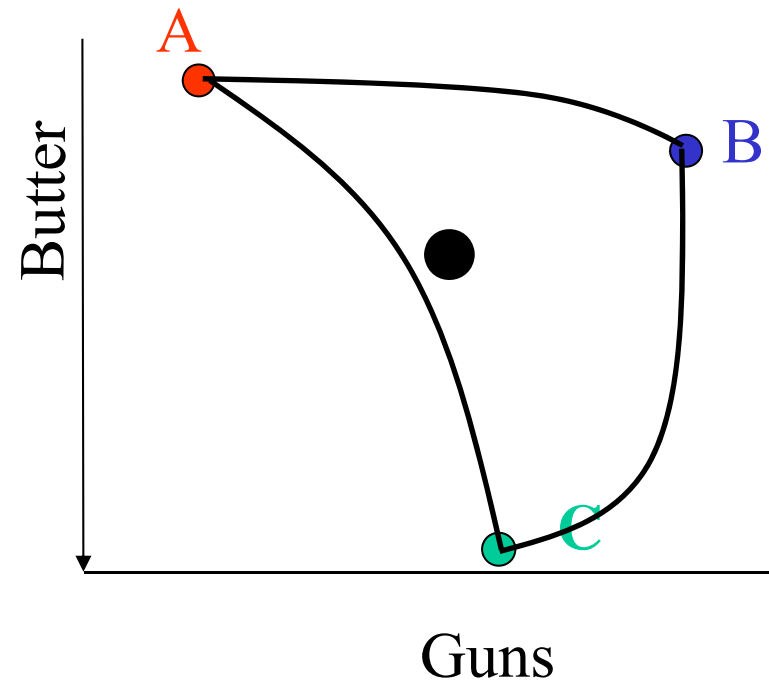
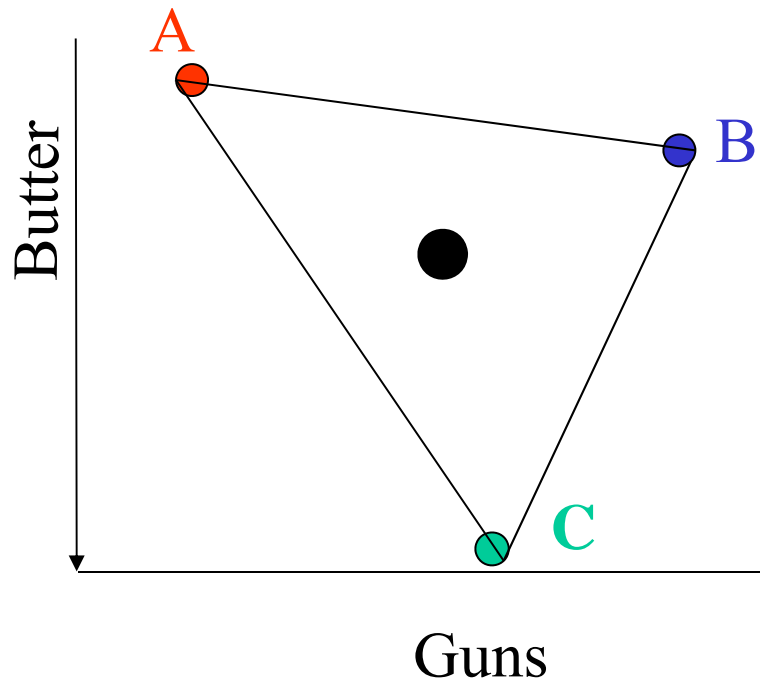
$\phi$



# Saliience can distort the win set



# Saliience can distort the win set



# Sophisticated Voting

- The strategy of preferring one alternative at time  $t$  even through the immediate alternative is better, in order to prevent an *even worse* outcome in the future

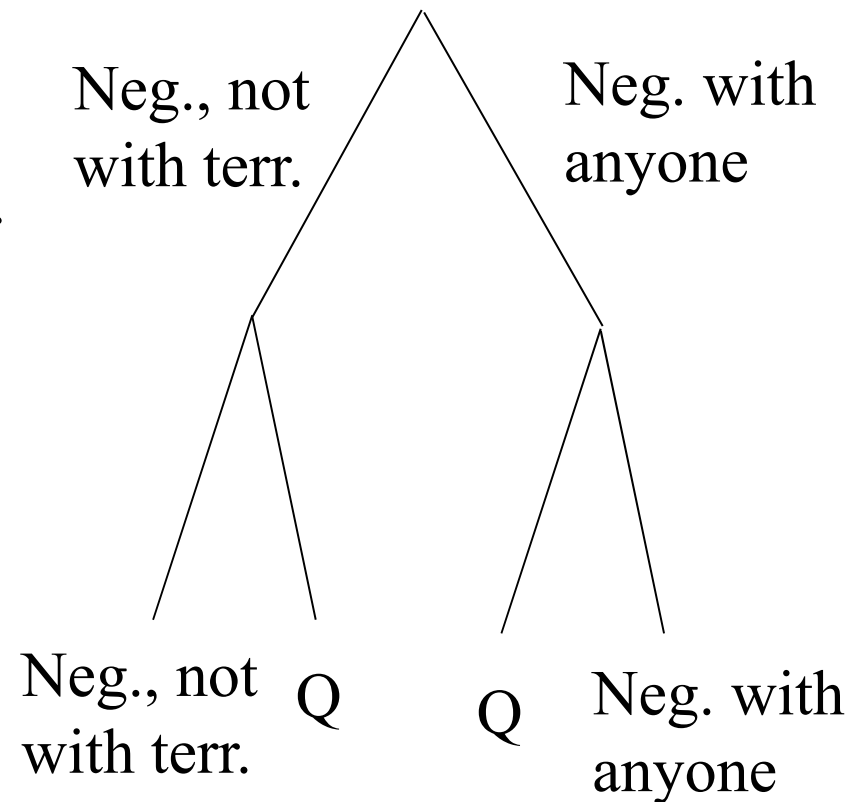


# Sophisticated Voting Example

<b>Democrats</b>	<b>Hawkish R</b>	<b>Dovish R</b>
Negotiate with anyone	Don't negotiate	Negotiate, but not with terrorists
Negotiate, but not with terrorists	Negotiate with anyone	Don't negotiate
Don't negotiate	Negotiate, but not with terrorists	Negotiate with anyone

# Agenda

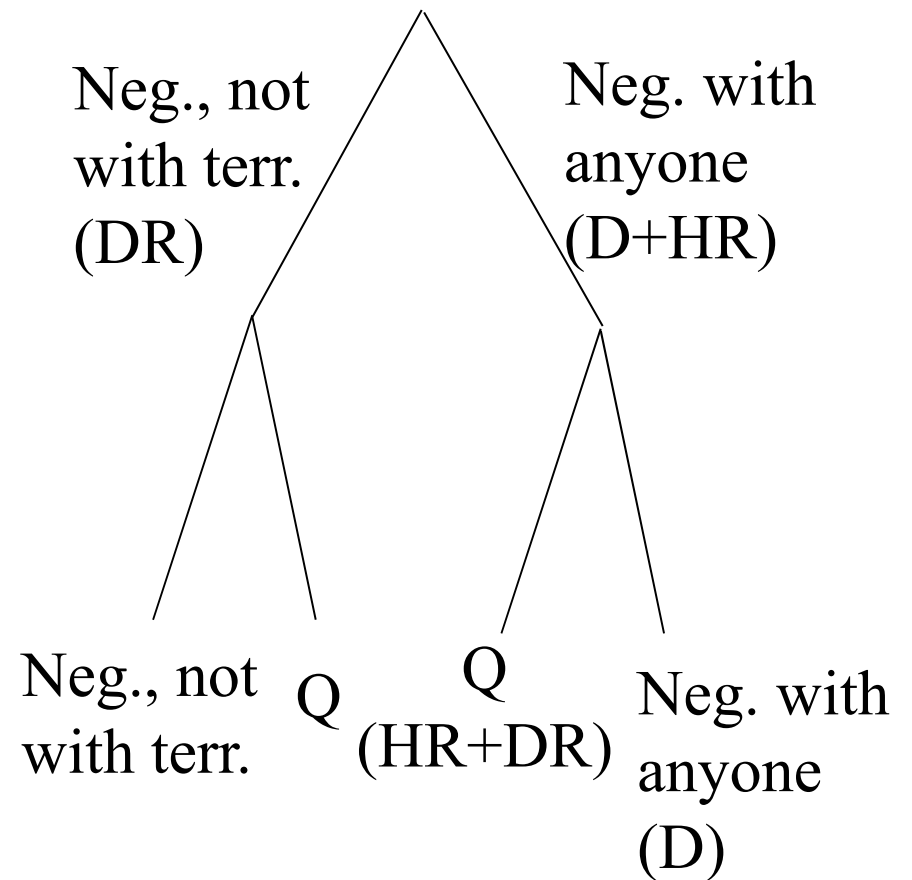
- Add “proviso” to negotiation strategy
- If the proviso passes, pair the negotiation strategy proviso against the status quo (continue no negotiation)
- If the proviso fails, pair the negotiation strategy against the status quo



# Agenda

Democrats	Hawkish R	Dovish R
Negotiate with anyone	Don't negotiate	Negotiate, but not with terrorists
Negotiate, but not with terrorists	Negotiate with anyone	Don't negotiate
Don't negotiate	Negotiate, but not with terrorists	Negotiate with anyone

The proviso passes  
 The amended negotiation fails,  
*even though a majority would have favored the original strategy over the status quo*



# Outcome

- The proviso passes
- The amended treaty fails, *even though a majority would have favored the original treaty over the status quo*
- How to save ourselves? Sophistication
  - Backward induction

# Agenda

Democrats	Hawkish R	Dovish R
Negotiate with anyone	Don't negotiate	Negotiate, but not with terrorists
Negotiate, but not with terrorists	Negotiate with anyone	Don't negotiate
Don't negotiate	Negotiate, but not with terrorists	Negotiate with anyone

