

Spatial Theory in 2-space

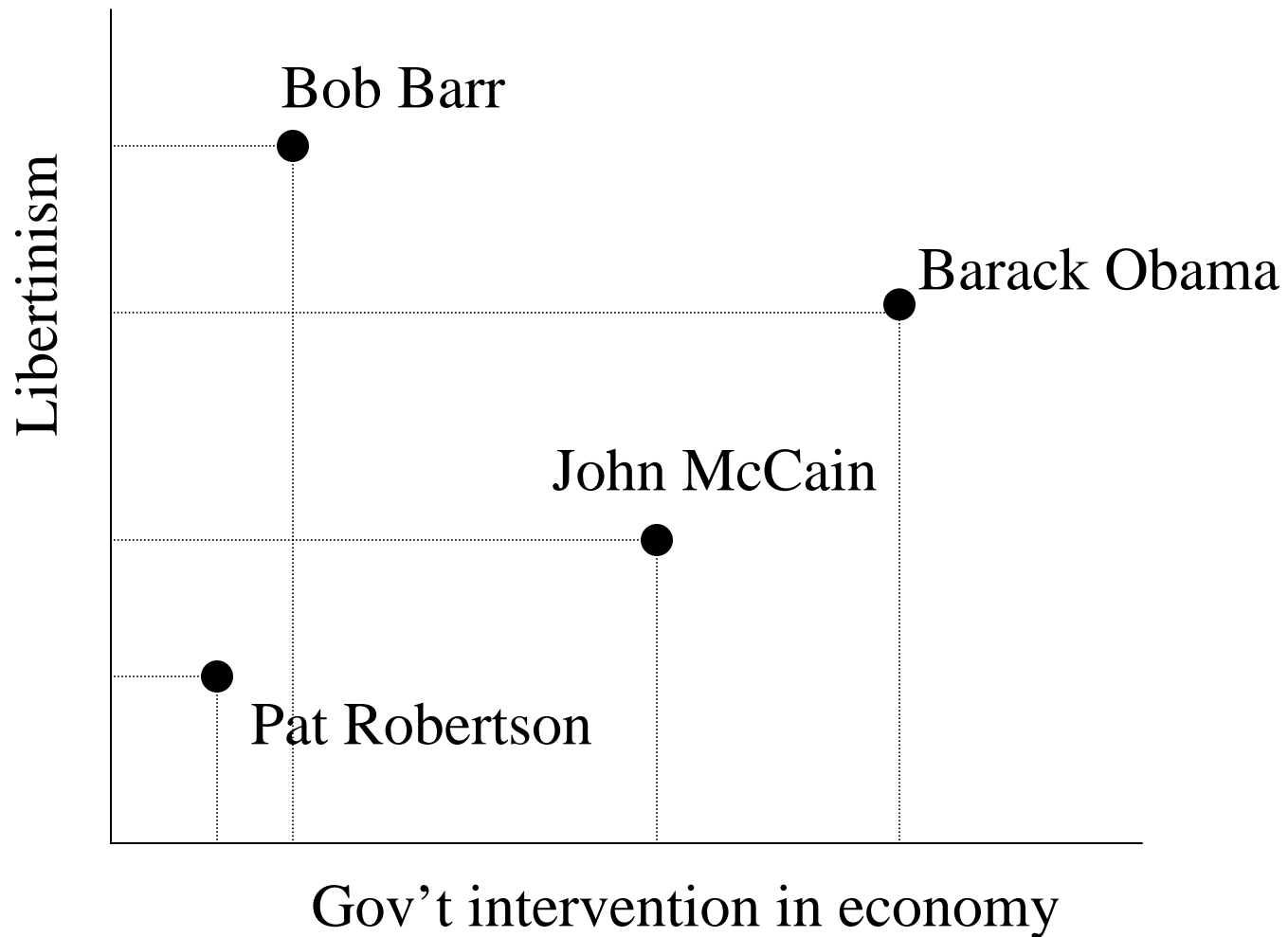
17.251/252

Fall 2008

Throat-clearing

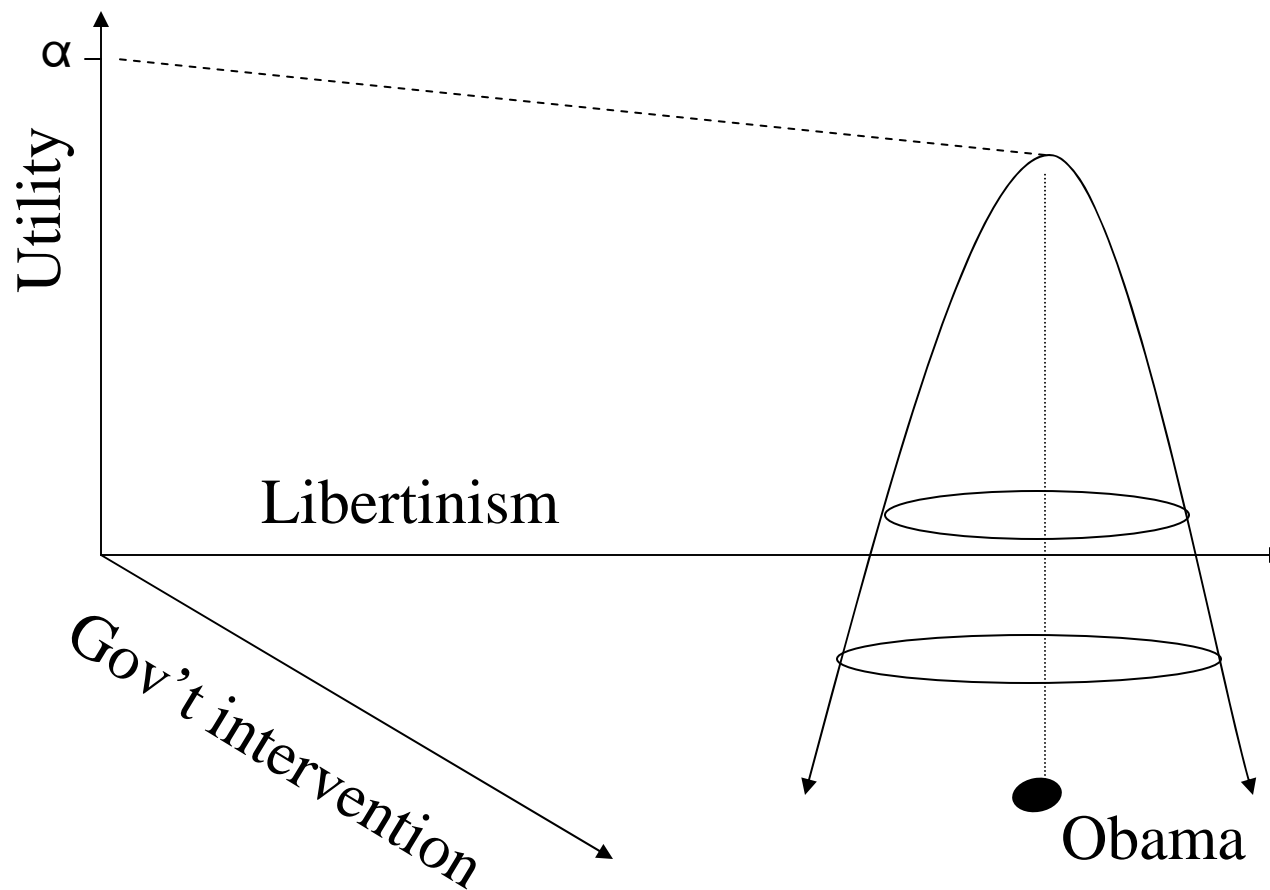
- Fundamental finding of unidimensional spatial model
 - Pure majority rule: the median prevails
 - More generally: the pivot prevails
- Fundamental finding of multidimensional spatial model
 - The center doesn't hold
 - Preferences can't induce equilibria
 - \therefore institutions (or something else)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

Basic set-up: Ideal points



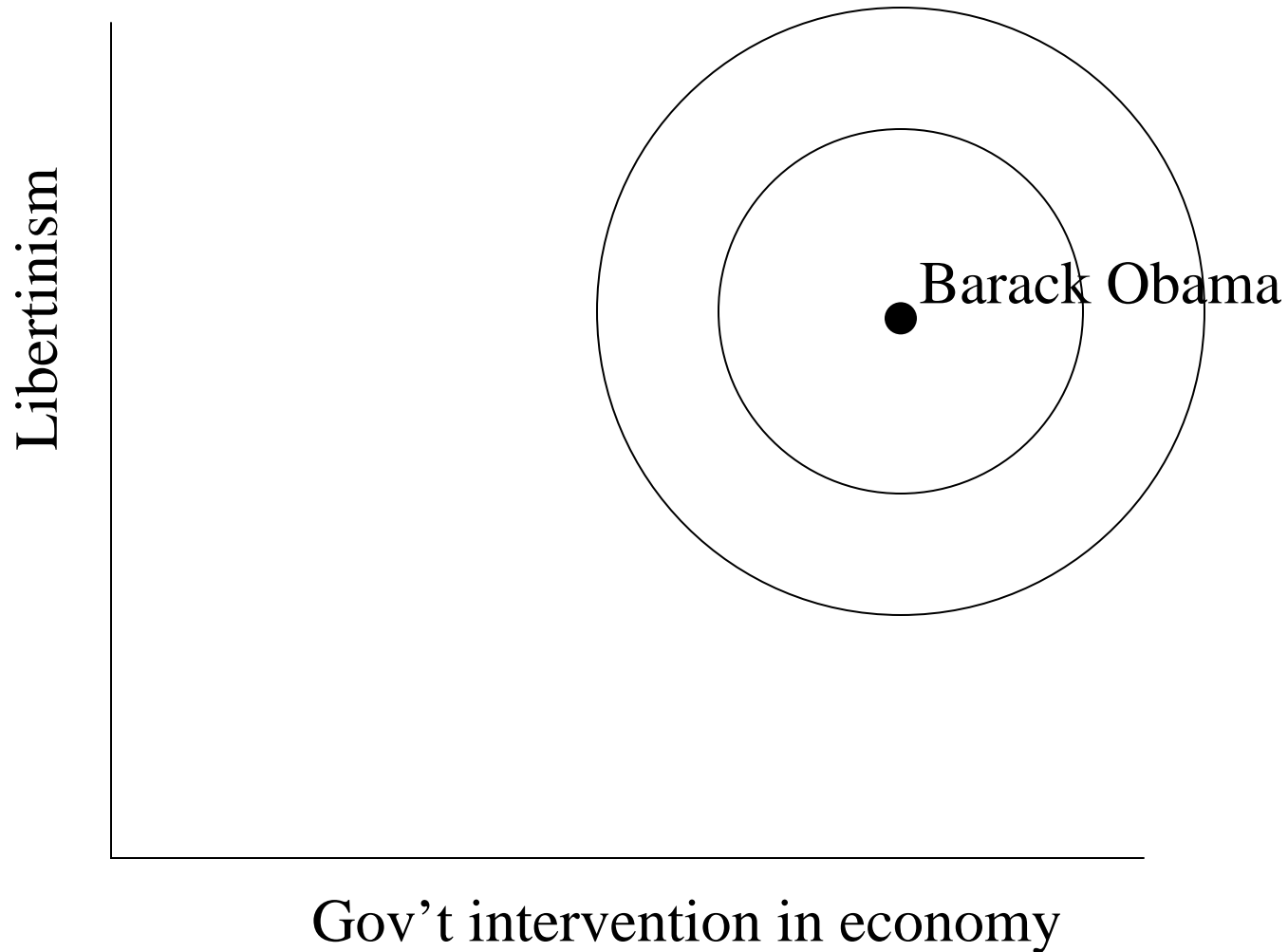
Basic set-up: Utility curves

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



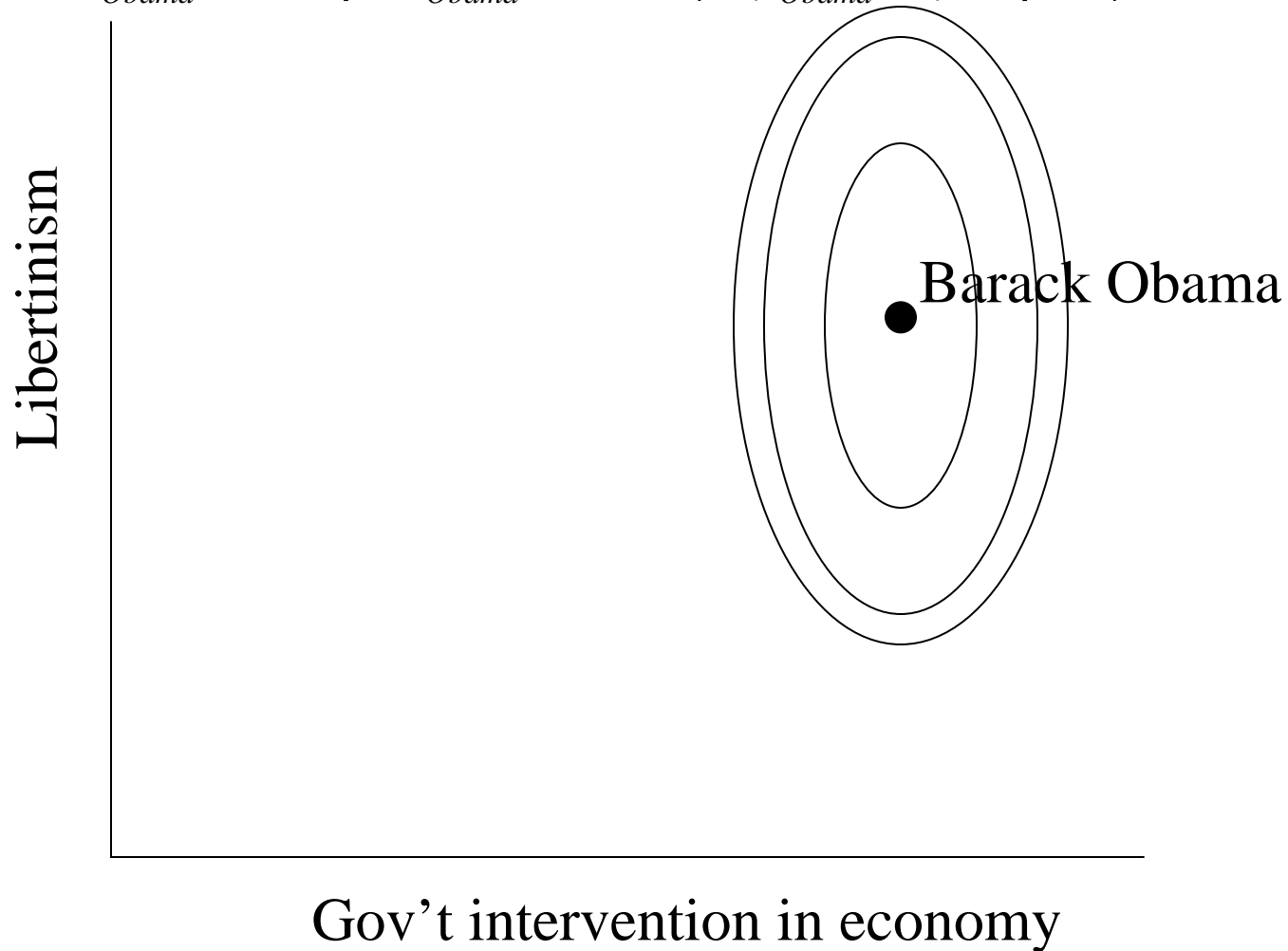
Basic set-up: Indifference curves

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



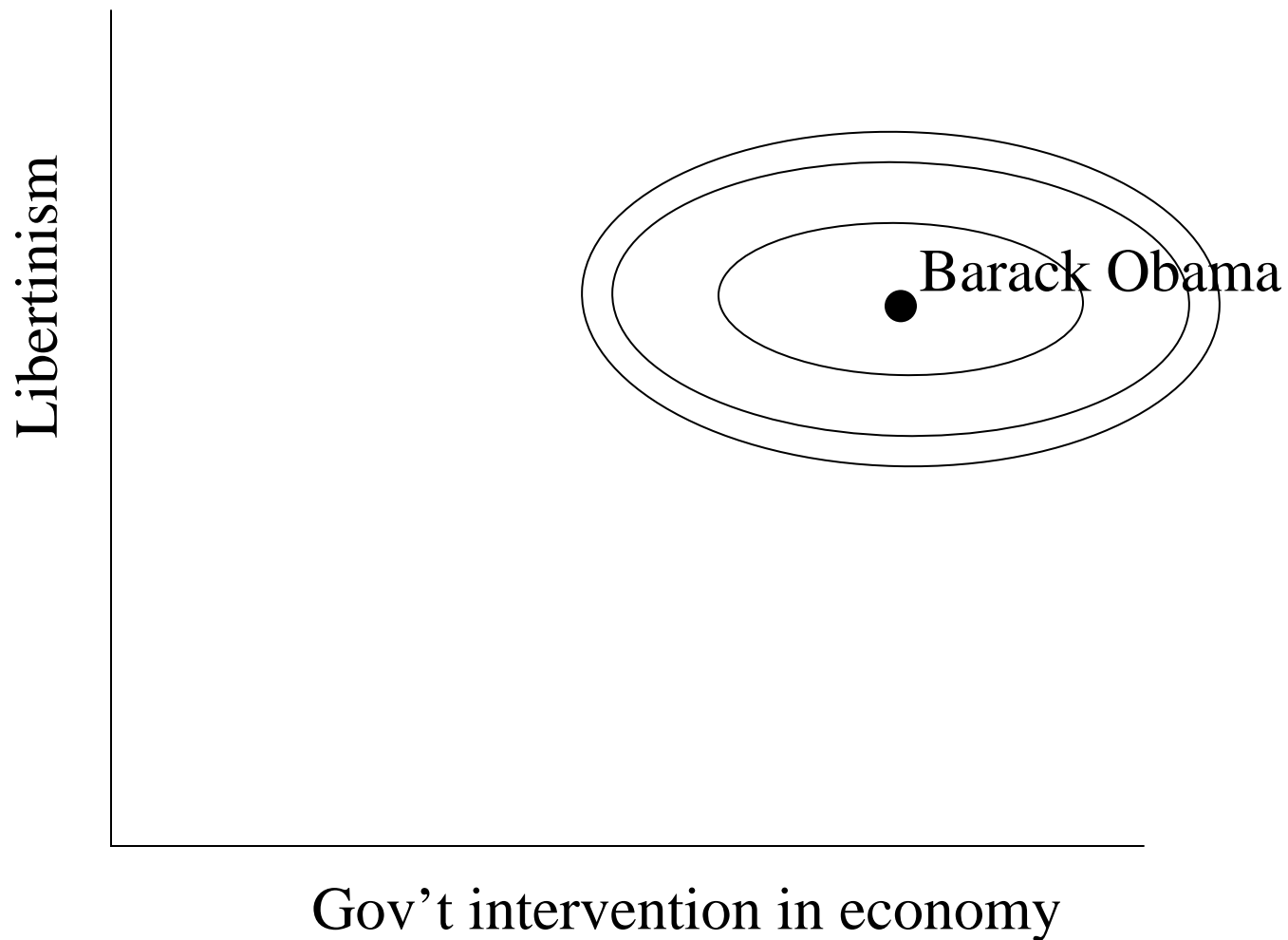
Basic set-up: Indifference curves

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

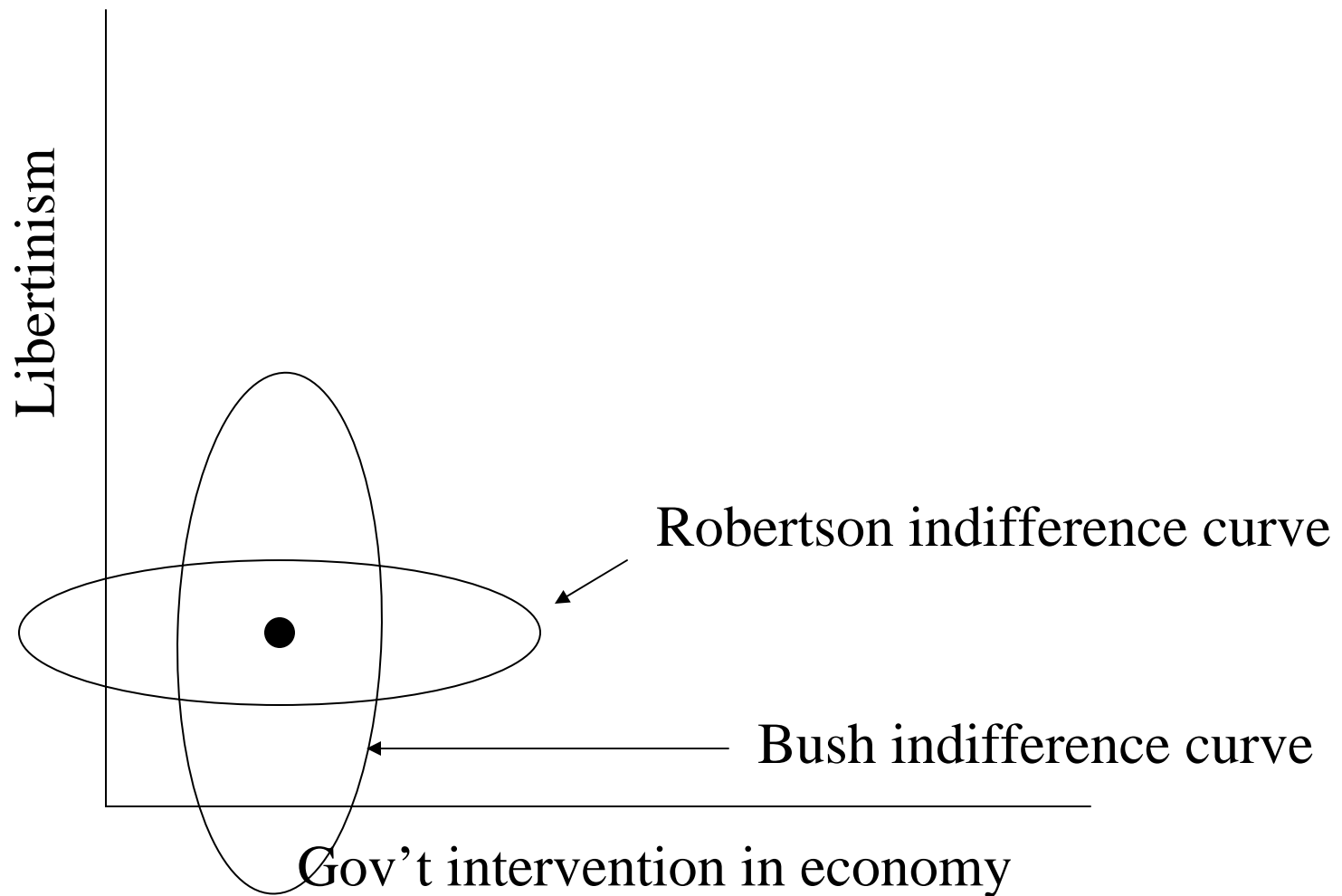


Basic set-up: Indifference curves

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



Why it matters: Pat Robertson vs. George Bush

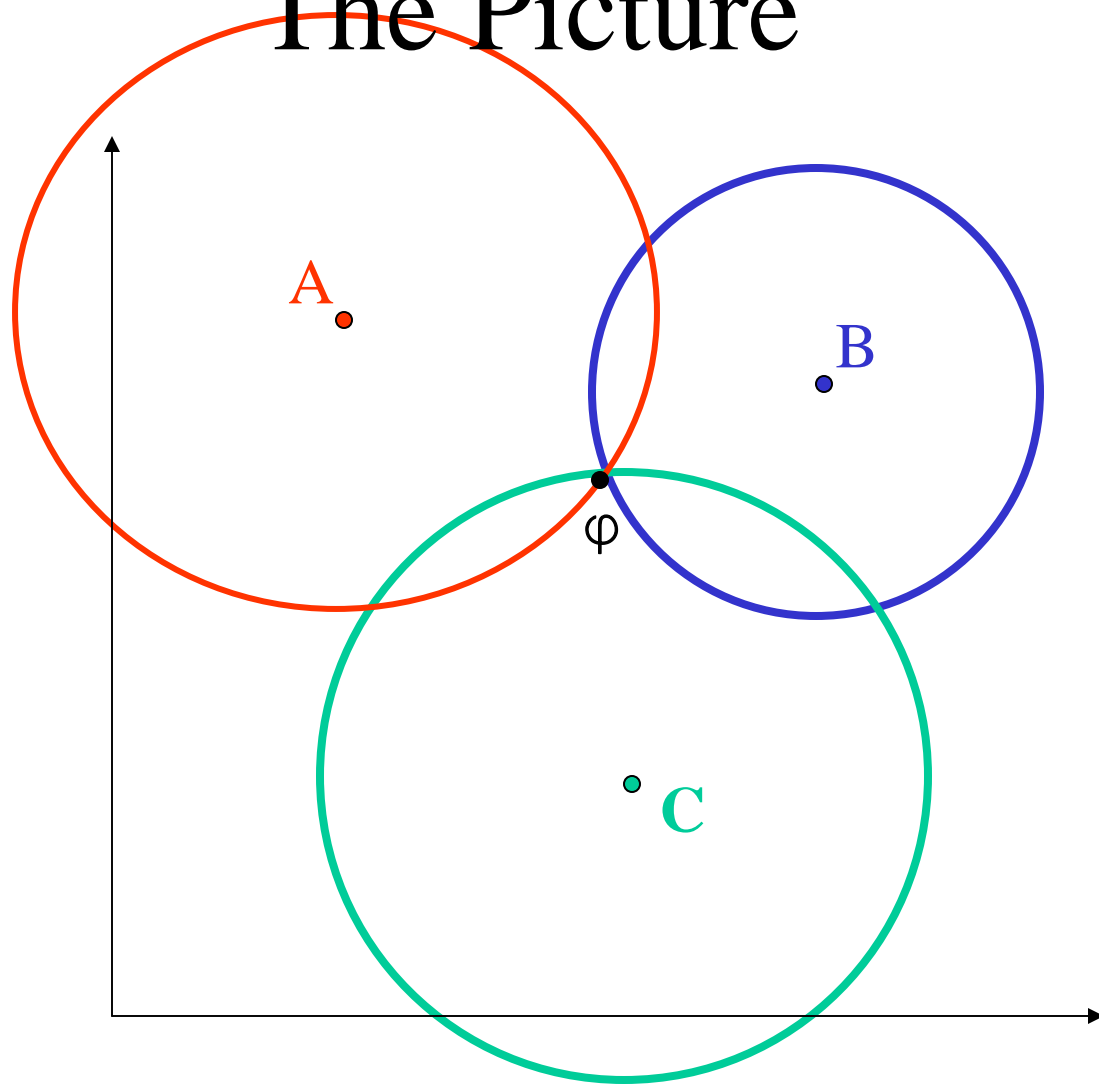


The Simple Euclidean System: The Equation

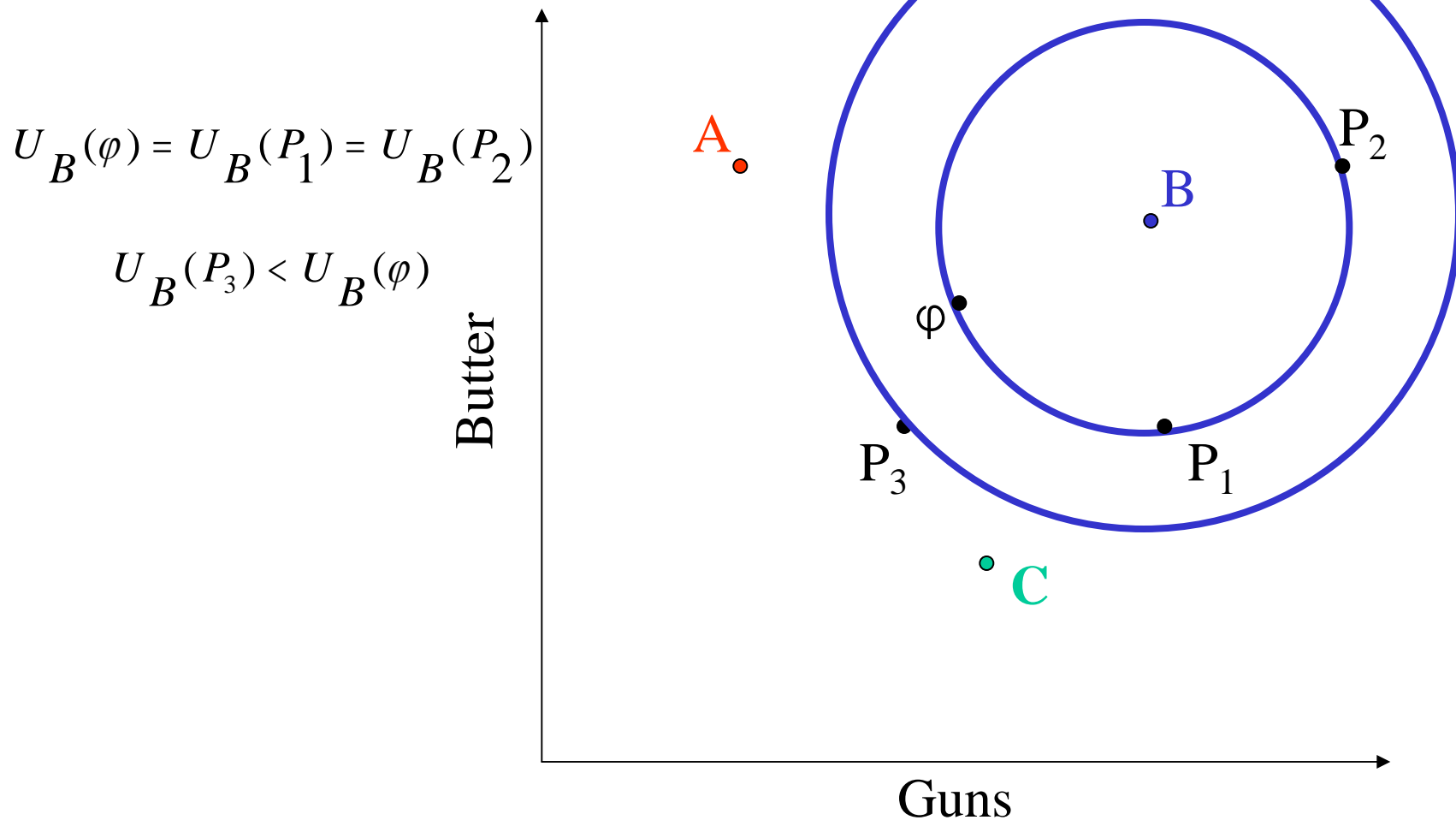
$$U_i = a - (x_i - x)^2 - (y_i - y)^2$$

The Simple Euclidean System: The Picture

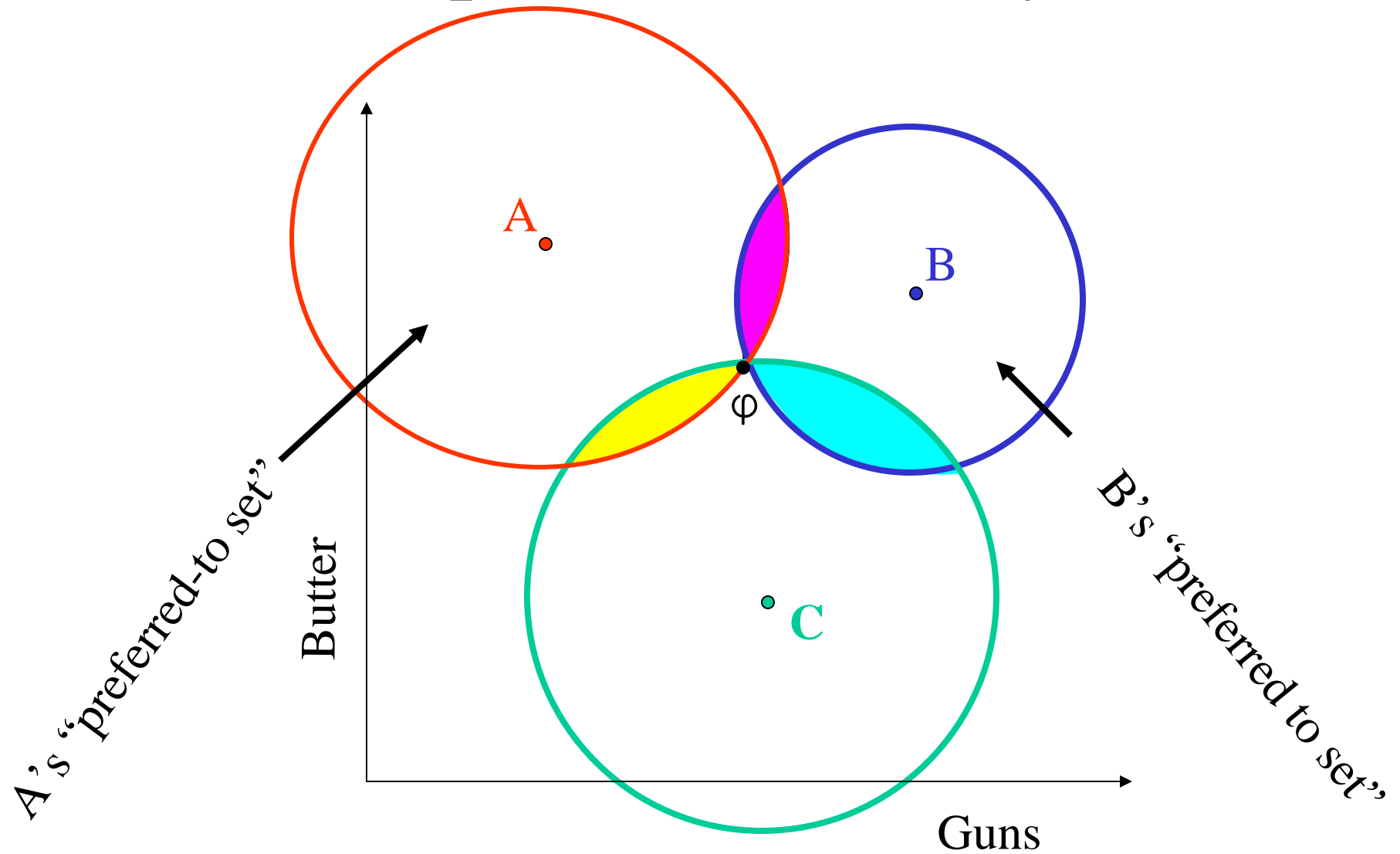
Ideal points
Status quo
Indifference
curves



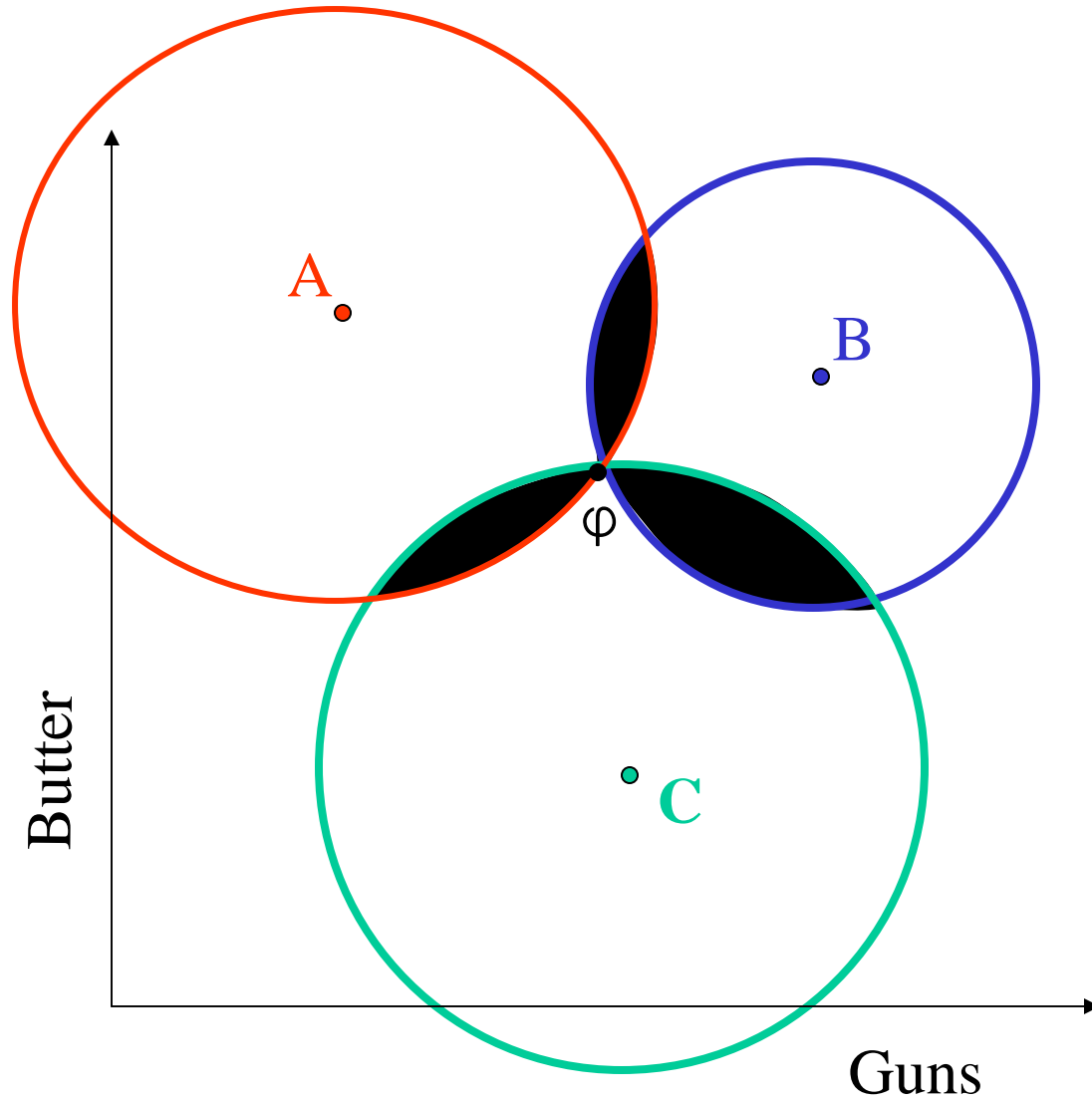
The Simple Euclidean System: Preference relations



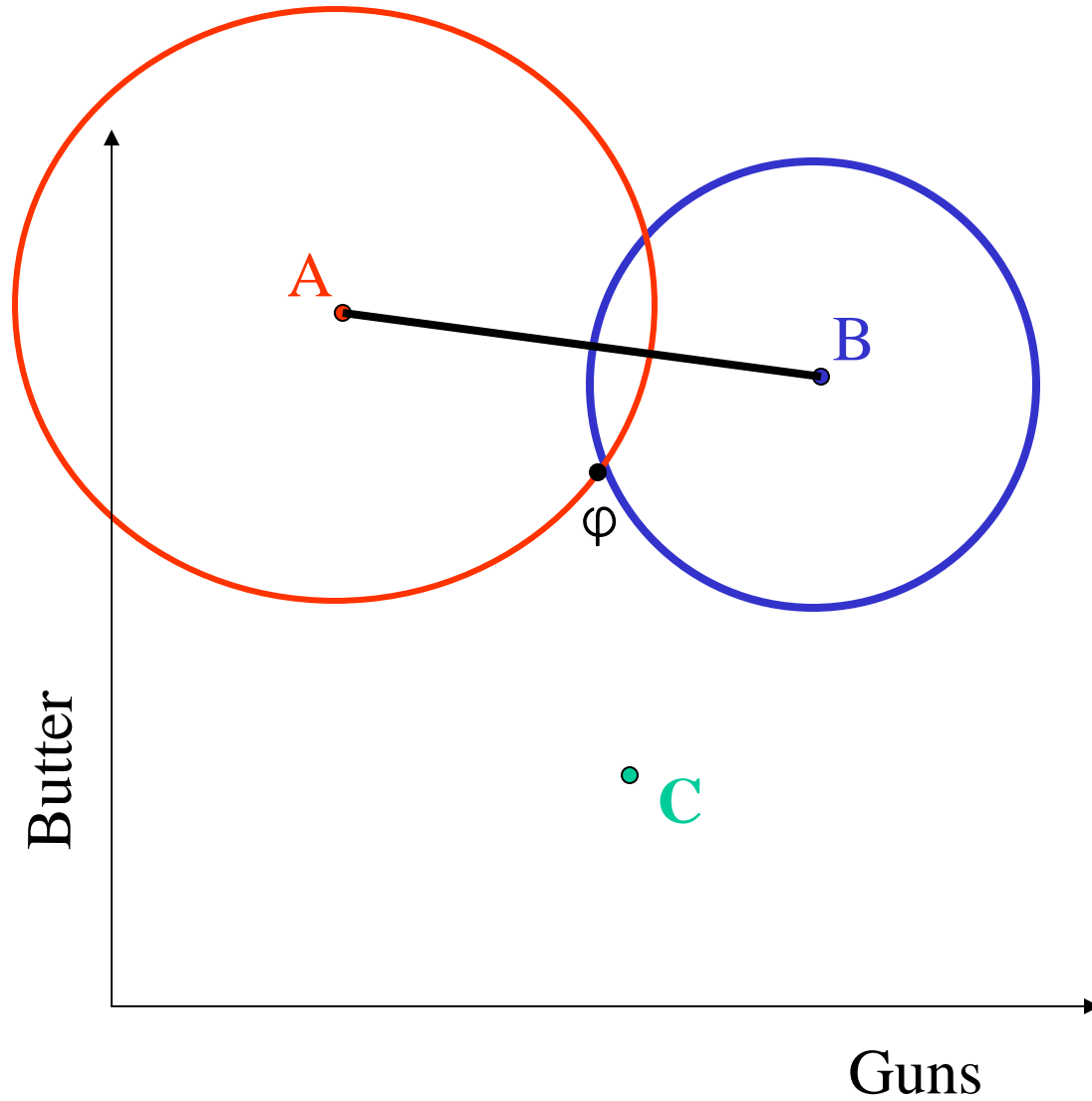
The Simple Euclidean System



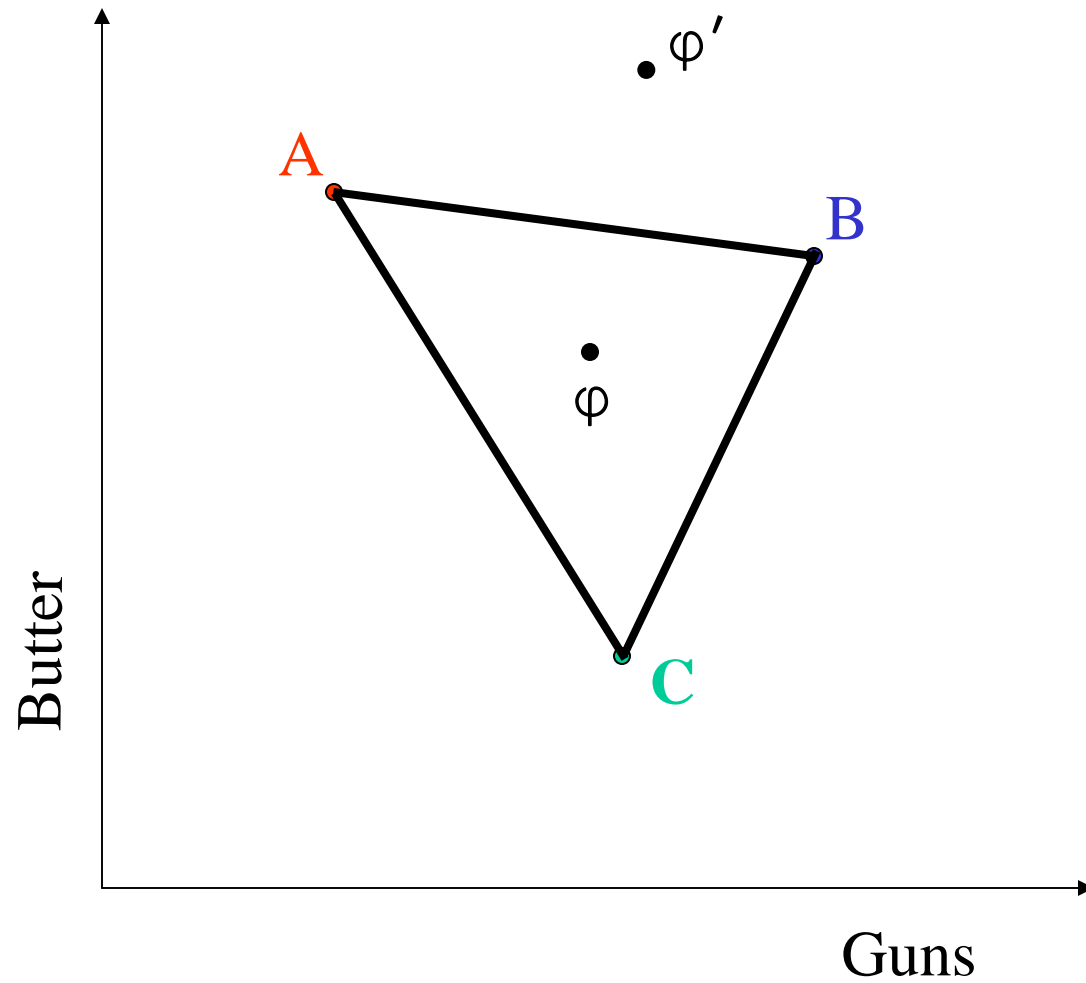
The Win Set, $W(\varphi)$



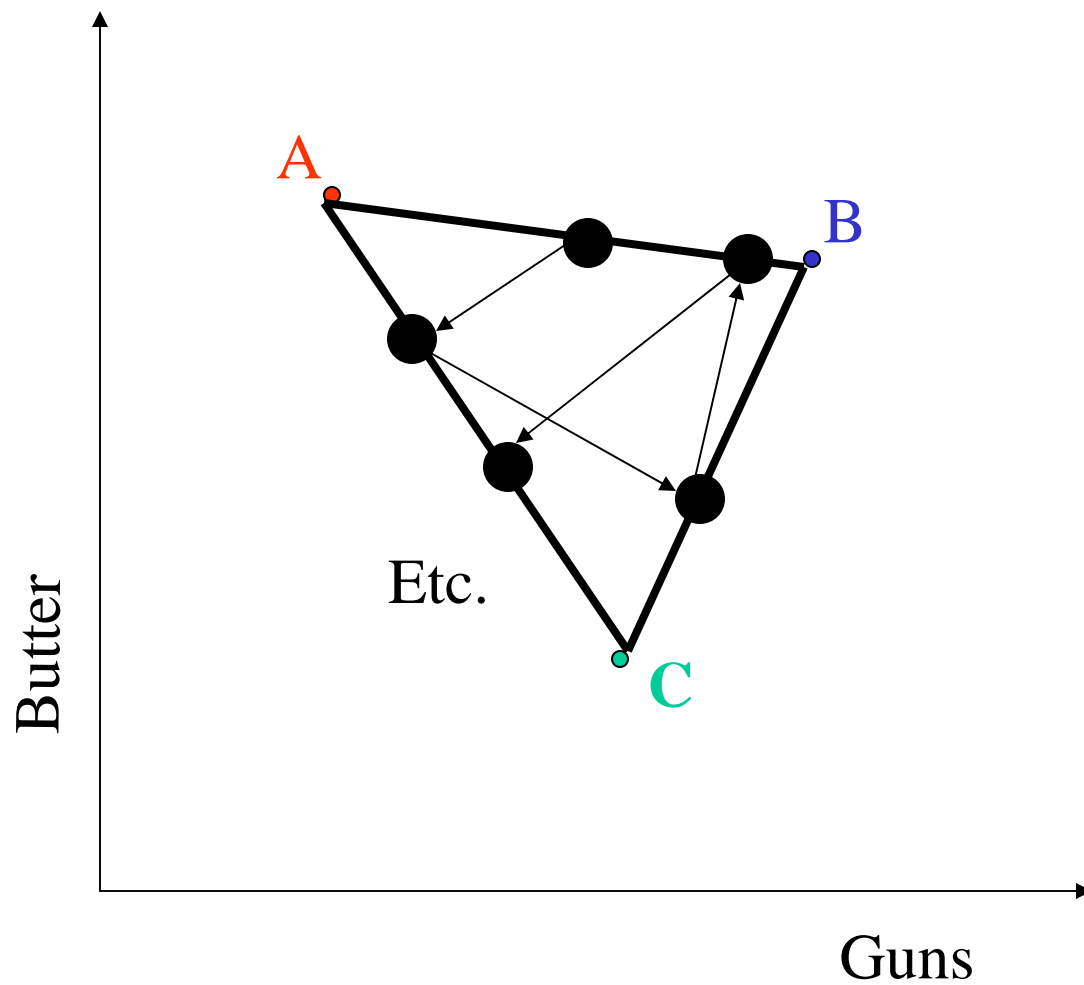
The Contract Curve



The Pareto Set



You are always off a contract curve



McKelvey Chaos Theorem

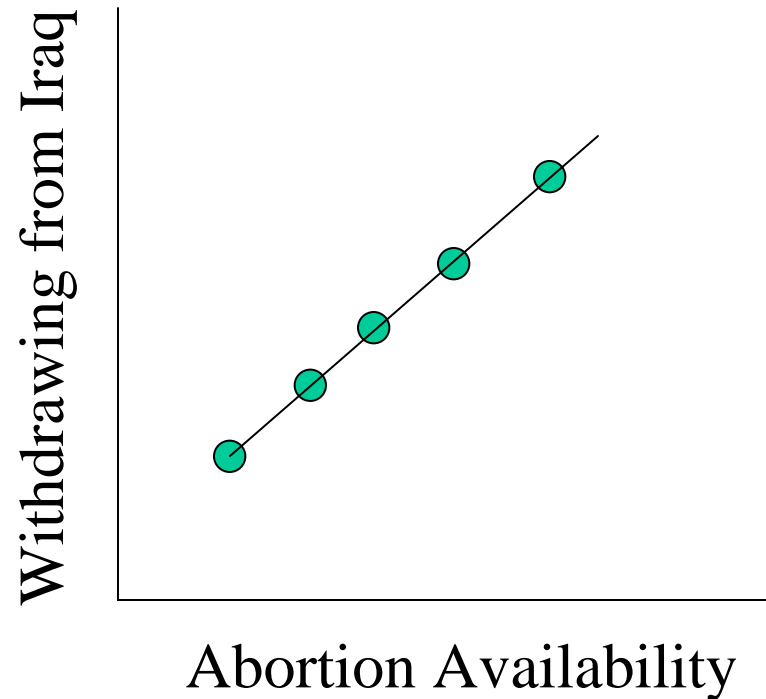
- With multiple attributes and multiple decisionmakers
 - There is no equilibrium of tastes
 - Anything can happen
 - I.e., the median voter result doesn't hold
- This is really important

What Might Induce Stability?

- Tastes
- Uncertainty
- Impatience
- Rules

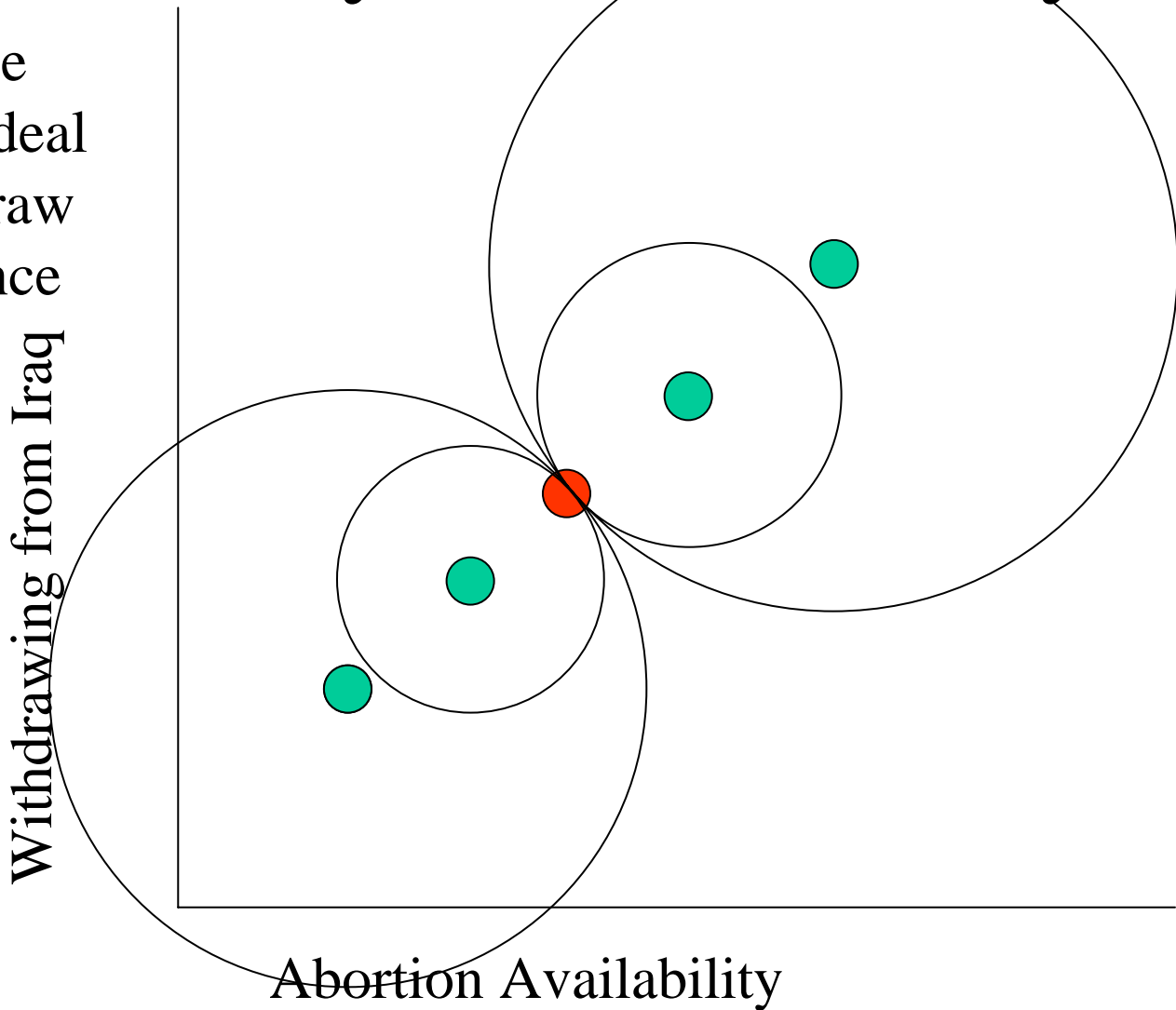
Tastes may induce stability

- Ideology
- “Median in all directions”

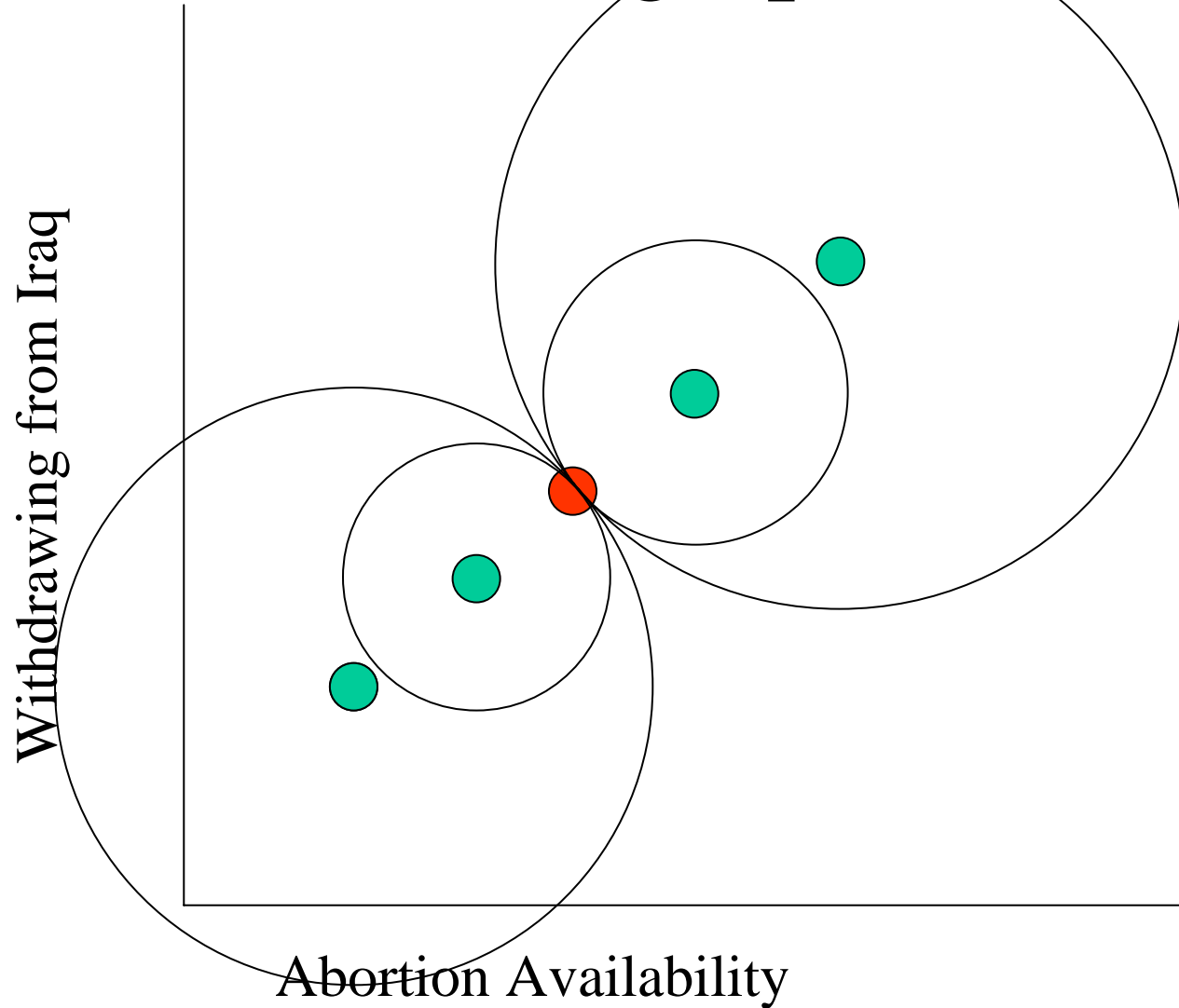


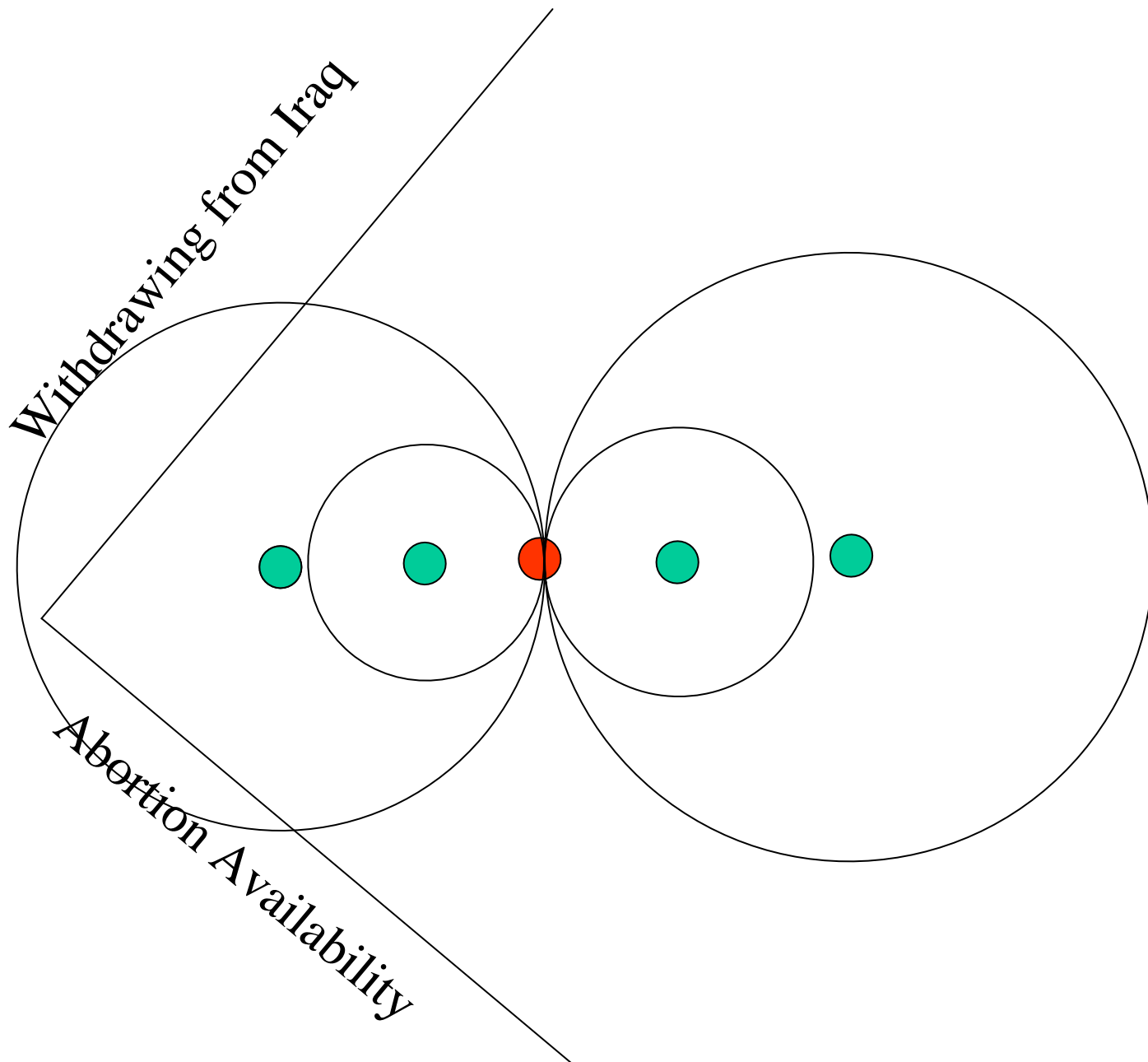
Tastes may induce stability

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

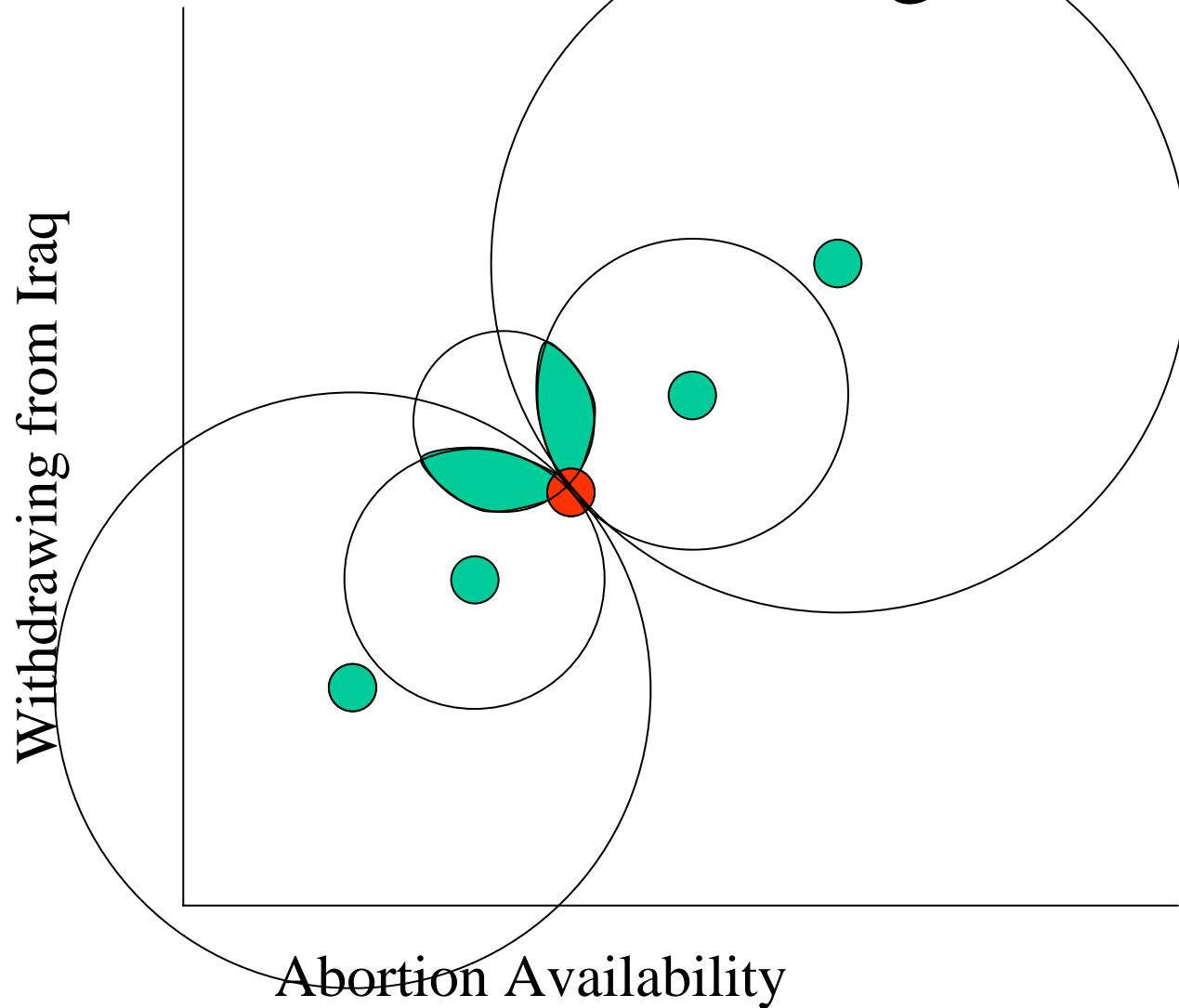


(Rotate this graph)

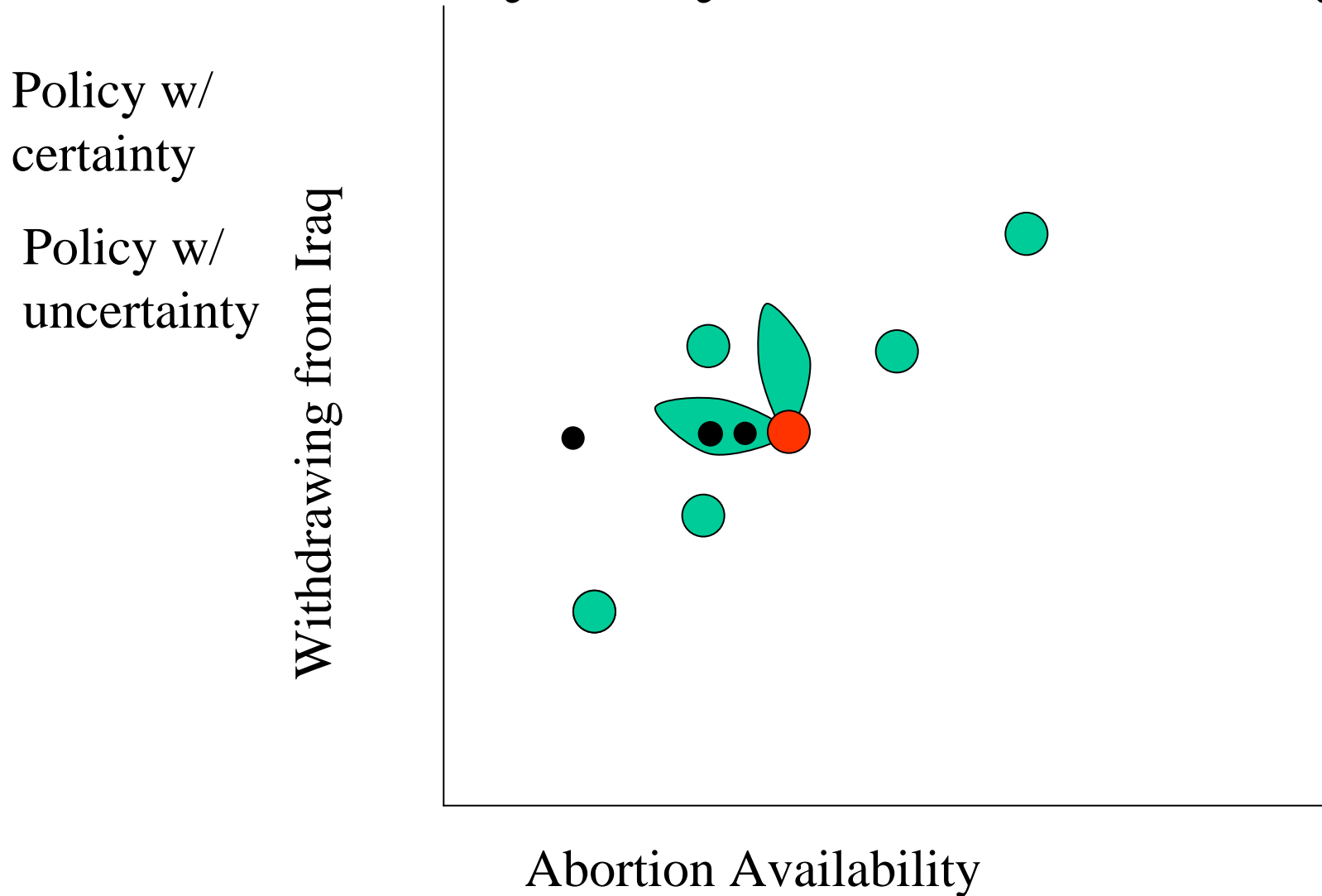




The result is knife-edged



Uncertainty may induce stability



Impatience may induce stability

- Rubenstein bargaining

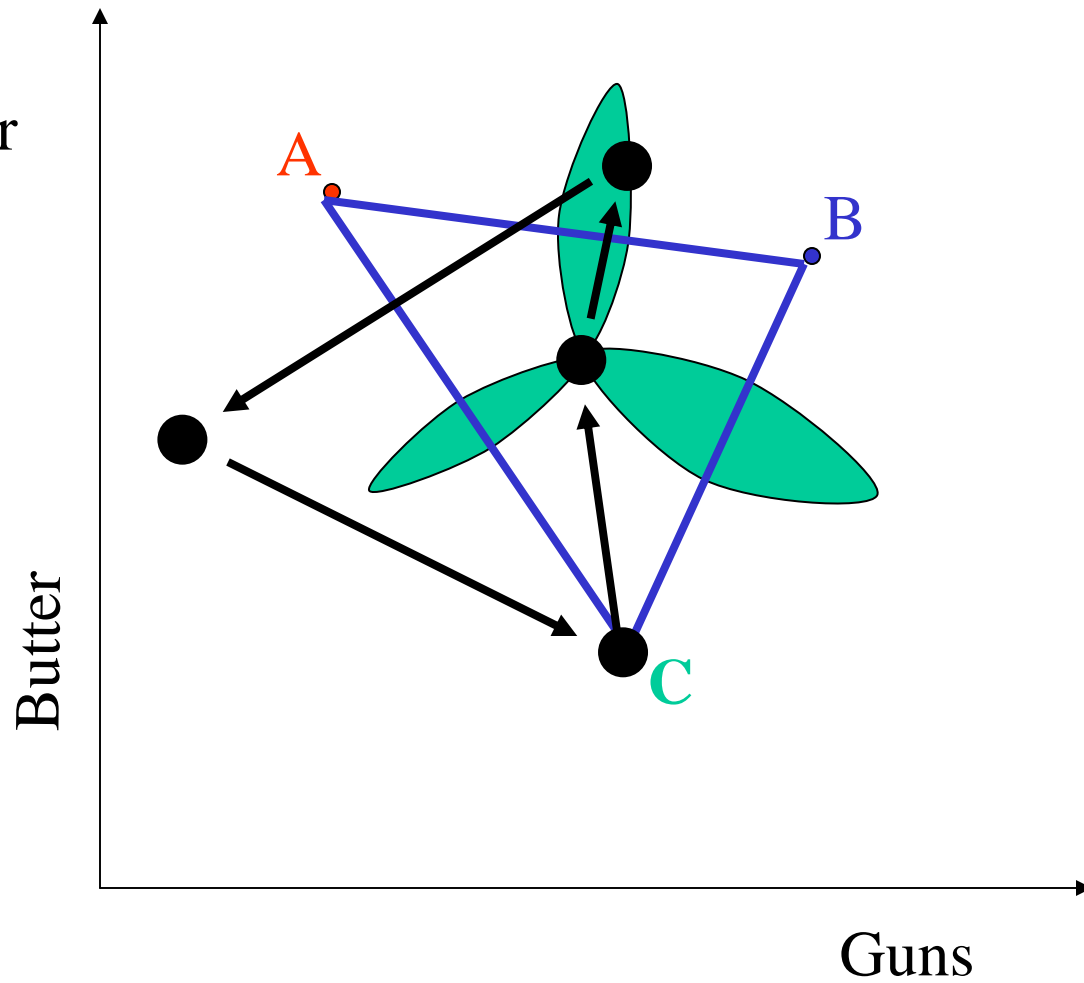
$$U_{i,t} = [\alpha - \beta(x_i - x)^2 - \gamma(y_i - y)^2](1 - \delta)^t$$

Rules may induce stability

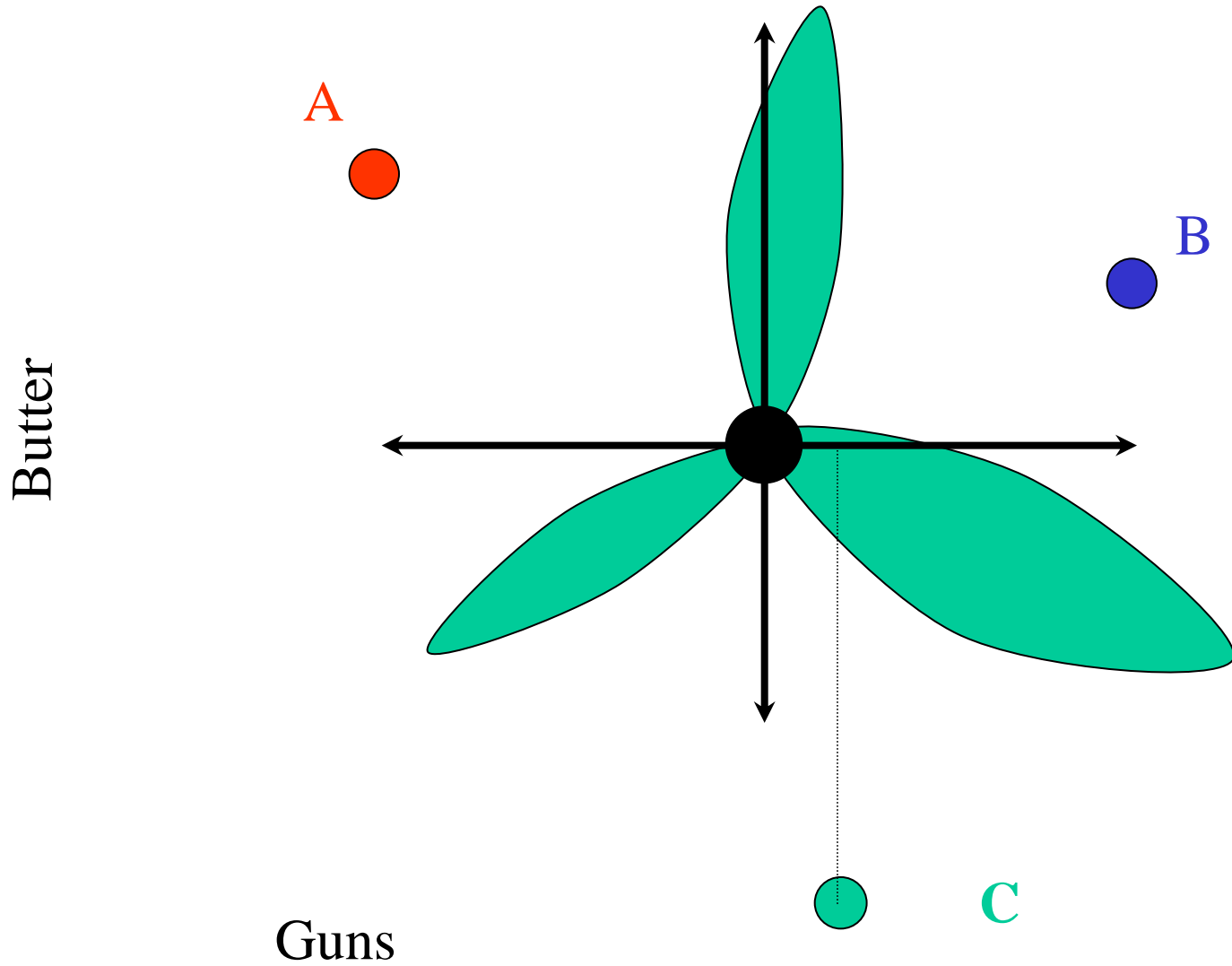
- Floor rules, e.g.
 - vote on status quo last
 - Not stability so much as guarding against “anything can happen”
 - Germaneness rules
- Committees

Status quo last

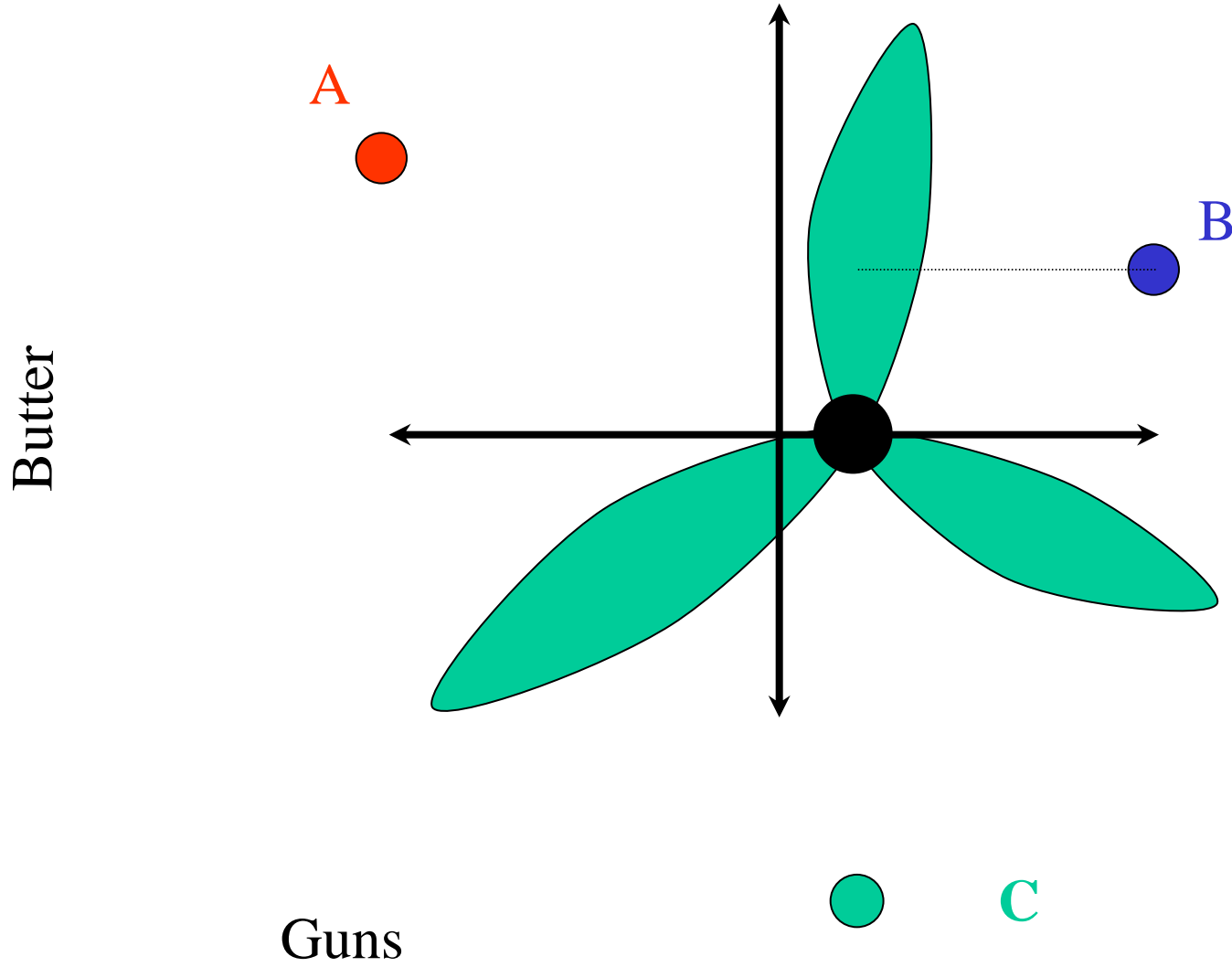
“C” is Speaker



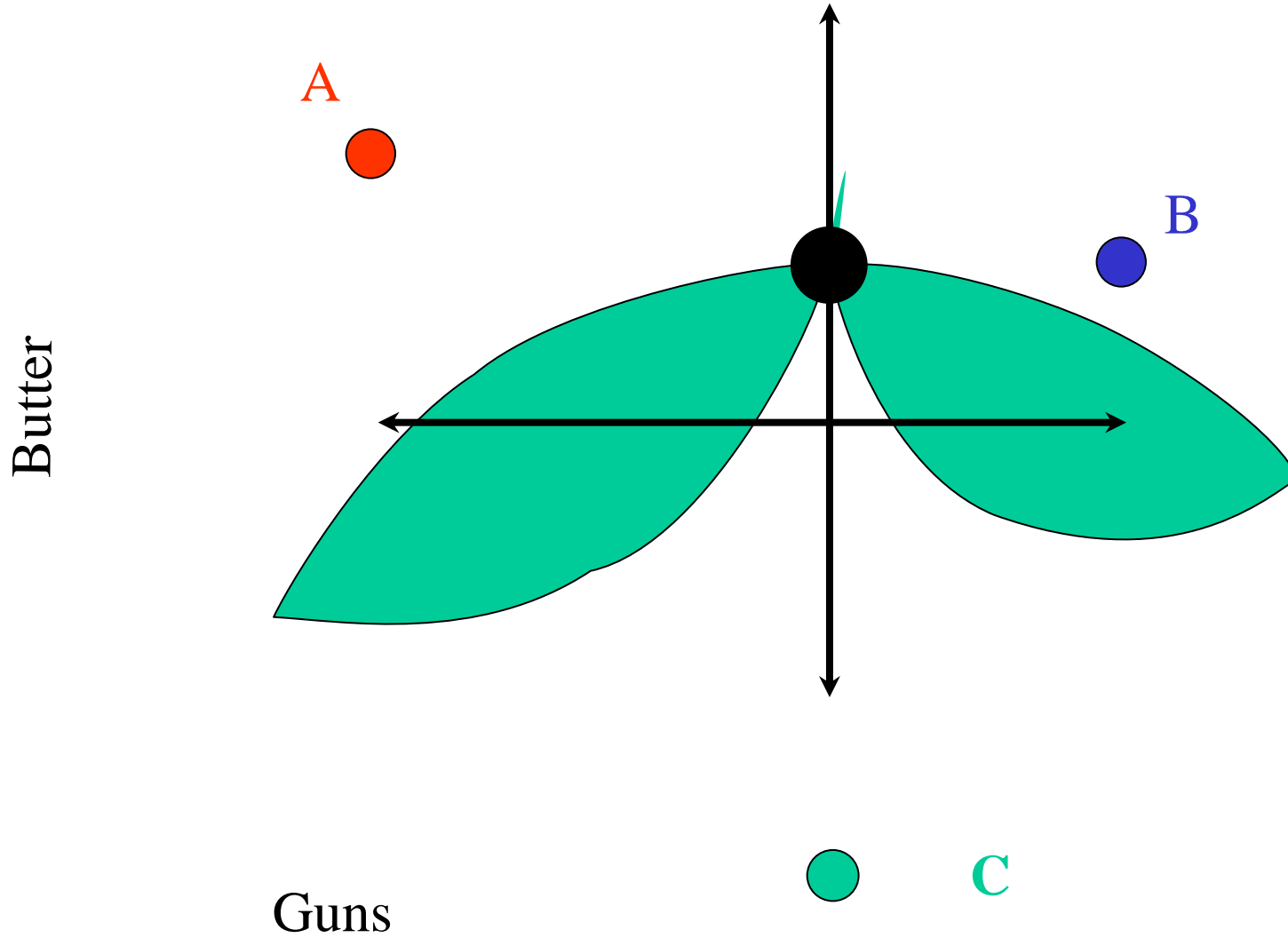
Germaneness



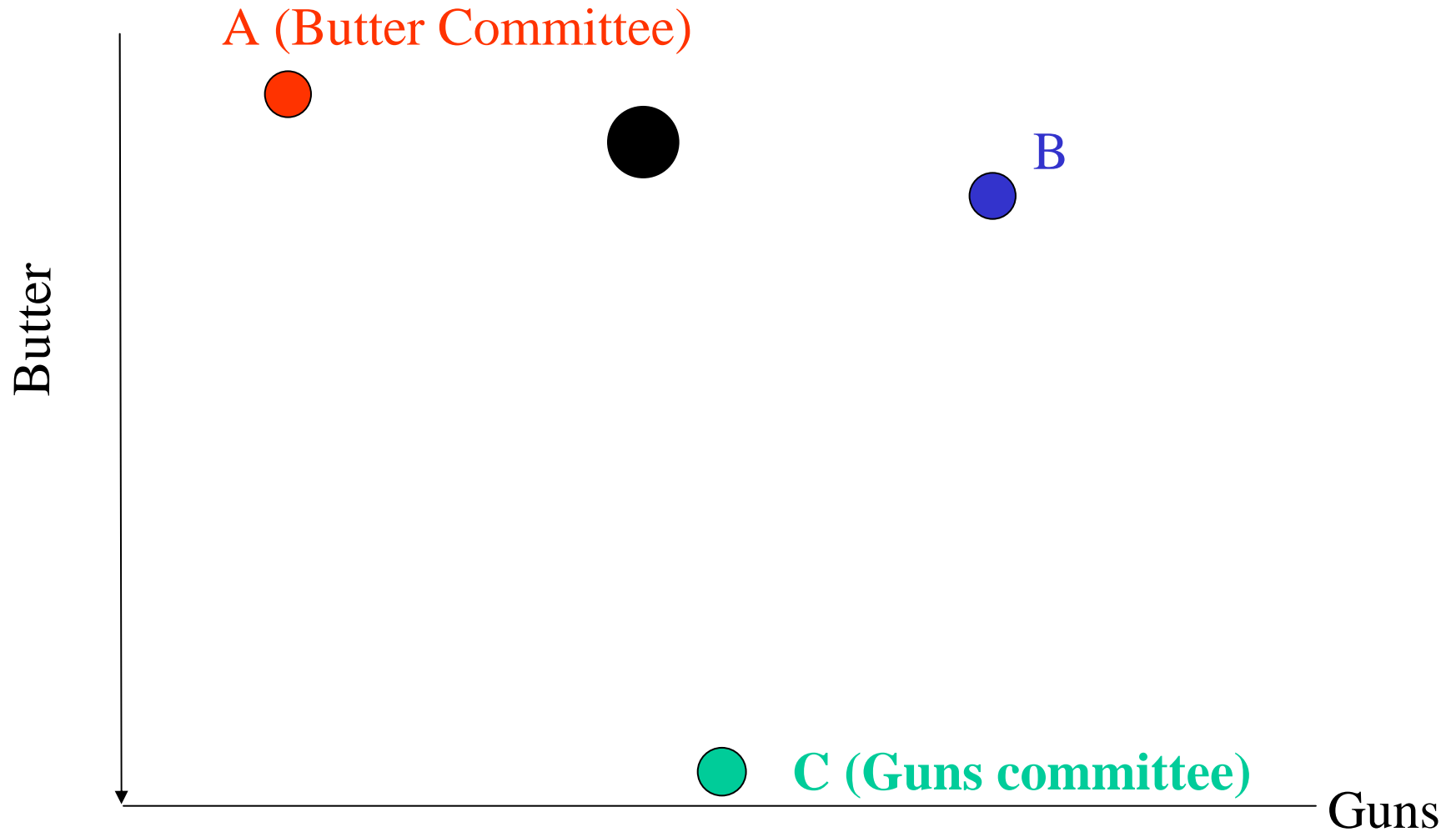
Germaneness



Germaneness



Committees (and subcommittees) reduce policy dimensionality



Stability-inducing powers of leaders and committees

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

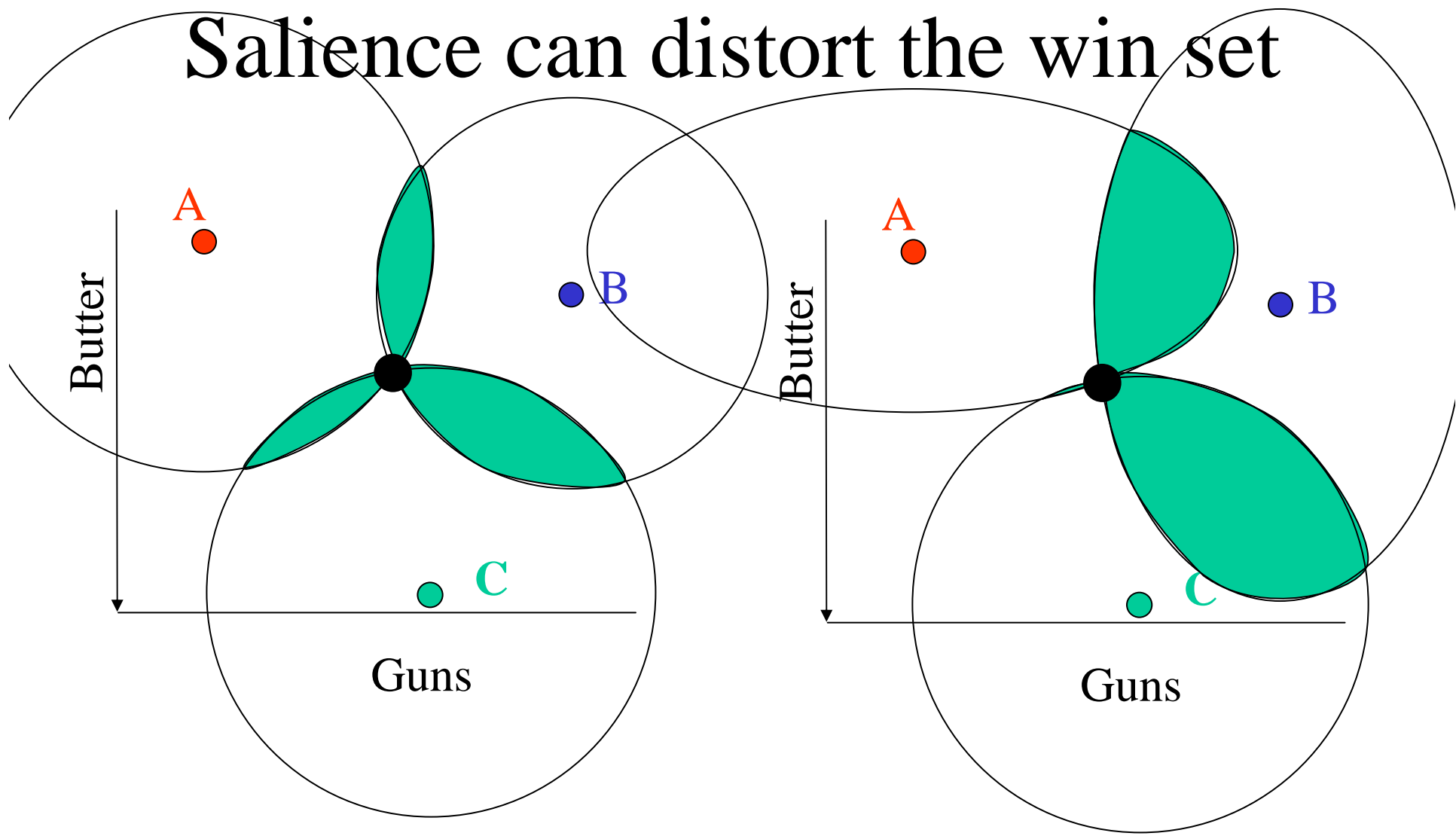
Examples of Multidimensionality in Action

- Informal decisionmaking
- Riker's "heresthetics"
 - Heresthetics: the strategic introduction of "extraneous" issues

Unresolved Issues

- Salience
- Sophistication

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

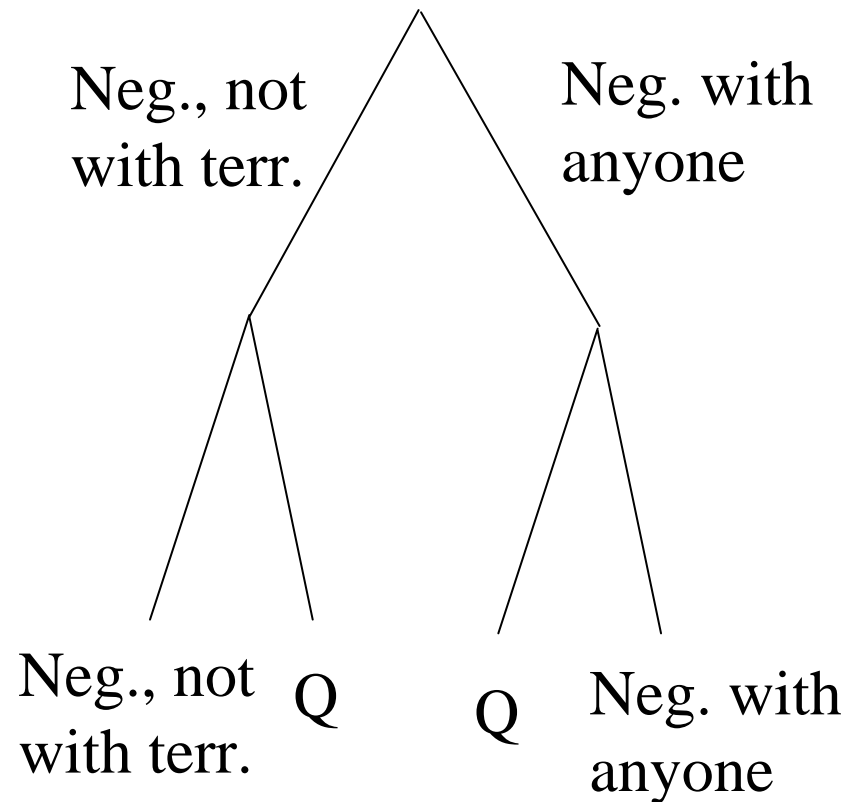
Sophisticated Voting Example

| 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 |

Note that a majority prefers negotiating, but not with terrorists, over not negotiating

Agenda

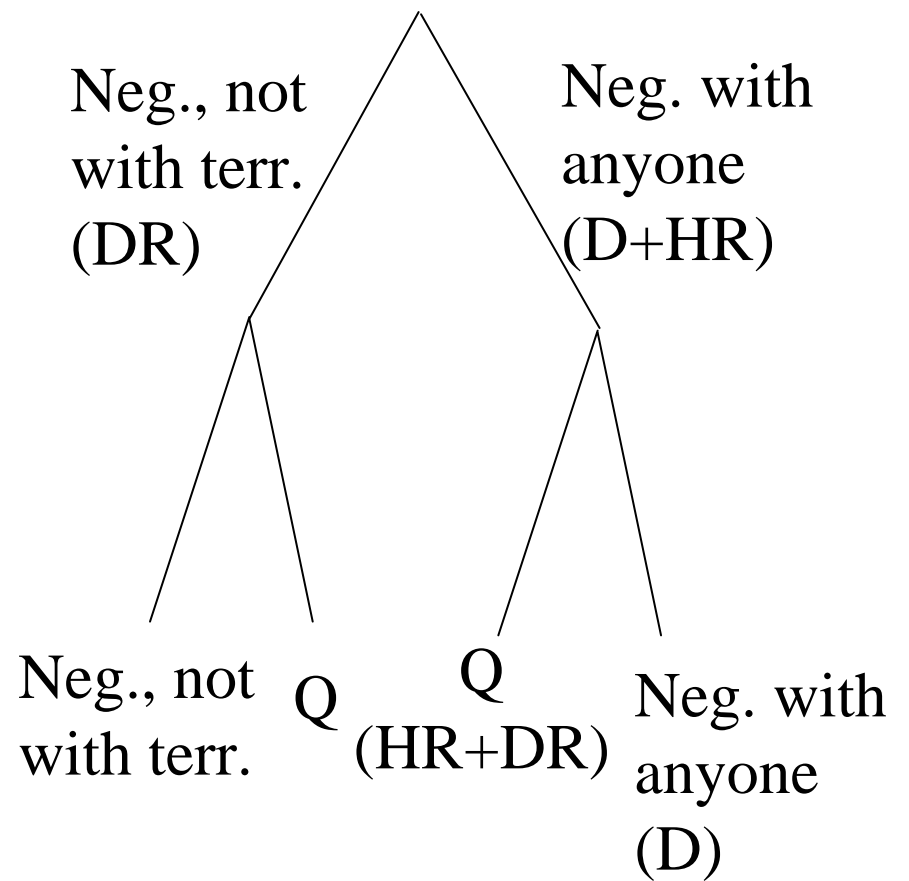
- Add “proviso” to negotiation strategy
- If the proviso passes, pair the negotiation strategy proviso against the status quo (continue no negotiation)
- If the proviso fails, pair the negotiation strategy against the status quo



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 |

