PS651: Models & Tools for C&IPE, Part I

I. Outline

A. MVT and Downsian Competition

B. Multiple Dimensions, Preferences, & Impossibility/Chaos Theorems

C. Legislative Bargaining Models:

1. Baron-Ferejohn (proposal & amendment powers)

2. Romer-Rosenthal (veto powers)

D. Nash Bargaining

E. Coalition Concepts & Models:

1. Non- & Single-Dimensional Approaches

2. Laver-Shepsle coalition model

F. General Approaches & Specific Workhorse Models

1. Tsebelis' veto-actor arguments

2. MV Model T&T: Meltzer-Richard

3. Simple Distributional Model: WSJ

G. Part II:

1. *Selectorate Theory* (BdM^2S^2, chs. 2-3): Relative sizes winset & selectorate (& pop)

2. Advanced Models of Preferences & Electoral Competition (P&T, chs. 2-3)

3. Classical Redist. Model Democratization (A&R, chs. 4-5)

4. [Econ Models Policy & Pol-mkng Analysis (Drazen, chs. 2-3)]

II. Black's Median-Voter Theorem (MVT), & Hotelling/Downs Partisan-Convergence (*Downsian Competition*)

A. Conditions:

1. Single-peaked preferences;

2. Full turnout & rational vote on monotonic Euclidean preferences;

3. Sincere, simple-proximity voting;

4. Single-dimensional politics;

5. Pairwise voting (binary choice).

B. Conclusion/Implications:

1. MV≈king. Black's ('58) MVT: If [above], then *median*-voter's ideal point is only point majority-preferred to all others. **[DRAW…]**

2. Hotelling ('28)-Downs('57) *Centripetal Tendency Democratic Party Competition*: Applied to ***2-party*** elections, MVT ⇒ strong incentives converge toward Median-Voter's ideal point. **[DRAW…]**

a) *N.b.*, symmetry, unimodal, etc., not required;

b) Result independent of the preferences distributions;

c) ***<u>But</u>***:

3. Thry'ly, partisan divergence can emerge as eqba several reasonable representations elect compet:

a) Electoral Uncertainty (esp. re: med-vote preferences)

(1) Uncertainty: allows pol-intrstd prtys to drift from E(MV) at finite ($<\infty$) expected-vote cost, yielding divergence

(2) ↑ as such uncertainty ↑ (Wittman '77, '83; Calvert '85; Roemer '92)

b) Abstention: several models; alienation, e.g., ⇒ diverge

c) (Lobby-IntrstGrp) Extra-Electoral Influences:

(1) if resources other than votes can sway elect, by "buying", "informing", or "persuading" votes e.g.,

(2) & if these come not from median (which logical), can also produce divergence (see, e.g., Aldrich).

d) Credibility: Diverge can also arise if pre-elect promises must be post-elect credible, i.e. post-elect optimal for winners to implement:

(1) w/ 2 parties, no entry, & 1-stage games (e.g., no reelect) winners no incentive to implement median preference if their own differs, so voters only believe victors will enact victors' own ideal ⇒ full *di*vergence.

(2) In repeat elections, parties can (& have some incentives to) build reps ⇒ some (not full) convergence.

(3) ⇒ Any degree of divergence, (0%...100%], is sustainable; ↑credibility ⇒ ↑ sustainable *con*vergence.

e) Entry/Multiple Parties:

(1) Free entry/Multiple Parties ⇒ no (pure-strategy) eqba

(a) entry free, so any # prtys enter anywhere, or

(b) many prtys ⇒ each always has better position given others

(c) Roughly [?] ⇒ [?] systems w/ low-cost entry could sustain mult prtys w/ any degree divergence [?]

(2) w/ some entry-cost, mult. citizen-cand eqba (Besley-Coate 97):

(a) One, that only median enters, ⇒ Hotelling-Downs-Black, but

(b) Others ⇒ 2 cands equidistant from median enter, w/ sustainable divergence widening as entry costs grow.

(3) Even w/ just 2 parties, potential of entry ⇒ entry-deterrence reason to diverge.

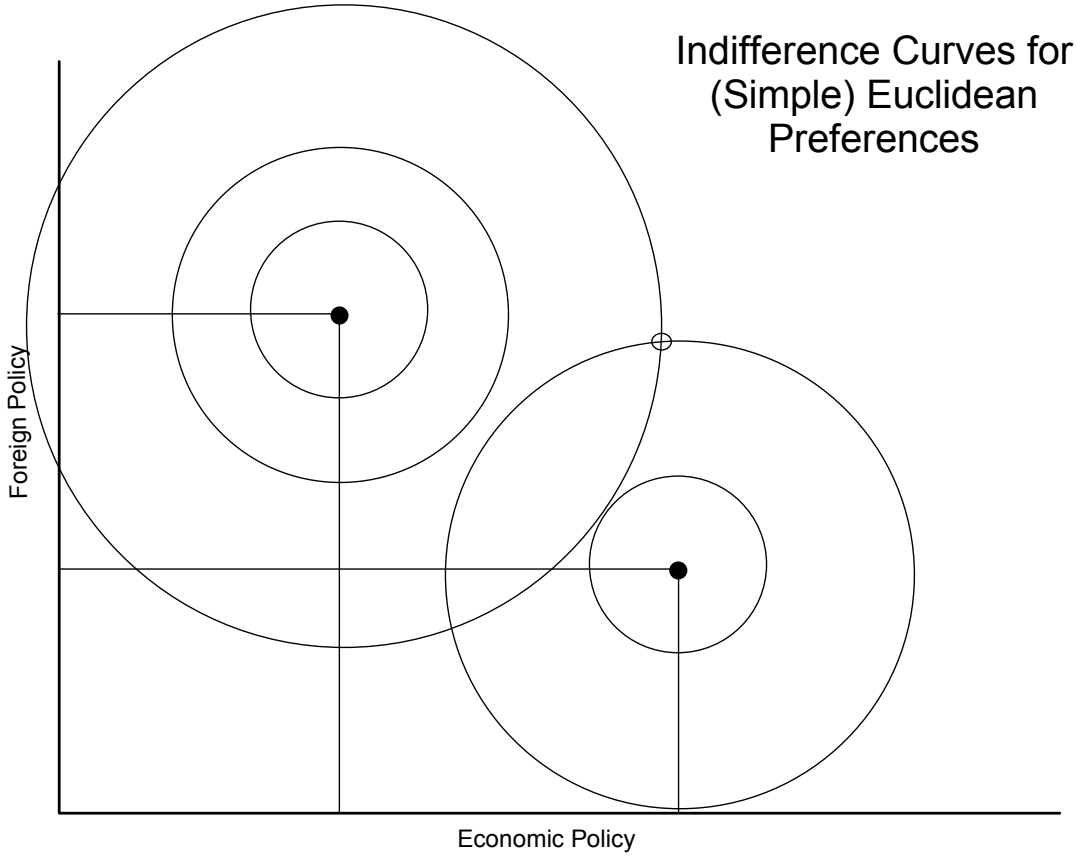
f) Multiple Dimensions ⇒ chaos… [elaborated below]

4. Degree of Divergence ∴ = an empirical matter

III. Multiple Dimensions, Preferences, & Indifference Curves; Condorcet's Paradox & Cycles, Arrow's Impossibility Theorem, & McKelvey/Schofield, Chaos Thrms

A. Euclidean Prefs & Indifference Curves in Multi-D

1. Separable & Equal-salience ⇒ circular, ctrd @ ideal



2. Unequal salience ⇒ elliptical; ⊥ to axes; ctrd @ ideal; thinner in more-salient dim, fatter in less

3. Non-separable ⇒ tilted elipses; ctrd @ ideal; slanted top-left to bottom-right = complementarity (pos. ext.); opposite if substitutability (neg. ext.)

B. Multi-D:

1. In general, no equilibrium in multi-D *(unless projects in some fashion to 1Dim; see Part II)*

a) ***Condorcet Paradox/Cycles*** (Lack of social-preference transitivity…):

(1) (Individual) Preferences:

(a) Person 1: A>B>C

(b) Person 2: B>C>A

(c) Person 3: C>A>B

(2) Votes (Societal Preferences):

(a) A > B (2-to-1)

(b) B > C (2-to-1)

(c) But C > A (2-to-1)

b) ***Arrow's Impossibility Theorem*** (Not just an example; it's much worse):

(1) Theorem: no general way to aggregate preferences w/o some *irrationality* or *unfairness*:

(2) Assumptions:

(a) Aim to extract social preference ordering on given set options (outcomes).

(b) Each individual has some preference order on those outcomes.

(c) Find ballot system, called *social-choice function*, which transforms set prefs into single global social preference order.

(3) Then, these reasonable properties of fair voting method not simultaneously obtainable, logically contradictory:

(a) *unrestricted domain (universality)*: social-choice function ⇒ deterministic, complete soc-pref order from every poss set of ind prefs. I.e., vote must have result that ranks all poss choices rel'ly, voting mech must capable process all poss sets voter prefs, & consistently give same result for same profile of votes: no randomness in mapping.

(b) *non-imposition* (*citizen sovereignty*): every possible soc-pref order should be achievable by some set ind-pref orders; i.e., unrestricted target space.

(c) *non-dictatorship*: soc-ch fnctn not simply follow pref order of 1 ind, ignoring all others, by virtue of its label only.

(d) *positive association of soc & ind values* (*monotonicity*): if ind modifies his or her pref order by promoting certain option, then soc pref order should respond only by promoting that option or not changing, never by placing it lower than before. (An individual should not be able to hurt an option by ranking it higher.)

(e) *independence of irrelevant alternatives (IIA)*: if restrict attention to subset options, & apply soc ch function only to those, then result should be compatible w/ outcome whole set options. (Changes in inds' rankings of "irrelevant" alternatives [i.e., ones outside subset] should have no impact soc ranking of "relevant" subset..)

(4) Thrm: if decision-making body ≥2 members & ≥3 options to decide among, then *impossible* to design soc ch fnctn that satisfies all these conditions at once.

(5) Another version obtained by replacing *monotonicity* w/ *unanimity* or *Pareto Efficiency*: if every ind prefers certain option to another, then so must resulting soc pref order (Again, demands that soc-ch fnctn at least minimally sensitive to soc-pref profile).

c) ***McKelvey-Schofield Chaos Theorems***

(1) DRAW [e.g., referenda? "Power to the People," eh?]

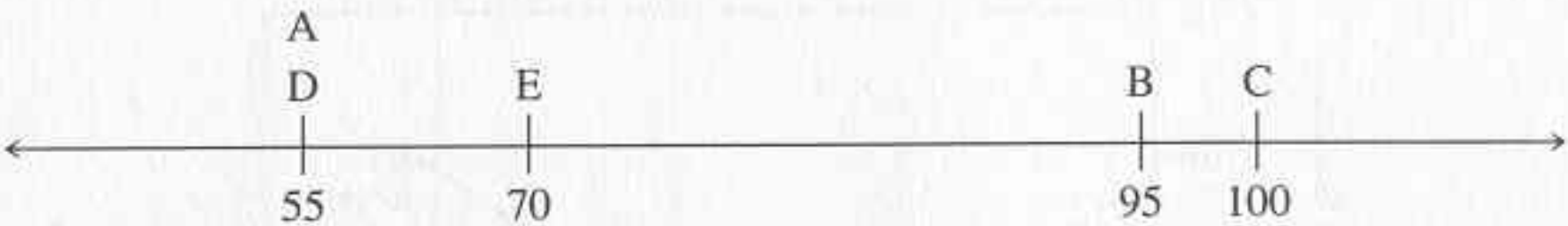
(2) ***Chaos:*** Start anywhere, get almost anywhere else [Yikes!]

(3) ***Agenda Power***: agenda-setter can get ideal almost always [!]

(4) ***Strategic v. Sincere Voting***

d) Example (Green & Shapiro's Faculty-Salary Committee)

(1) 1 Dimension ⇒ MVT



Note: Salaries in thousands of dollars.

Figure 6.1. Voter Preferences for Political Scientist Salaries

(2) 2 (or D>1) Dimensions, but Radial Symmetry ⇒ DDM eqbm

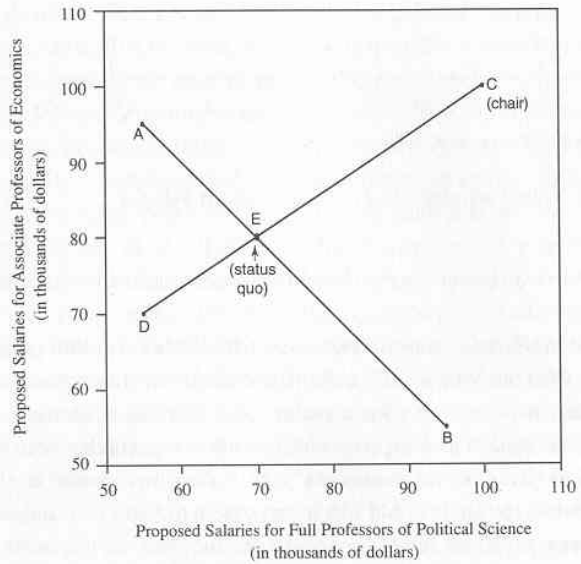


Figure 6.2. Preference Configuration for Faculty Salary Committee

(3) 2 (or D>1) Dims, lacking Radial Symmetry (DDM) ⇒ No Eqbm (w/o more structure, but…)

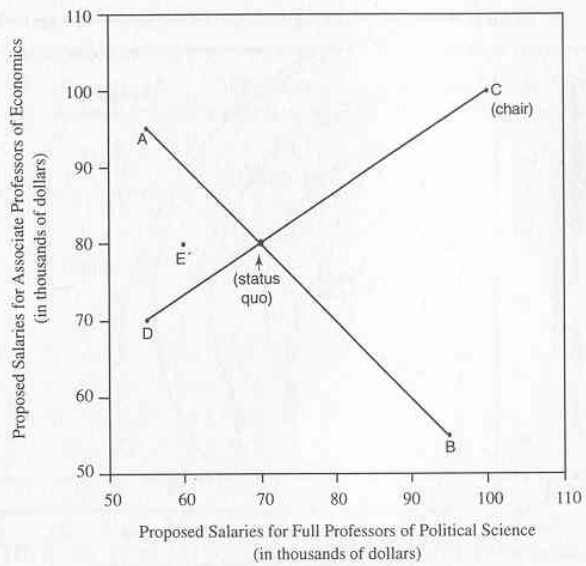


Figure 6.3. Preference Configuration Following Replacement of Voter E with Voter E′

(4) 2D (or higher), no DDM member, Sincere Voting ⇒ (extreme) Agenda Power

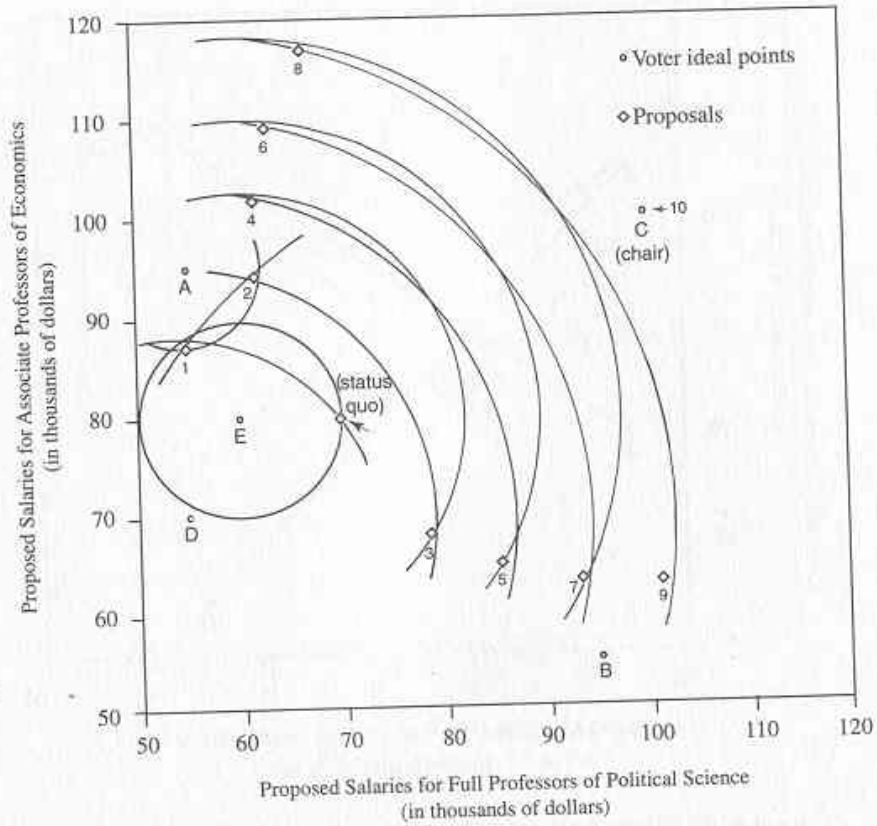


Figure 6.4. Agenda Manipulation and Faculty Salaries

(5) *YET 9=only opt 10 beats! 1 aspect McKelvey-Schofield Chaos. From anywhere to almost anywhere!*

Table 6.1. Preference Schedule for Voters on Faculty Salary Proposals

Professor A	*Professor B*	*Professor C*	*Professor D*	*Professor E'*
2	9	10	1	1
1	7	Status quo	Status quo	Status quo
4	5	9	3	2
Status quo	3	8	2	4
6	Status quo	7	5	3
8	10	6	4	6
3	2	5	7	5
5	1	4	6	8
10	4	3	9	7
7	6	2	8	10
9	8	1	10	9

2. What to do about chaos/no equilibrium?

a) If Multi-D eqbm exists, it's the **DDM**, but requires a *very* special array of preferences: Plott/Kadane ('67/'72) "***radial symmetry***" [≈koosh]

b) Preferences or Options Project onto 1D/Single-Crossing Property:

(1) 1D heterogeneity in voters (w/ single-cross) or multi-D policy constrained to 1D (e.g., by budget constraint).

(2) Probabilistic-Voting Model (Hinich '77)

(3) [See Part II, esp. P&T ch. 2.]

c) Shepsle's ('79) ***Structure Induced Eqbm*** **[DRAW]**, but then Riker's ('80): ***Inheritability***. [See Inst's Wks]

(1) (Following Morrow pp. 138-45). Committee & Floor (or could be Cabinet & Parliament or Minister & Cab):

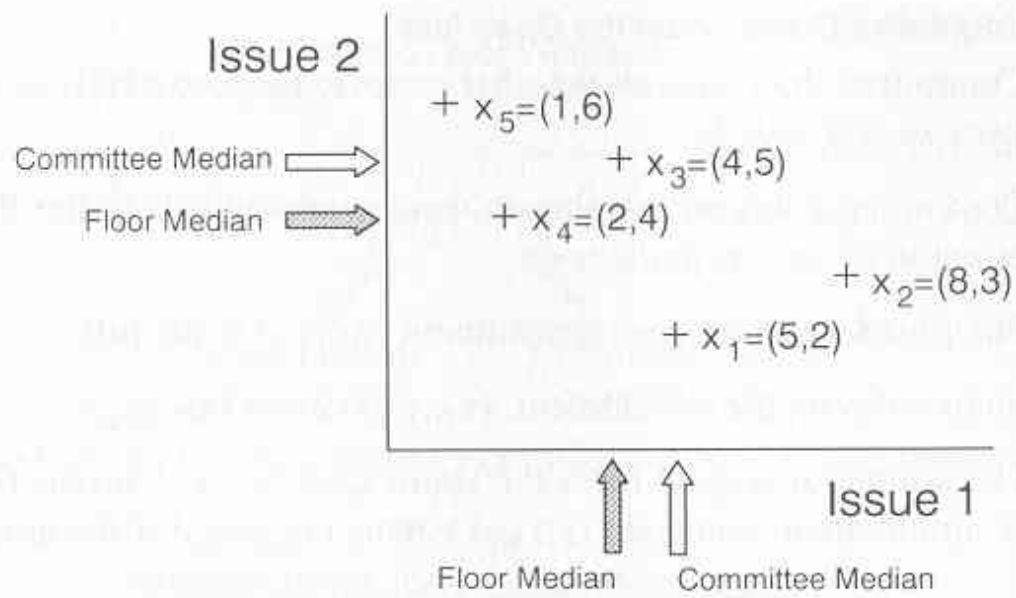


Figure 5.22 An Example of Structure-Induced Equilibrium with Five Voters and Two Issues

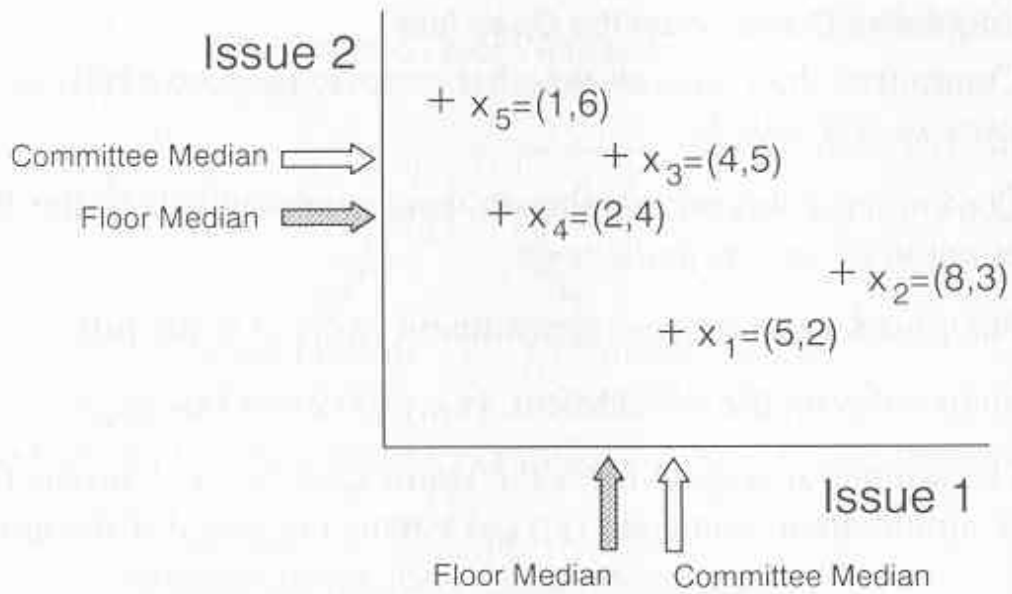


Figure 5.22 An Example of Structure-Induced Equilibrium with Five Voters and Two Issues

(2) Game Structures = Alternative Proposal & Amendment & Decision Rules, Sequencing, etc.:

(a) Typical SIE structure:

(i) 1 Committee per Dimension (minimally, # committees ≤ # dimensions)

(ii) Only C can propose on its dimension.

(iii) SQ if nothing proposed or if proposal/amendment winner loses.

(b) ***Open Rule*:** floor can amend on either Dimension if proposal comes to floor from committee.

(c) ***Germaneness Rule*:** floor can amend only on Dimension proposed.

(d) ***Closed Rule*:** floor cannot amend.

The Legislating Game under the Open Rule

1. Committee chair chooses whether or not to propose a bill (x_P, y_{SQ}) and chooses x_P if it does so.

2. Committee votes on whether to send proposed bill to the floor. If it votes not to do so, the game ends.

3. Floor leader can propose amendment (x_A, y_A) to the bill.

4. Floor votes on the amendment, (x_A, y_A) versus (x_P, y_{SQ}).

5. The winner of stage 4 faces the status quo, (x_A, y_A) versus (x_{SQ}, y_{SQ}) if the amendment won and (x_P, y_{SQ}) versus (x_{SQ}, y_{SQ}) if the amendment lost.

The Legislating Game under the Germaneness Rule

1. Committee chair chooses whether or not to propose a bill (x_P, y_{SQ}) and chooses x_P if it does so.

2. Committee votes on whether to send proposed bill to the floor. If it votes not to do so, the game ends.

3. Floor leader can propose amendment (x_A, y_{SQ}) to the bill.

4. Floor votes on the amendment, (x_A, y_{SQ}) versus (x_P, y_{SQ}).

5. The winner of stage 4 faces the status quo, (x_A, y_{SQ}) versus (x_{SQ}, y_{SQ}) if the amendment won and (x_P, y_{SQ}) versus (x_{SQ}, y_{SQ}) if the amendment lost.

The Legislating Game under the Closed Rule

1. Committee chair chooses whether or not to propose a bill (x_P, y_{SQ}) and chooses x_P if it does so.

2. Committee votes on whether to send proposed bill to the floor. If it votes not to do so, the game ends.

3. The bill faces the status quo, (x_P, y_{SQ}) versus (x_{SQ}, y_{SQ}).

(3) ***Backward Induction*** to find the equilibrium under the Germaneness Rule

(a) Floor passes anything leader (x_3) prefers to SQ.

(b) Leader, ∴, proposes ideal pt.

(c) Comm passes anything its leader (x_1) prefers to SQ.

(d) *Eqbm:* ∴ C proposes something, floor amends to x_3 & passes.

(e) Any SQ closer to x_1 than x_3, ∴, induces C not propose. *Stable SQ*.

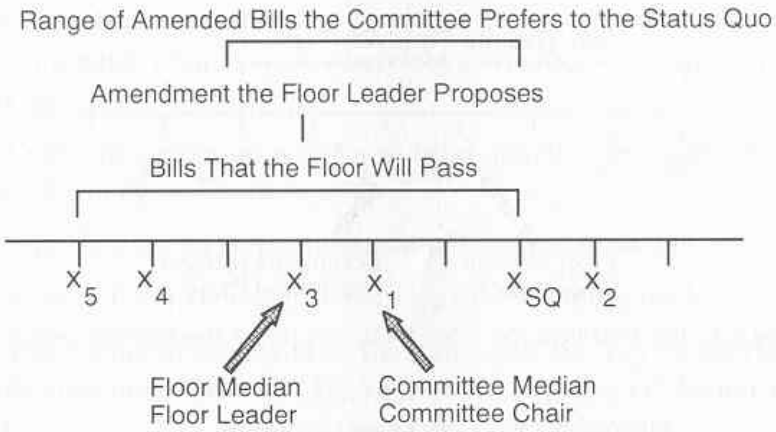


Figure 5.25 Bills the Committee Prefers to the Status Quo

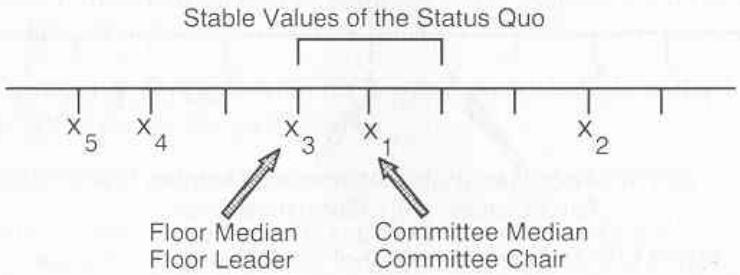


Figure 5.26 Structure-Induced Equilibria of Issue 1 under the Germaneness Rule

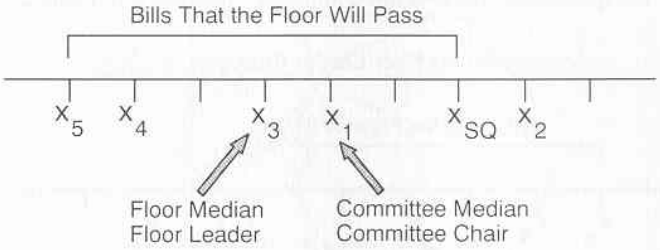


Figure 5.23 Bills That Pass the Floor on Issue 1 under the Germaneness Rule

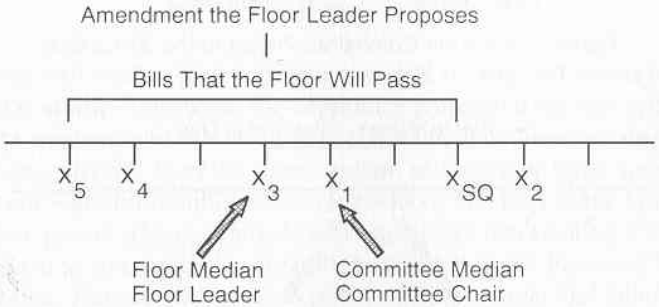


Figure 5.24 The Amendment That the Floor Leader Proposes

(4) Open Rule:

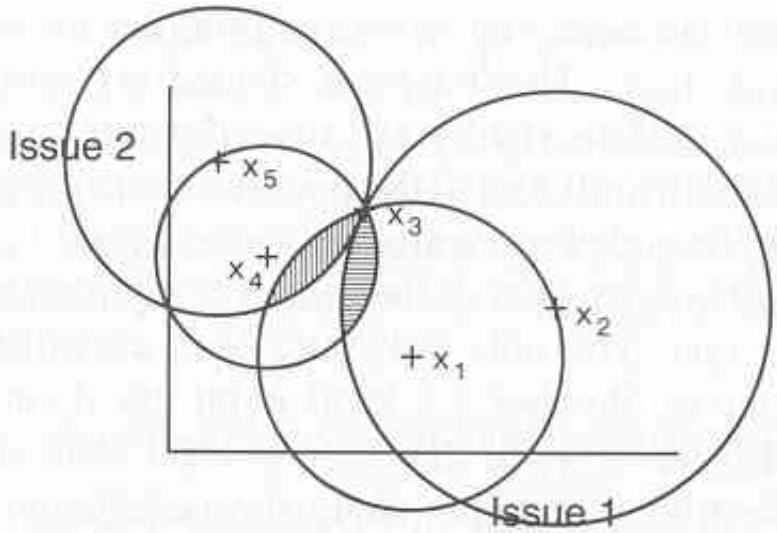


Figure 5.27 Bills that Pass on the Floor under the Open Rule

(a) Only shaded petals can defeat floor leader's ideal (x_3).

(b) Anything proposed outside those amended to x_3 & passed.

(c) *Eqbm:* ∴ C proposes/not the preferred of SQ or best point in petals.

(d) *Stable SQ*'s anywhere in petals, or pts closer to both C-leaders.

(5) *Closed Rule* ≈ *Veto Bargaining*: propose pt closest to C-ldr that leaves floor majority just indiff b/w proposal & SQ.

d) ***Social-Choice Theory Refinements*** (Schofield et al.): *Heart*, *Yolk*, *Condorcet (pairwise) Winners/Sets*…: tend to yield Multiple or No Eqba, but also tend to restrict range of possible outcomes.

IV. Nash Bargaining

A. *Cooperative Game-Thry*: binding agree's & side-pay's / transferable utility ⇒ Max total payoff

B. Satisfy *joint-efficiency, symmetry, linear-invariance, & ILA*, with utilities, $u_i(x)$, *reservation points*, c_i, & bargaining powers, b_i, ⇒

1. $$Max_x \prod_{i=1}^{n} \left[u_i(x) - u_i(c_i)\right]^{bi}$$

2. *Example:* union-firm bargaining over wage-growth (from Franzese '94)

a) Nash-bargaining solutions maximize bargaining-power-weighted product of the bargainers' utility functions, maximized w.r.t. variable over which they're bargaining, here w_j:

$$Max_{w_j} \left[V^w \left(\omega_j^c, \varepsilon_j(y_j) \right) \right]^a \left[V^e \left(\omega_j^p, y_j \right) \right]^b \qquad \textbf{(1)}$$

b) Solution sets wtd sum marginal utilities to union of getting & to firm of ceding nominal-wage gain to zero:

$$\frac{a}{V_j^u} \cdot \frac{\partial V_j^u}{\partial w_j} + \frac{b}{V_j^e} \cdot \frac{\partial V_j^e}{\partial w_j} = 0 \qquad \textbf{(1)}$$

c) Sol'n *roughly* bargaining-power-weighted average of 1st-order conditions of the bargainers:

$$\text{Max}_W \quad (V^u)^\alpha (V^f)^\beta$$

where α, β are the Nash Bargaining strengths

$\Rightarrow$

$$\alpha (V^u)^{\alpha-1} (V^f)^\beta \frac{dV^u}{dW} + \beta (V^u)^\alpha (V^f)^{\beta-1} \frac{dV^f}{dW} = 0$$

multiplying through by $(V^u)^{-\alpha} (V^f)^{-\beta} \Rightarrow$

$$\alpha (V^u)^{-1} \frac{dV^u}{dW} + \beta (V^f)^{-1} \frac{dV^f}{dW} = 0$$

d) "Roughly" b/c assuming initial utilities union & firm (≈reservation values) not too disparate. Alt'ly, note bargaining power has 2 sources, the exog barg-pow exponents & the reservation pts (outside options).

C. *Rubinstein/Harsanyi* prove Nash-Barg cooperative solution = equilibrium non-coop bargain as series offers/counters, w/ fixed bargaining structure & no time discount.

D. *Empirical Success:* See, e.g., Thomson, Stokman, Achen, & Koenig (2006).

V. Legislative-Bargaining Models

A. <u>**Agenda (Proposal & Amend) Power**</u>: *Baron-Ferejohn* ('89) "Divide-the-Dollar" Game

1. Importance of proposal & amend power, & *recognition rule*.

2. This Specific Baron-Ferejohn Divide-$ Game (Morrow: 149-56) Features:

a) Proposal: $\mathbf{x}=(x_1,x_2,x_3)$ shares of 1$ each get.

b) (Common) Discount-factor: δ.

c) Recognition Rule: random, equal probability

3. *Game 1: Closed Rule.* 3 rnds, 1st proposer, vote; if defeat, recog. 2nd proposer; if defeated, all get 0. Vote yes if indiff.

a) *Backward induct:* anything proposed @ rnd 2 accepted since indiff b/w get 0 by propose-0 or by null passes,

b) So M_2 proposes $x_2=1$, $x_1=x_3=0$.

c) ***Continuation Value:*** initial proposer must give one other voter at least value to that other of rejecting to prolong game (& hope recognized to be proposer in round 2).

d) That value in this game is:

(1) P(recog'd)*value(proposer in rnd 2)*(discount factor)=

(2) $(1/3)*1*\delta = \delta/3$.

e) So, M1 proposes $\mathbf{x}=(2\delta/3,0,\delta/3)$ or $\mathbf{x}=(2\delta/3,\delta/3,0)$. Notes (intuitive principles):

(1) MWC: don't divide $ more than must (& buy cheapest allies).

(2) Patience: ↑ patience ⇒ more for allies (more-equal distribution), ↓ proposal power (but rel. patience if ≠…)

4. *Game 2: Open Rule.* As above, but after proposal, 1 of other 2 recog'd to amend.

a) Tradeoff: buy both (or more) others ⇒ ↓chance amend &/but ↓ pay to self

(1) If buy both here, must offer $V=\delta(1-2V)$; LHS=offer & RHS is value of amending (what will pass)⇒$V=(1+2\delta)^{-1}$.

(2) If buy 1, more complicated (can work through pp. 154-55).

B. Veto Power: *Romer-Rosenthal* ('78) (Cameron & McCarty '04)

TABLE 1 Notation used in this review

Variable	Definition
x	Policy outcome
q	Status quo
C	Congress
P	President
O	Override pivotal voter
V	Voter
c	Congress's ideal point
p	President's ideal point (complete information)
o	Override pivot's ideal point
m	Moderate presidential type
e	Extreme presidential type
r	Recalcitrant presidential type
a	Accommodating presidential type
v	Voter's ideal point
b	Legislative proposal
π	Probability that president is extreme type
ρ	Probability bargaining breaks down following a veto
$u(x; c)$	Congress's utility function
$v(x; p)$	President's utility function
$u_o(x; o)$	Override pivot's utility function
$w(e, m, \pi; v)$	Voter's utility function

1. Simple Game of Complete Information:

In the core model, the sequence of play is as follows:

1. C makes a proposal b (a "bill") to change the status quo or reversion policy q.
2. P accepts or vetoes the offer. If P accepts the offer, the final policy outcome x is the bill b, and the game ends.
3. If P vetoes the offer, a vote on a motion to override occurs. If O supports the motion, the bill is successful and again $x = b$ is the new policy. If O does not support the motion, the bill fails and $x = q$, so the status quo remains the policy in effect.

Prediction 1 (complete information: veto frequency). If all actors are perfectly informed about the preferences of all other actors, vetoes should not occur.

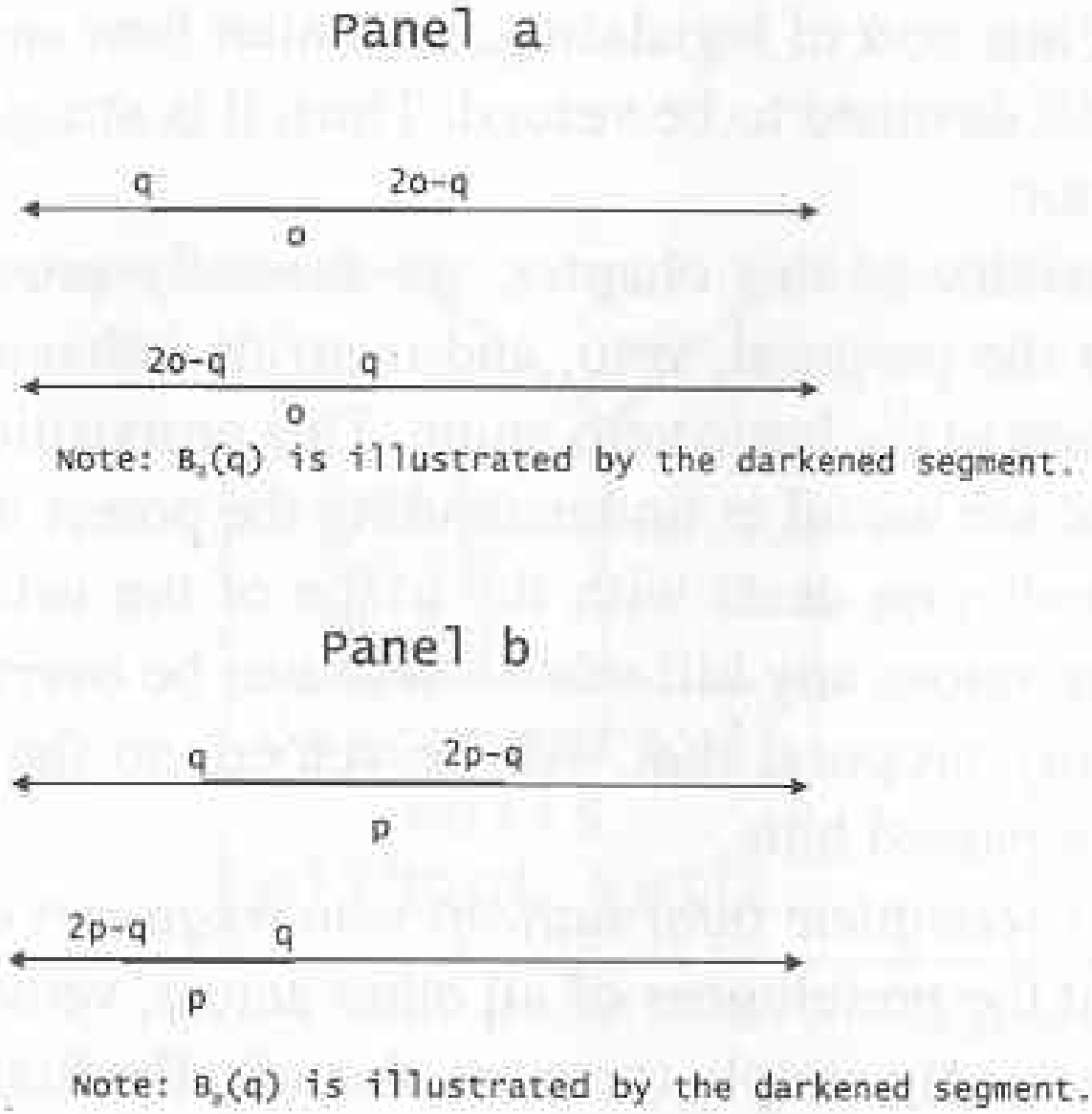


Figure 2 Outcomes of complete-information model.

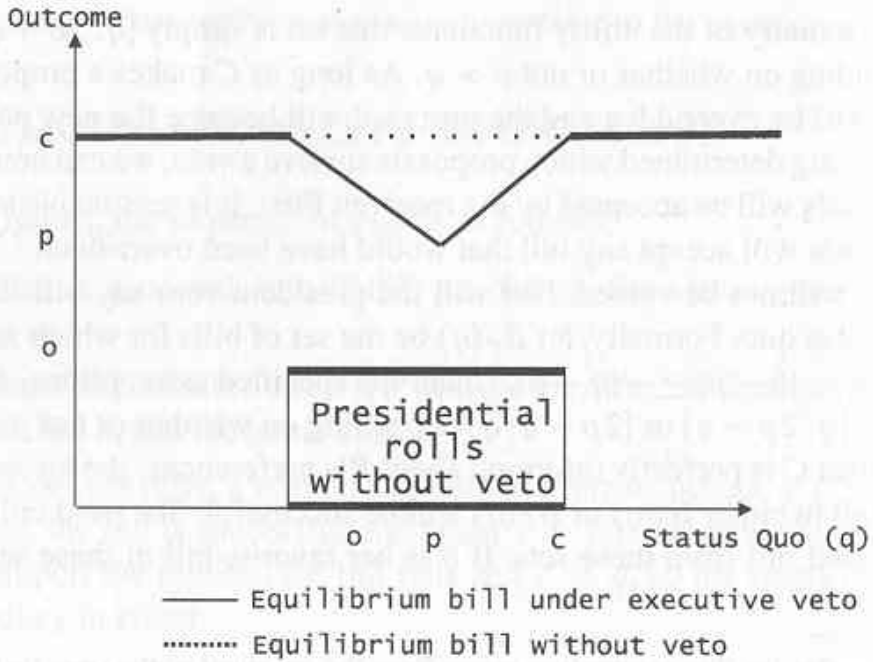


Figure 3 Equilibrium proposals when $c > p > o$.

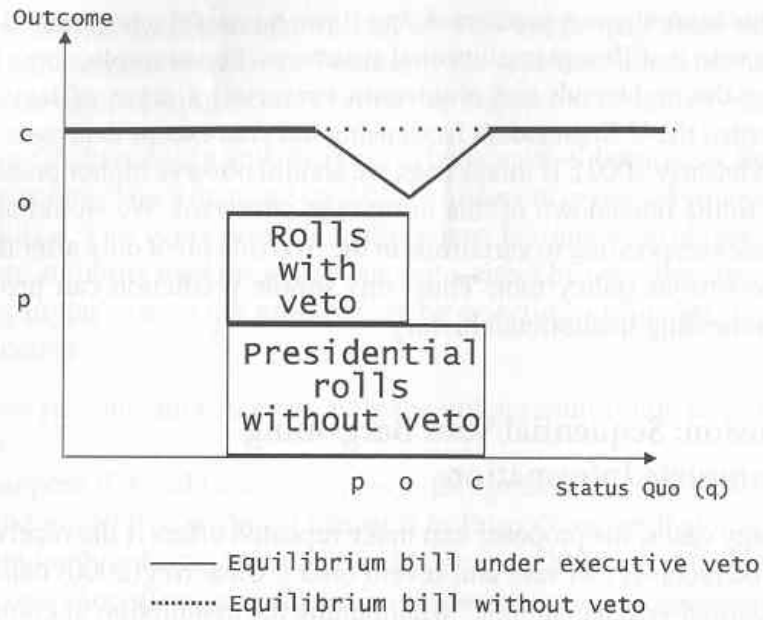


Figure 4 Equilibrium proposals when $c > o > p$.

Prediction 2 (complete information: policy outcomes). Policy may be responsive to the preferences of the receiver or the override pivot.

Prediction 3 (complete information: roll rates). The probability of passage of offers opposed by the president is lower when he has a veto.[4]

2. Simple Game of Incomplete Information:

[π is prob(extreme president)]

to occur. For the preference configuration in Figure 5*a*, we show that *C* will make the risky proposal (possibly generating a veto) if and only if

$$\pi < \frac{m-e}{m-q} \qquad 1.$$

However, the necessary conditions change as *c* moves closer to *m*, as in Figure 5*b*. Here *C*'s best risky proposal is her ideal point *c*. This fact alters the necessary condition somewhat:

$$\pi < \frac{c+q-2e}{c-q} \qquad 2.$$

CASE 1: $c > 2m - q$ Given *C*'s linear utility function, her payoffs from $b = 2e - q$ are $2e - q - c$ and her payoffs from $b = 2m - q$ are $\pi q + (1-\pi)(2m - q) - c$. If $\pi < \frac{m-e}{m-q}$, *C* will propose $b = 2m - q$ and a veto may occur.

CASE 2: $2e - q < c < 2m - q$ *C*'s payoff from $b = 2e - q$ is $2e - q - c$. Her payoffs from $b = c$ are $\pi(q - c)$. Therefore, *C* will adopt the risky strategy when $\pi < \frac{c+q-2e}{c-q}$. Note that the critical value of π is lower than in Case 1, which makes a veto less likely for any given set of beliefs.

CASE 3: $c < 2e - q$ In this case, neither president will veto $b = c$. So *C* maximizes her utility by proposing her ideal point, and no vetoes occur.

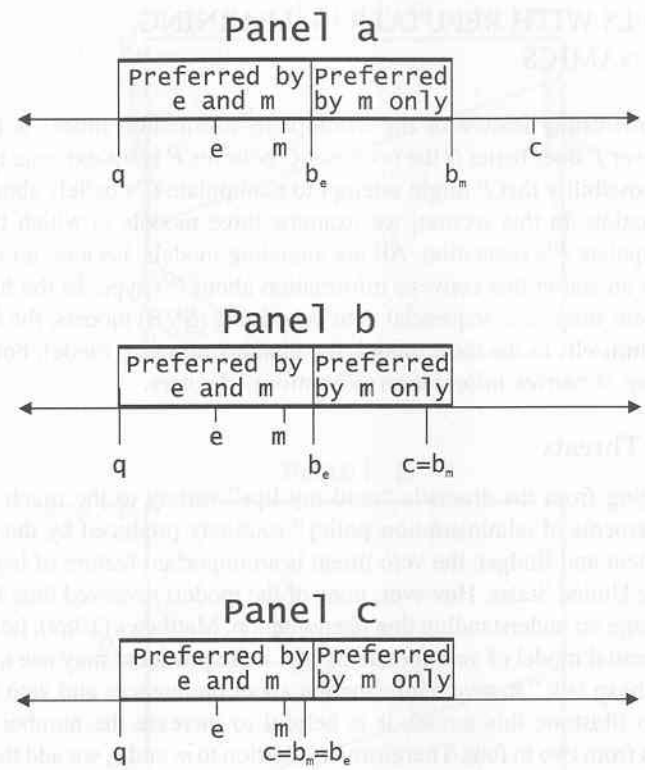


Figure 5 Outcomes of incomplete-information model.

Prediction 5 (incomplete information: veto frequency). Vetoes are more likely the larger the expected difference between the ideal points of *P* and *C*.

In the interest of brevity, we omit an analysis of this model with a veto override. But such an analysis produces a parallel result:[7]

Prediction 6 (incomplete information: veto frequency). Vetoes are more likely the larger the expected difference between the ideal points of *O* and *C*.

VI. Coalition Formation & Dissolution

A. Non- & Single-Dimensional Approaches

1. ***Coalition Theories***: [0-dimensional theories ; 1-dimensional theories]

a) Rule 1: If Sngle-Party-Majority Government possible, almost-always forms.

b) ***Minimal-Winning Coalitions*** (Riker '62): **DEF**

(1) Base Assumption: parties want to maximize power, cabinet=power, ⇒ maximize cabinet seats held

(2) ⇒ Only include parties strictly necessary to install & maintain government

c) ***Minimum-Size Coal's***: extend MWC to ⇒ smallest possible majority (in terms seats rel. to 50% threshold).

d) ***Minimum-Parties Coal's*** (Leierson '70): Fewest-parties MWC ⇒ ↓ barg & negot'n costs form & maint coal

e) ***Minimal Ideological-Range Coal's*** (deSwaan '73): ease form & maint coal prtys w/similar pref's. 2 versions:

(1) Majority Coalition w/ smallest L-R distance to obtain *its* majority (GLM)

(2) Majority Coalition w/ smallest L-R distance of *possible* majorities (L)

f) ***Minimum Connected Coal's (that Win)*** (Axelrod '70):

(1) Parties try to coalesce w/ ideological neighbors, continue until majority. Axelrod's argued logic:

(2) Adding connecting prty to o/w sep'd coal ↓ avg ideol dist b/w cab prtys & so perhaps facilitates compromise

(3) Additional logics to connected coal's from Powell [& me]:

(a) lessens ° to which separated parties seen (by mems & voters) as deviating from ideals in joining coalition

(b) [parties b/w others in coal. can add legis. support w/o requiring much/any further policy-compromise]

g) ***Policy-Viable Coalitions*** (Laver & Schofield '90): [1 or multiple dimensions]

(1) If solely policy-motivated, & policy requires legislative majority, then govt'l membership & majority-status irrelevant, just party pivotal-ness in legislative bargaining ⇒ 'Core-Party' Govt: core party ≈ cannot form majority w/o it, assuming sincere voting; e.g., in 1D, = median party, so ⇒ Median-Party Govt

(2) If additional reasons be in govt, e.g., office-seeking or agenda-power, then ⇒ MWC's containing median parties

Table 6.1 Cabinet coalitions predicted by six coalition theories for a hypothetical distribution of parliamentary seats

Parties:	A (Left)	B	C	D		E (Right)
Seats:	8	21	26	12		33
Theories:						
Minimal winning coalition		ABC	ADE	BCD	BE	CE
Minimum size			ADE			
Bargaining proposition					BE	CE
Minimal range		ABC		BCD		CE
Minimal connected winning		ABC		BCD		CDE
Policy-viable coalition		ABC		BCD		CE

Table 6.2 Proportions of time during which five types of cabinets were in power in thirty-two parliamentary democracies, 1945–96

Type of cabinet	All cabinets (%)	All cabinets except minimal winning, one-party cabinets (%)
Minimal winning, one-party	37.1	—
Minimal winning coalition	24.7	39.3
Minority, one-party	11.4	18.1
Minority coalition	5.8	9.2
Oversized coalition	21.0	33.4
Total	100.0	100.0

Source: Based on data in Woldendorp, Keman, and Budge 1998; Banks, Day, and Muller 1997; Müller and Strøm 1997; Strøm 1990; von Beyme 1985; and *Keesing's Contemporary Archives*

2. ***Empirical Problem***: all but Axelrod and Laver & Schofied=MWC; all but L&S =majority, but oversize & minority govts not at all rare [Tab 6.2]. ***Explanation?***

3. **Why Minority Govt?** parties' time-perspective? Stay out for now to gain some future electoral advantage? Core-party government?

4. **Why Oversize Govt**?

   a) Insurance against defection (uncertain/uncommitted allies)

   b) Policy-based theories⇒occasional oversize (not enough)

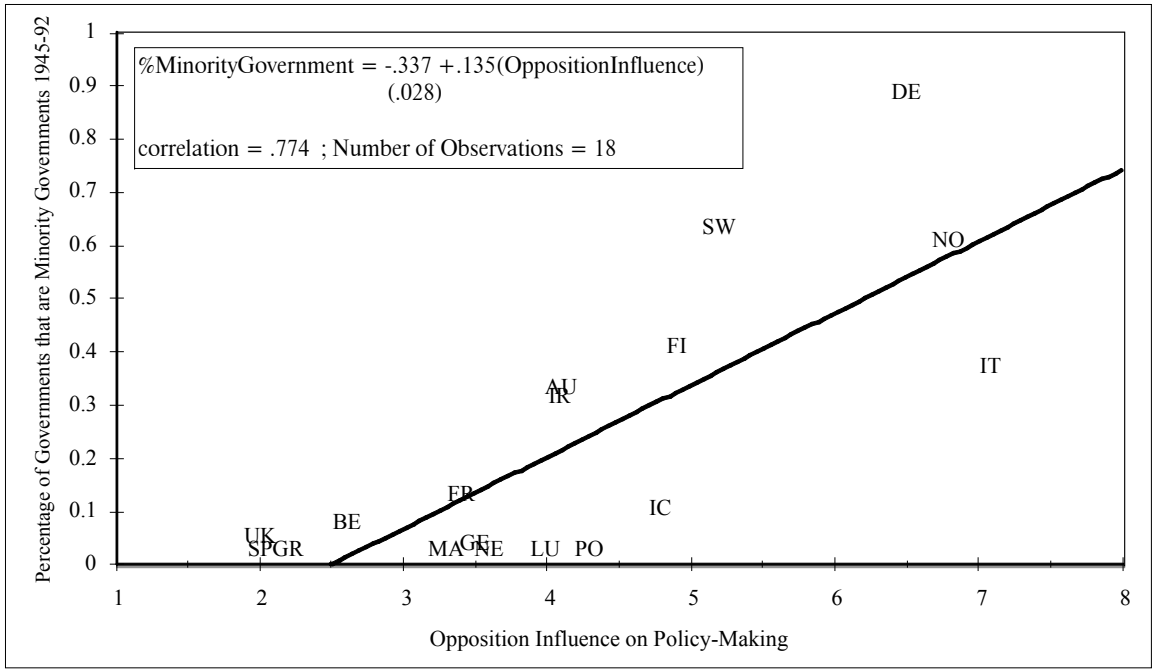
   c) Grand coal's as unity signal re: foreign (& occas. other) threats

5. But all still majoritarian (except Core-Prty), need real (fuller) ***theory minority govt***

a) Lack vote investiture may help preserve minority?

b) Constructive vote no confidence (in Ger., or sim *majority against* req in France) may help preserve min (as well as foster maj)

c) Committee strength & other sources opposition influence



6. Likewise, need better ***theory oversize government***

a) Constitutional revisions may require >50% majorities; Some agenda policies may require >50% majorities; [n.b., these not truly ***over***size then.]

7. N.b., some similarity minority & oversize govt, esp. in sort optional & flexible nature govt support.

8. Minority Governments, Hypotheses:

a) Strom: as ability of parties to influence pol from opp ↑, freq min govt↑ [Fig below (mine): data strongly supports–Opp Influ measure used here from Laver & Hunt, so helps Strom's case]

b) Luebbert: ↑ role extra-parl intrst grps & org's (esp. corporatist-type policymaking) ↓ necessity of being in govt to influ pol, so should ↑ minority govts: might explain Scand, but Ger, Austria, & Italy? Need multivar analysis (did some, kinda works)

c) Laver & Shepsle: ↑ pol divisions among opp's ⇒↓ ability to form alt govt, which should enable minority-govt formation–especially centrist govts can do this

9. Oversized Governments, Hypotheses:

a) *National-Unity Govts*: several observed oversized govts are "national-unity" (all parties) & occur during or immediately postwar, only occas. after & usu. short-lived & arise in *crises*.

b) Policy agenda in some sit's may require super-maj. (Bel. notable)⇒not all seem-oversized govts act'ly *surplus*

c) Laver & Shepsle: extra parties may be included for signals they send [to whom?] about govt's policy stance

d) Luebbert: dominant party(s) in coal may want surplus minor parties so no one smaller-party ally has *veto*

e) [surplus govts maybe esp. likely when MWC bridges smaller intermediate party b/c little further policy-compromise nec. to ↑ legis strength of govt. May add to Luebbert's argument in particular]

f) [party discipline? Surpluses in Italy, e.g., may have stemmed from need of extra "insurance" support]

10. Presidential Cabinets:

a) Re: keeping office, pres executive & cabinet always MWC 1-party majority by strict application definitions

b) Re: passing agenda, may be Minority, MWC, or oversize (flex).

B. Laver & Shepsle *Portfolio-Allocation* Model

1. Assumptions/Set-up

a) Motivations: office- &/or policy-motivated, but "as if" policy-motivated

b) Rational Foresight, plus Preferences & Structure of Gam = Common Knowledge

c) Parties = unitary actors; Cabinet Ministers full discretion in ministry policy area, but act for party

d) *Dimensionality*: competencies of core ministries (Finance, Foreign Affairs, & maybe Internal Affairs typically top) as defining dimensions of policy space.

e) *Ministerial Discretion*: Govts implement pref'd policy party holding each cab min in that min.'s area.

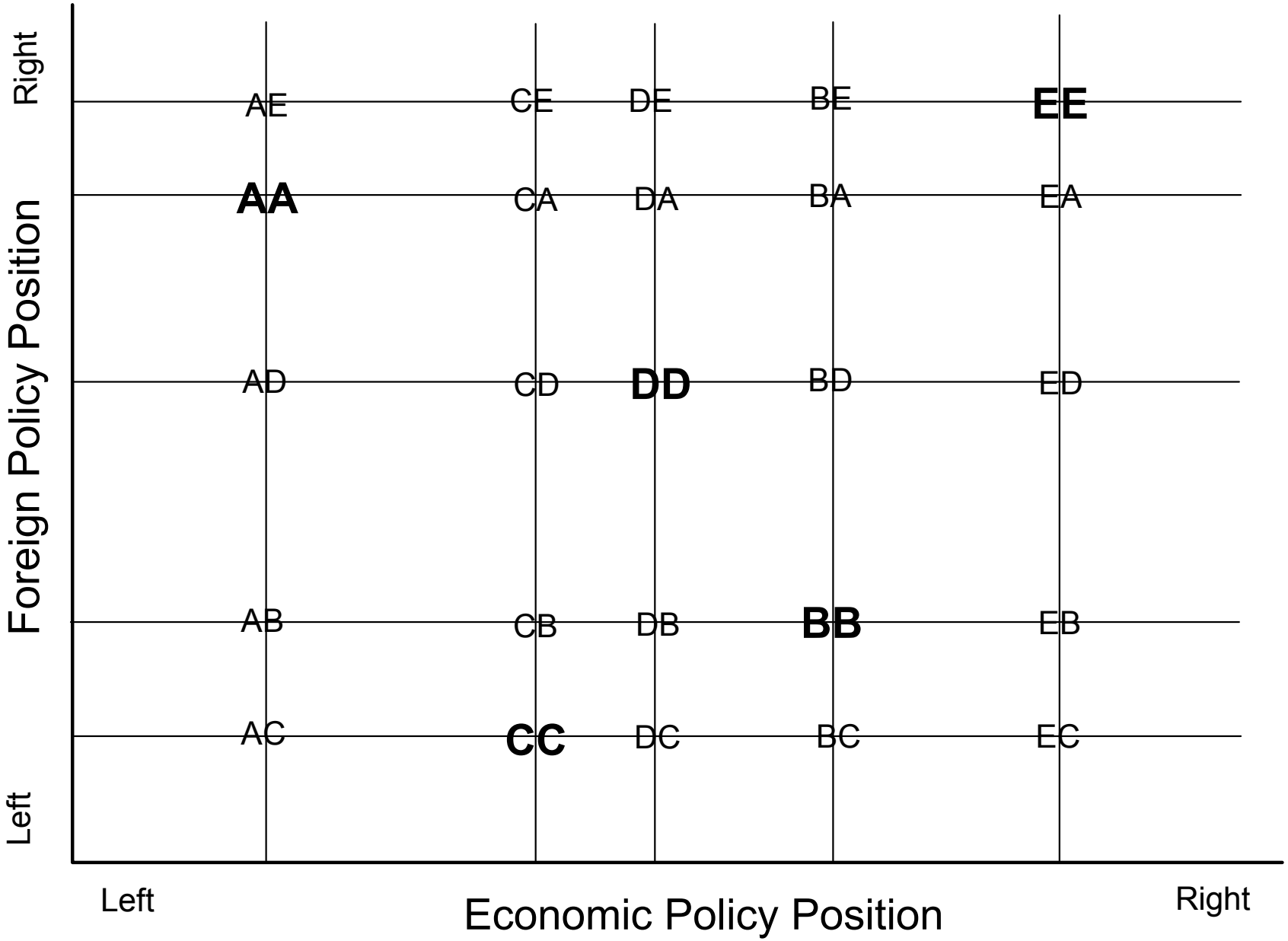
f) Unitary parties + ministerial-autonomy+ indivisible-ministries ⇒ limited # possible govts (& so policies) to consider, as given by **lattice** of perpendicular intersections prtys' ideal points [see e.g.'s]. 2 key assume here:

(1) Party's discretion in 1 portfolio not affected by who has others [?]

(2) Party's preferences on 1 D not affected by policies on other D's [?]

g) Parties incorporate all expected policy decisions into deciding whether to vote for particular cabinet ⇒ unforeseen matters (only) potential sources of cabinet collapse

The Lattice of Possible 2-Ministry Coalitions in an Arbitrary 5-Party System

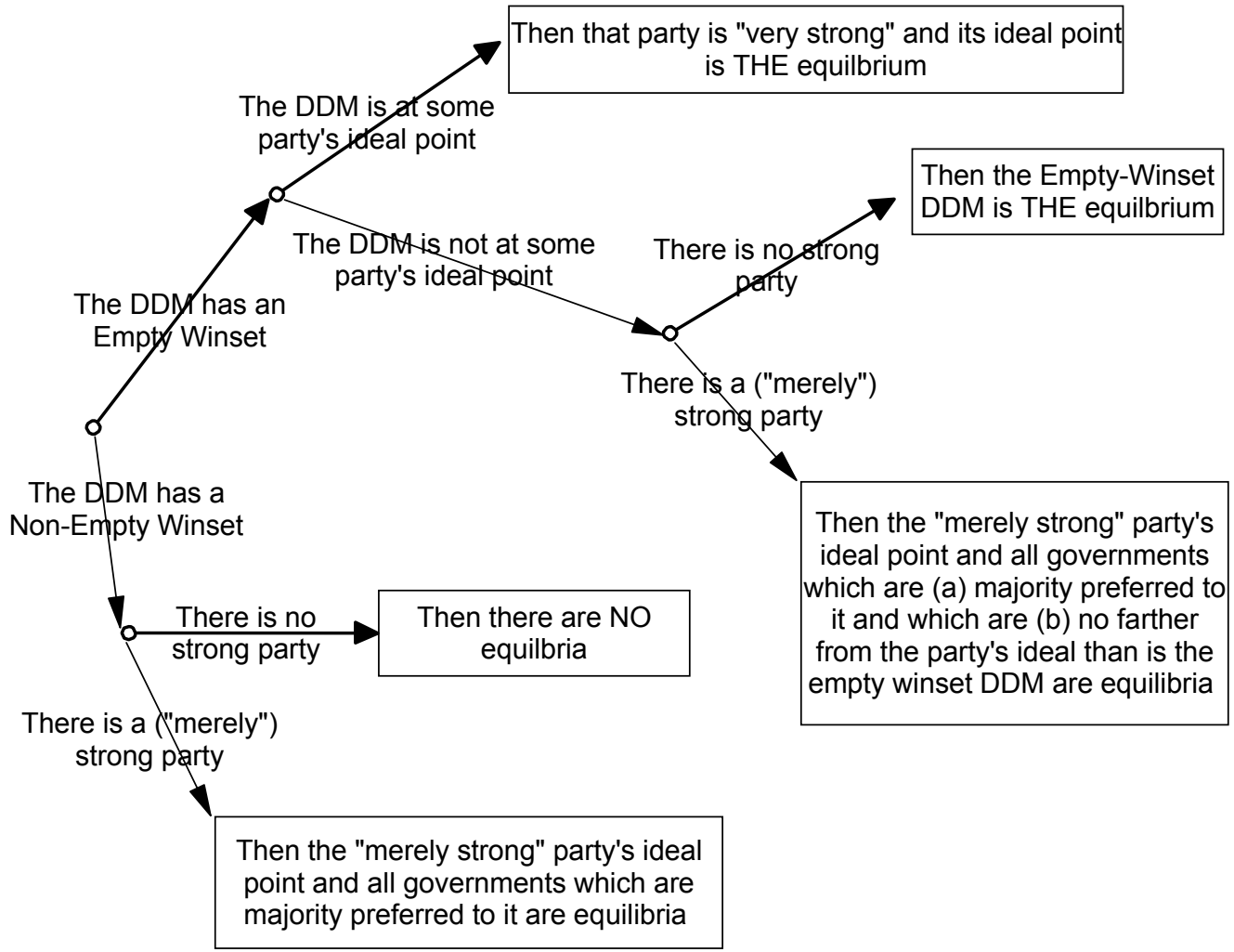


2. L&S: Applying Model to Find Eqbm Cabinets

a) Step 0: Draw and Label the Lattice of Possible Governments

b) Step 1: Find the DDM Government

c) Steps 2+:



3. L&S: Finding Eqbm Cabinets Definitions & Examples

a) *Equilibrium Govt:*

(1) Majority external support (by definition parl govt)

(2) Unanimous internal supp (all proposed govt mems have veto)

b) *Lattice Winset of Govt X:*

(1) Set of govts maj pref'd to X to any other maj pref'd, and

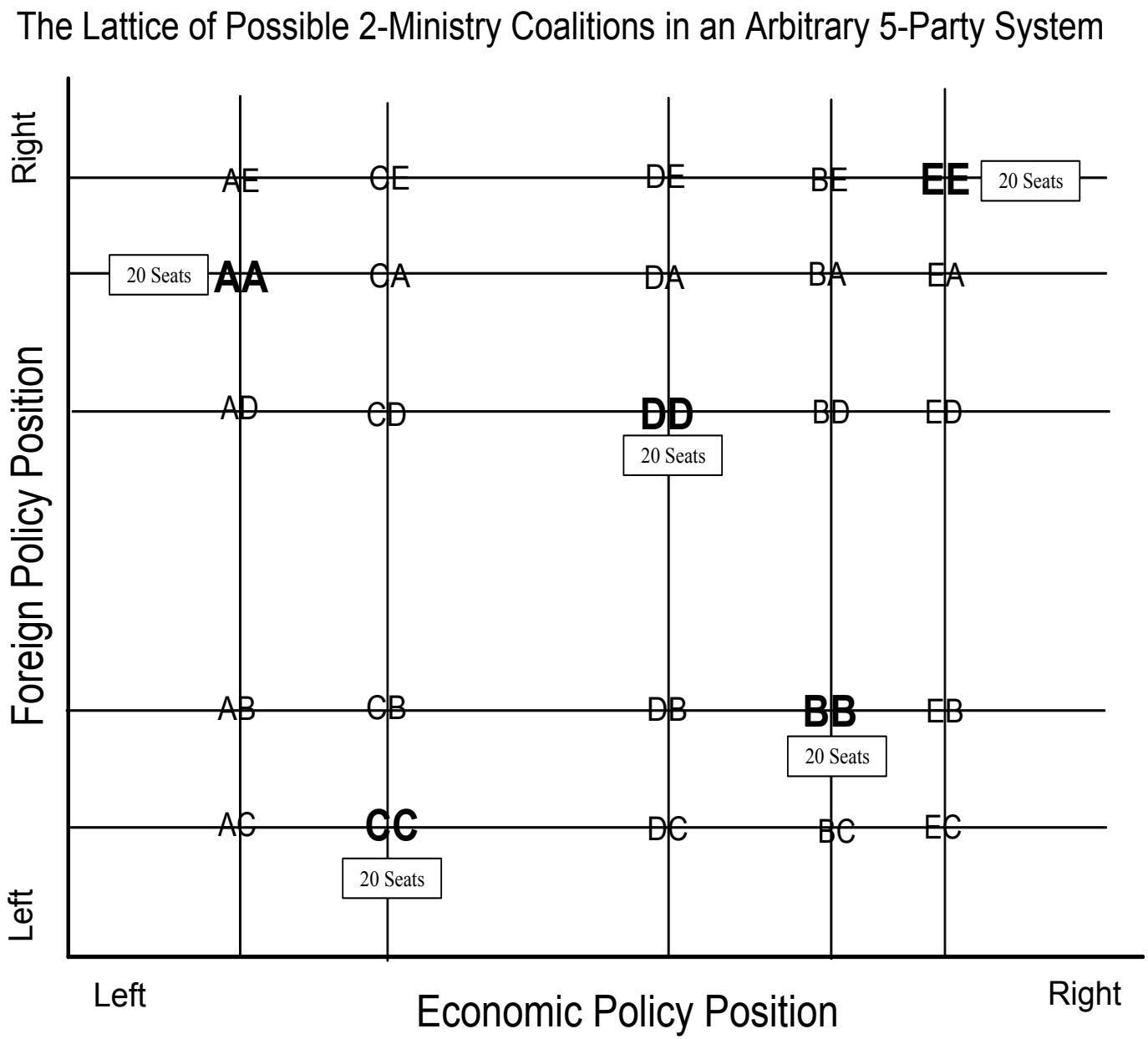
(2) Unanimously pref'd by members X to any other maj pref'd

c) *DDM Cabinet:* self explanatory

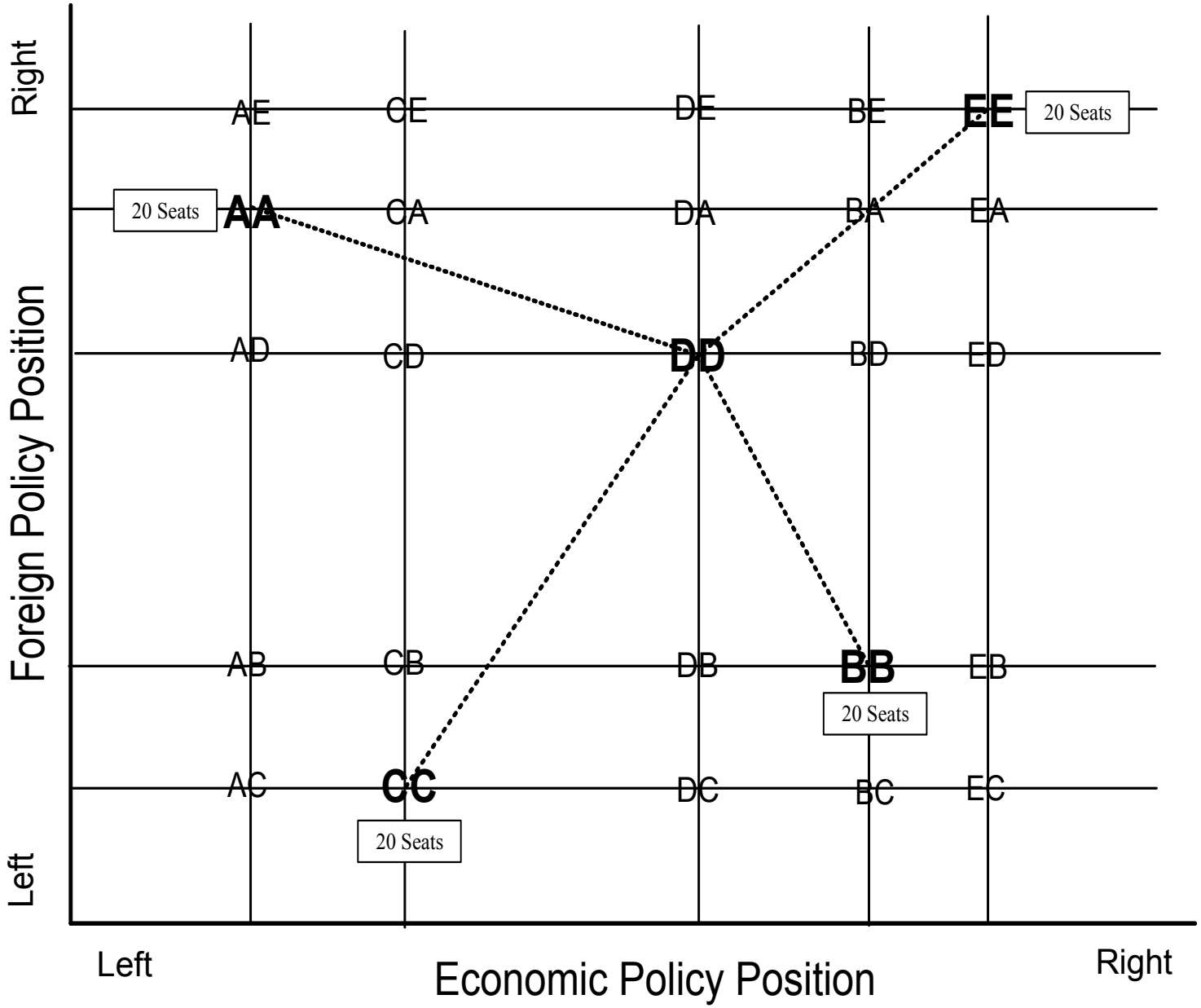
d) *Very Strong Party:* No cabinets in lattice-winset of ideal pt.

e) *Merely Strong Party:* Cabs in winset, but partic. in all so can veto.

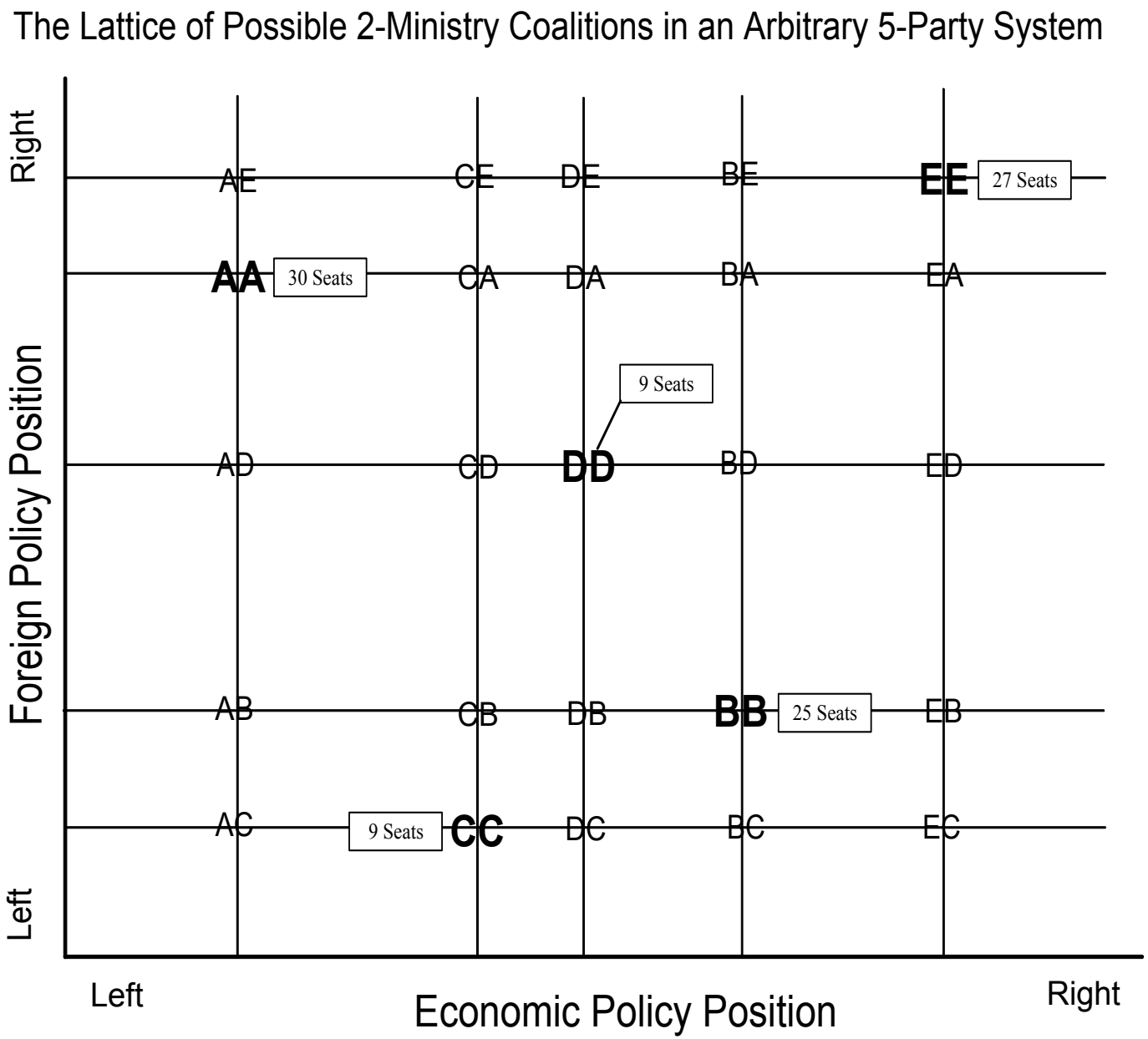
Example 1: Empty winset DDM at some party's ideal point => that party is very strong & govt where it gets the portfolios is ***the*** (1) equilibrium:

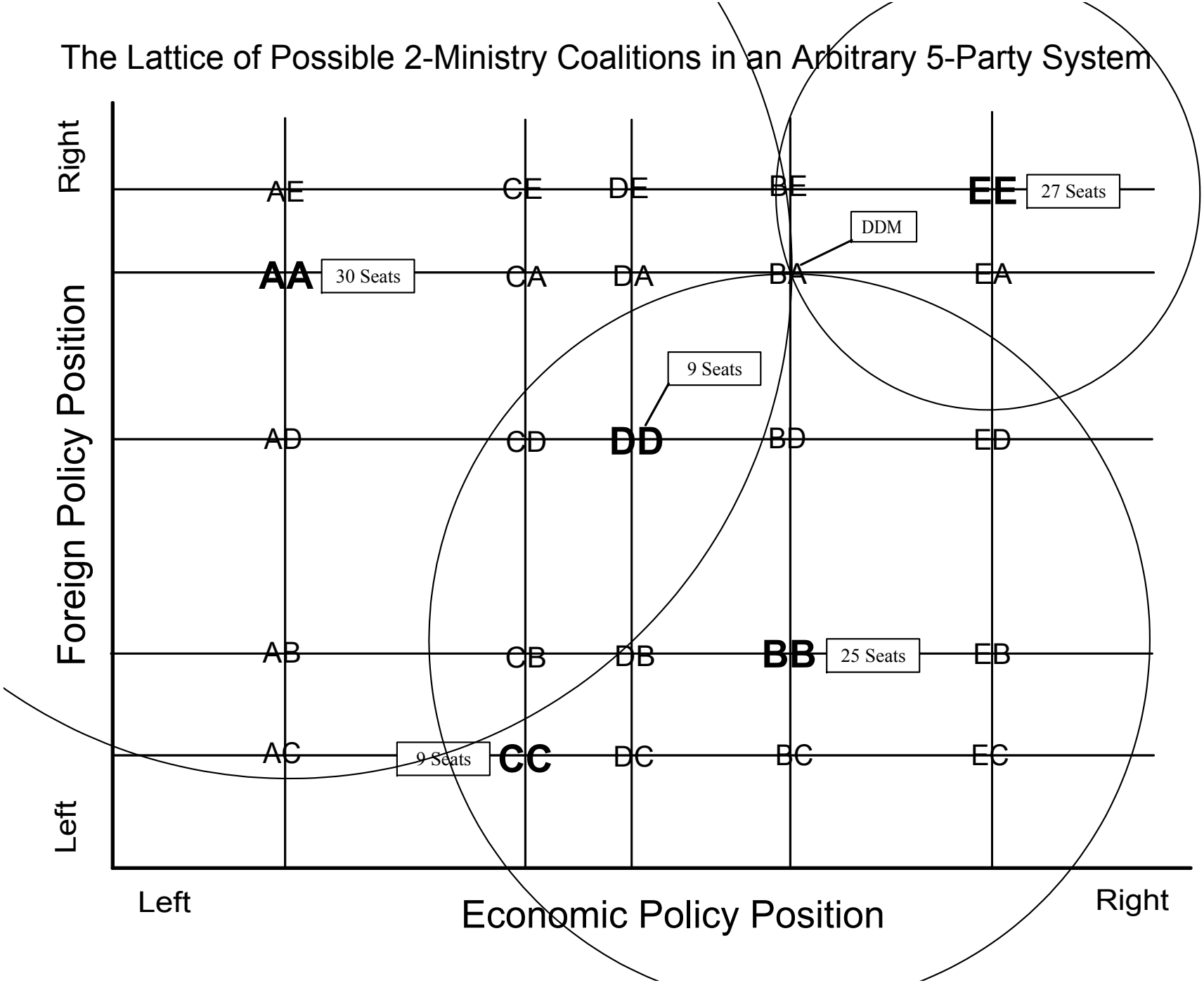


The Lattice of Possible 2-Ministry Coalitions in an Arbitrary 5-Party System



Example 2: Non-Empty Winset DDM, not at any party's ideal, but *merely strong party* exists =>
eqbm govt***s*** (>1) are that party's ideal & all govts maj-pref'd it (in all which *m.s.p.* participates by def *merely strong*)




The Lattice of Possible 2-Ministry Coalitions in an Arbitrary 5-Party System
Right
Foreign Policy Position
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EE
27 Seats
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30 Seats
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AC
9 Seats
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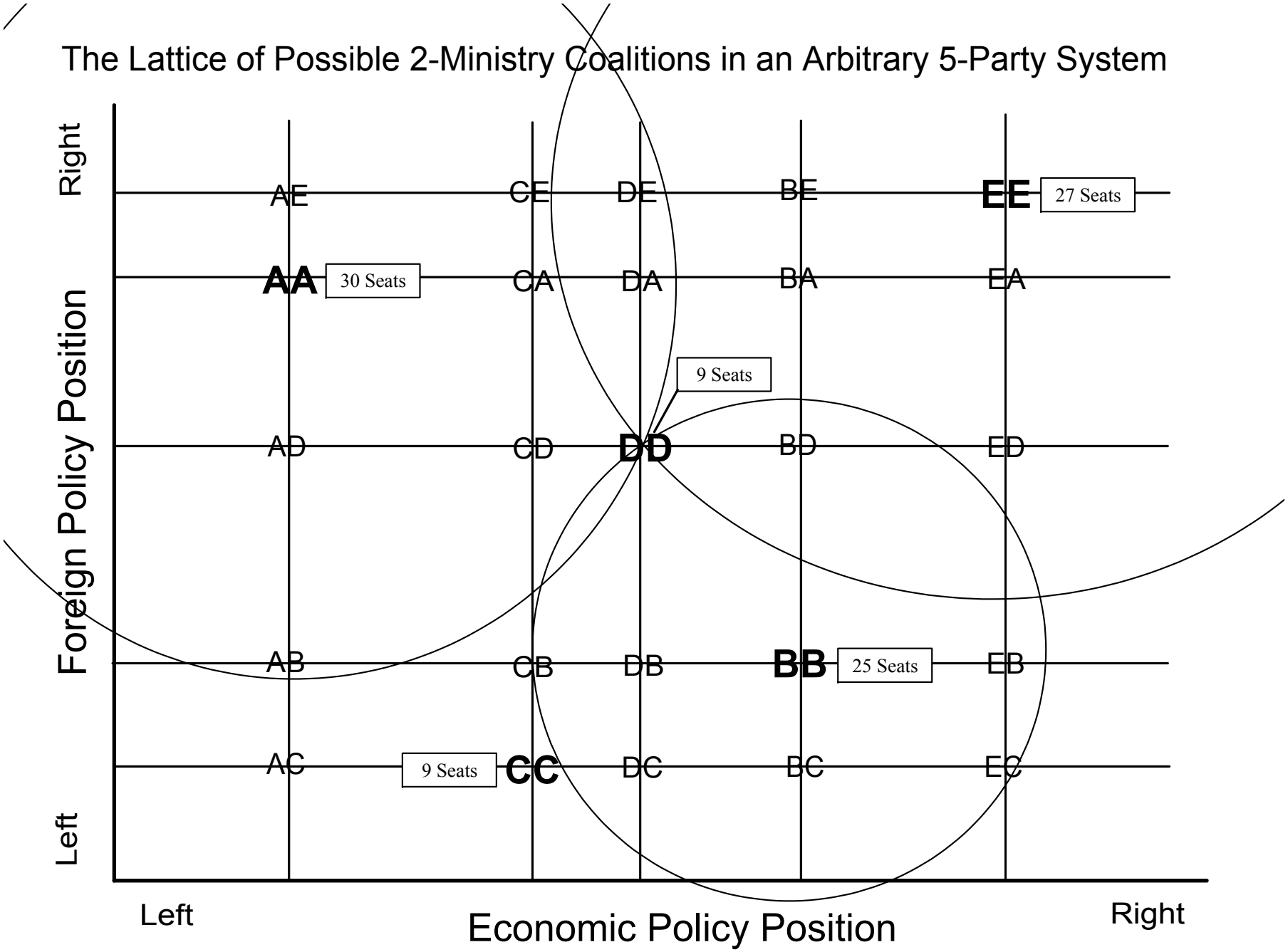
Left
Economic Policy Position
Right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Foreign Policy Position
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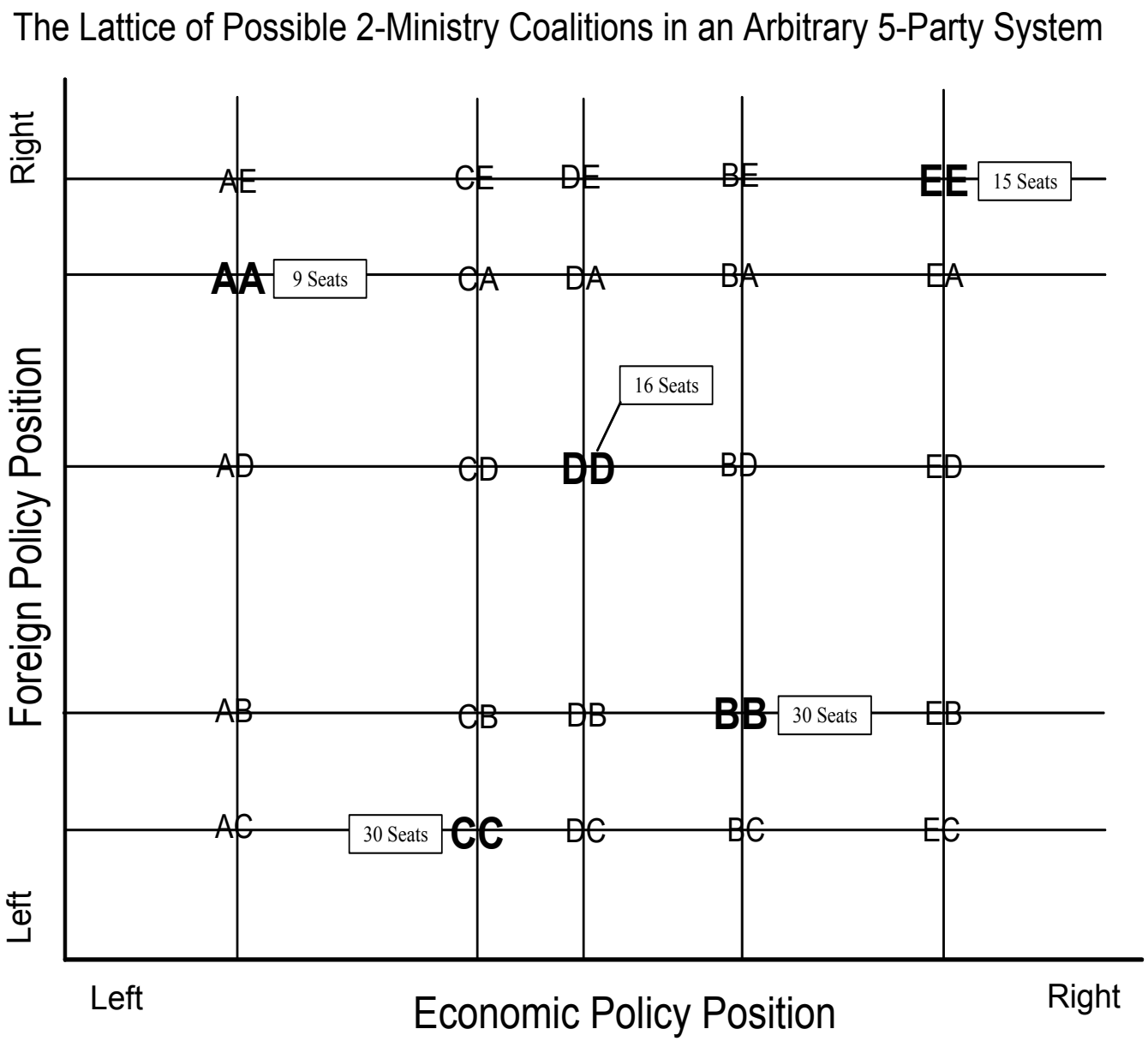
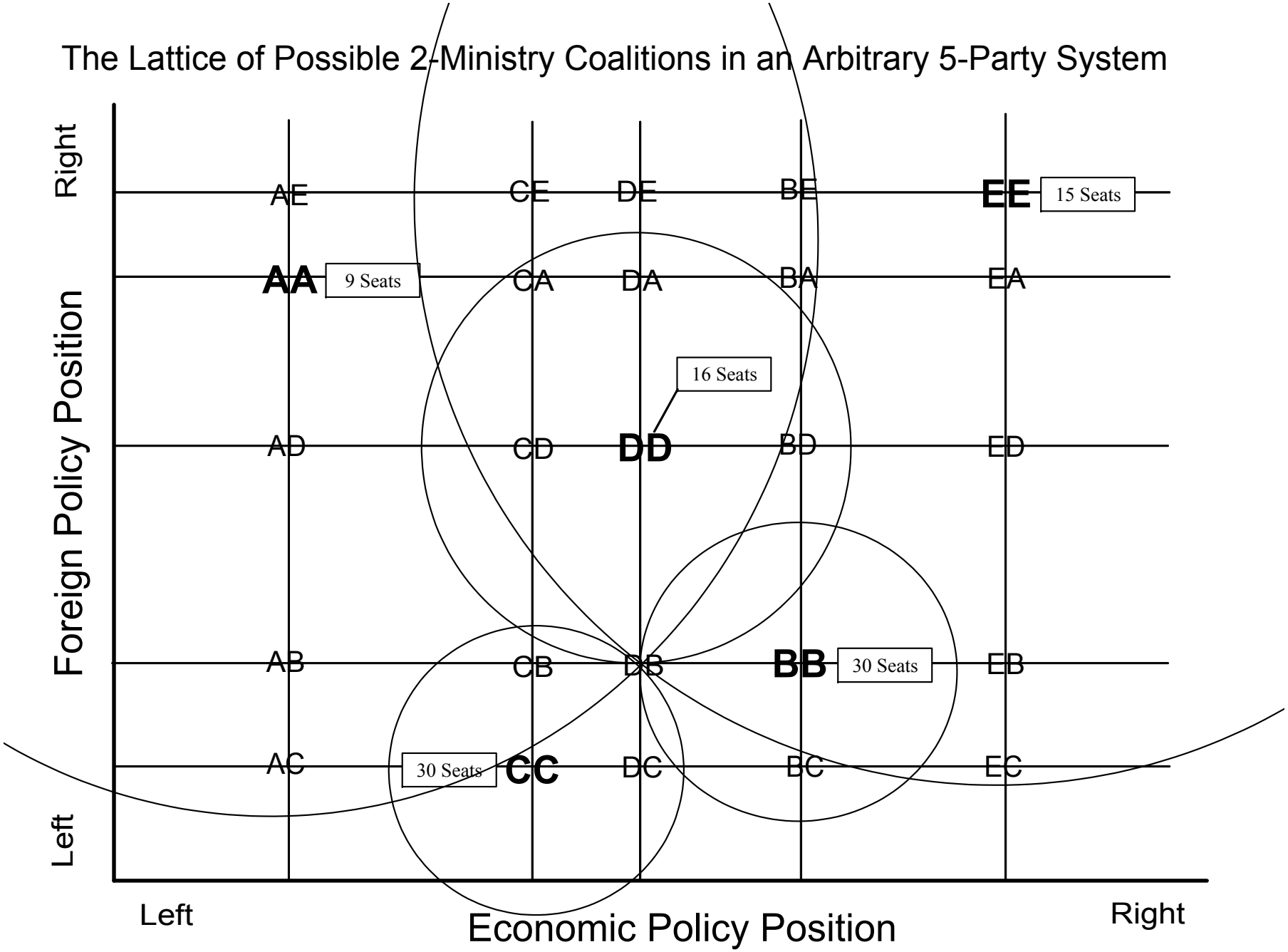
Left
Economic Policy Position
Right

Example 3: Empty Winset DDM, not at any party's ideal, but merely strong party exists => eqbm govt***s*** (>1) are that party's ideal & all govts maj-pref to it (in all of which m.s.p. participates, by def. of "merely strong"), but only those that no farther away from m.s.p.'s ideal than empty-winset DDM

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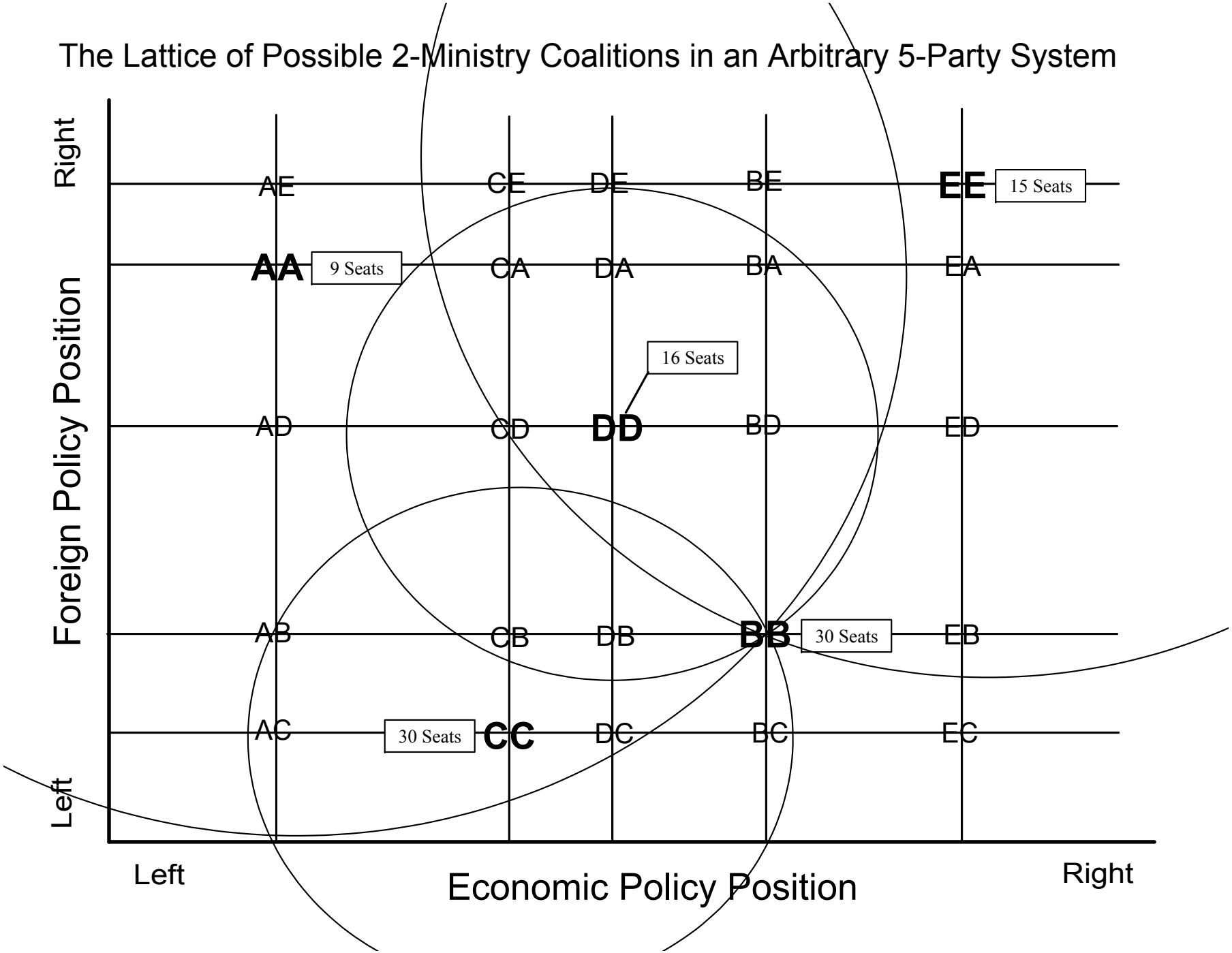
Left
Economic Policy Position
Right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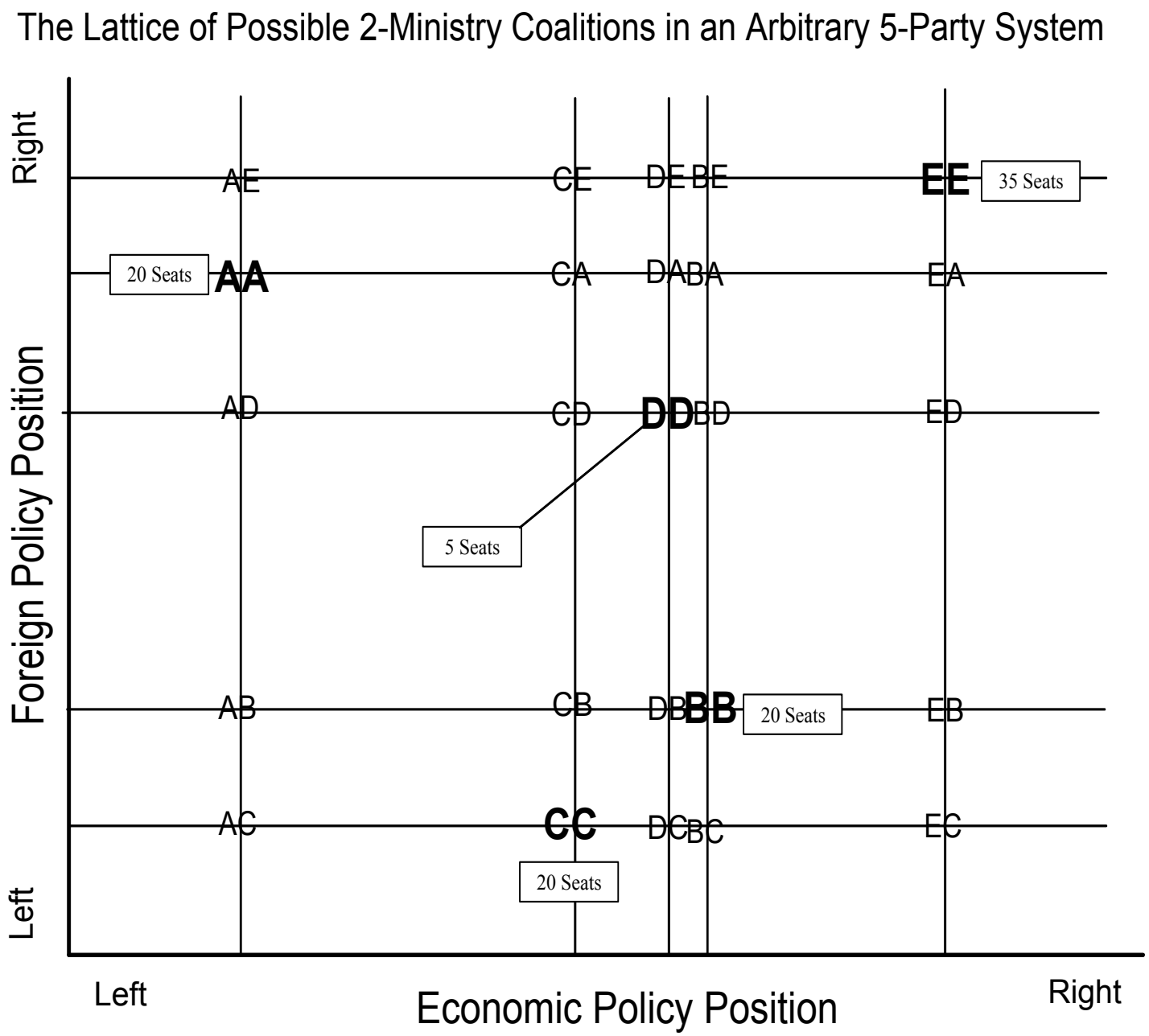
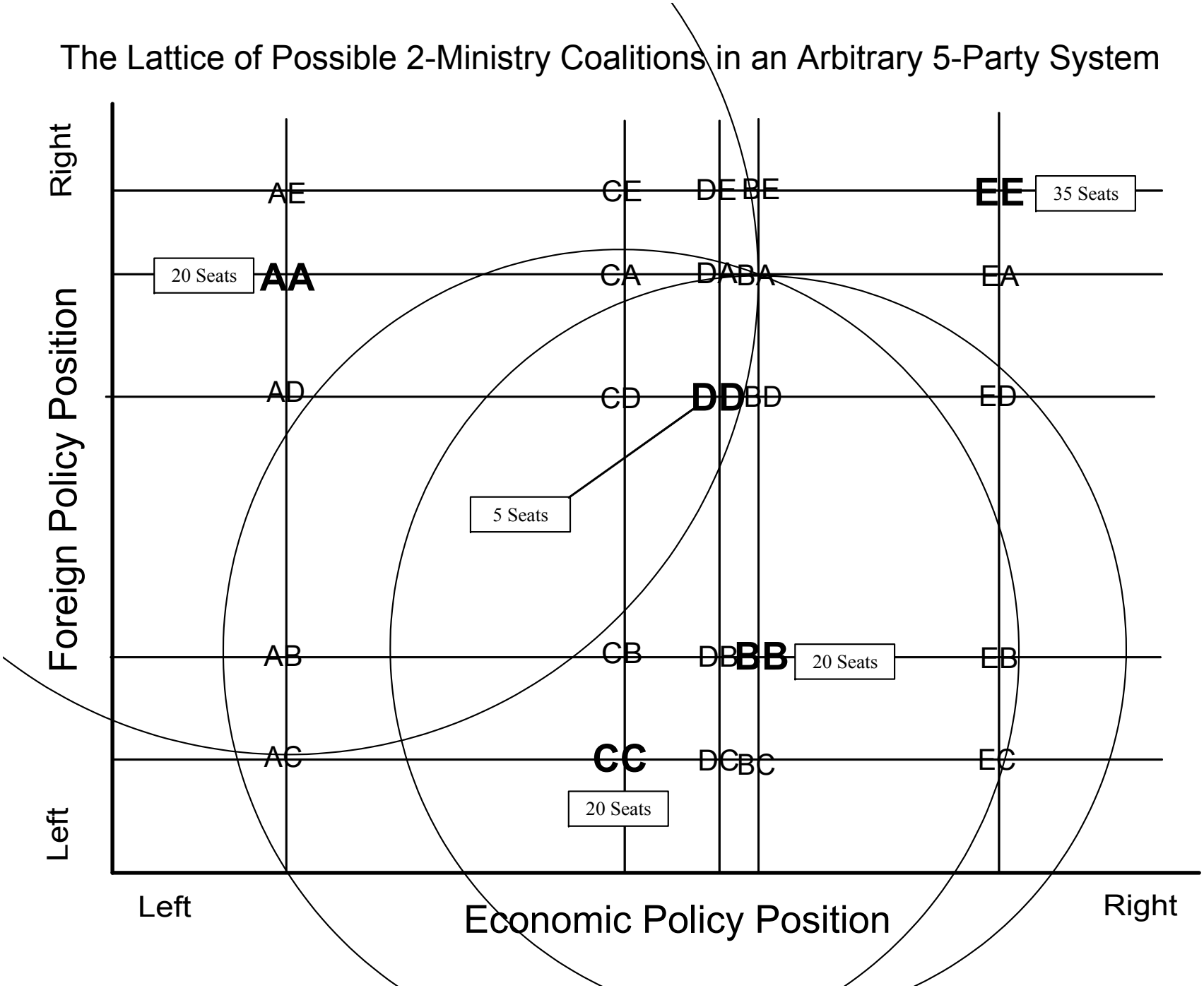
Economic Policy Position
Right

Example 4: Non-Empty Winset DDM & no strong party => *no* (0) equilibrium govts




The Lattice of Possible 2-Ministry Coalitions in an Arbitrary 5-Party System
Right
Foreign Policy Position
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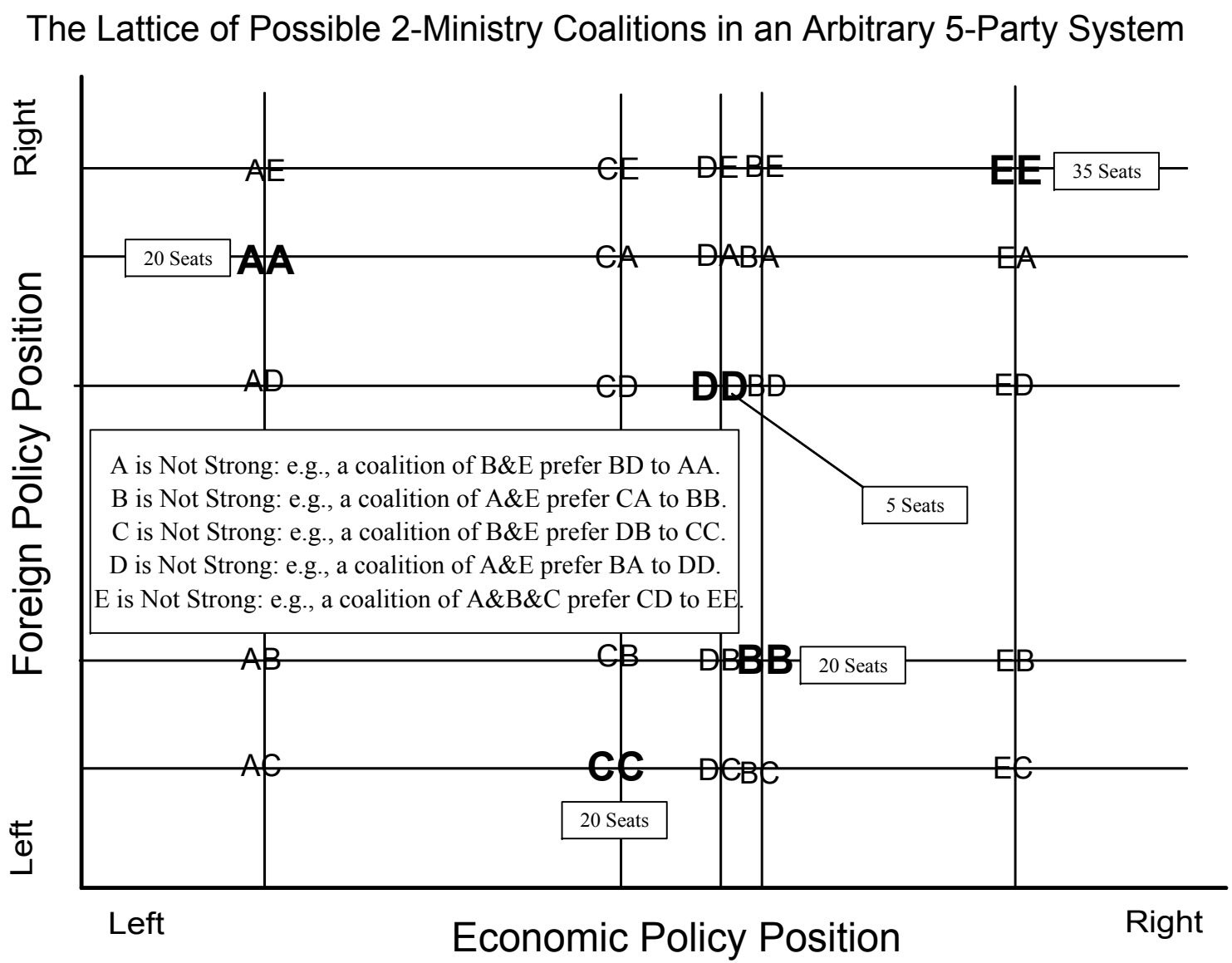
20 Seats
Left
Economic Policy Position
Right



One more possibility exists, which was not drawn: Empty Winset DDM with No Strong Party ⇒ ***the*** (1) equilibrium is the empty-winset DDM.

VII. A General Option: Veto-Actor Theory (Tsebelis)

A. Tsebelis (esp. 95b, 99, 00, 02): ***veto actor* (*player*)** approach comp pol & pol-mkng

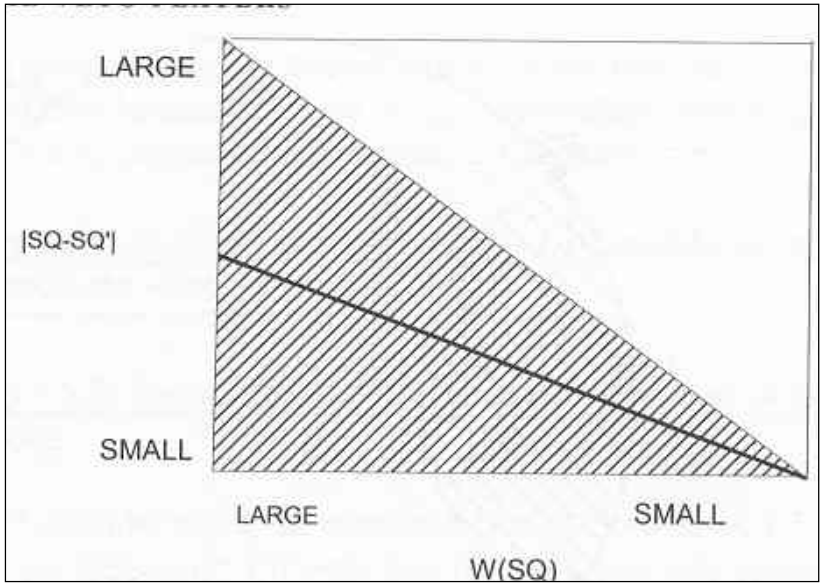
1. Extensive substantive & empirical exploration esp. re: Bicameralism (w/ Money) & EU pol-mkng (w/ Garrett, Kreppel, et al.)

2. More recent forays to referenda (w/ Hug), & fiscal policy (w/ Chang), & elsewhere past 5 yrs.

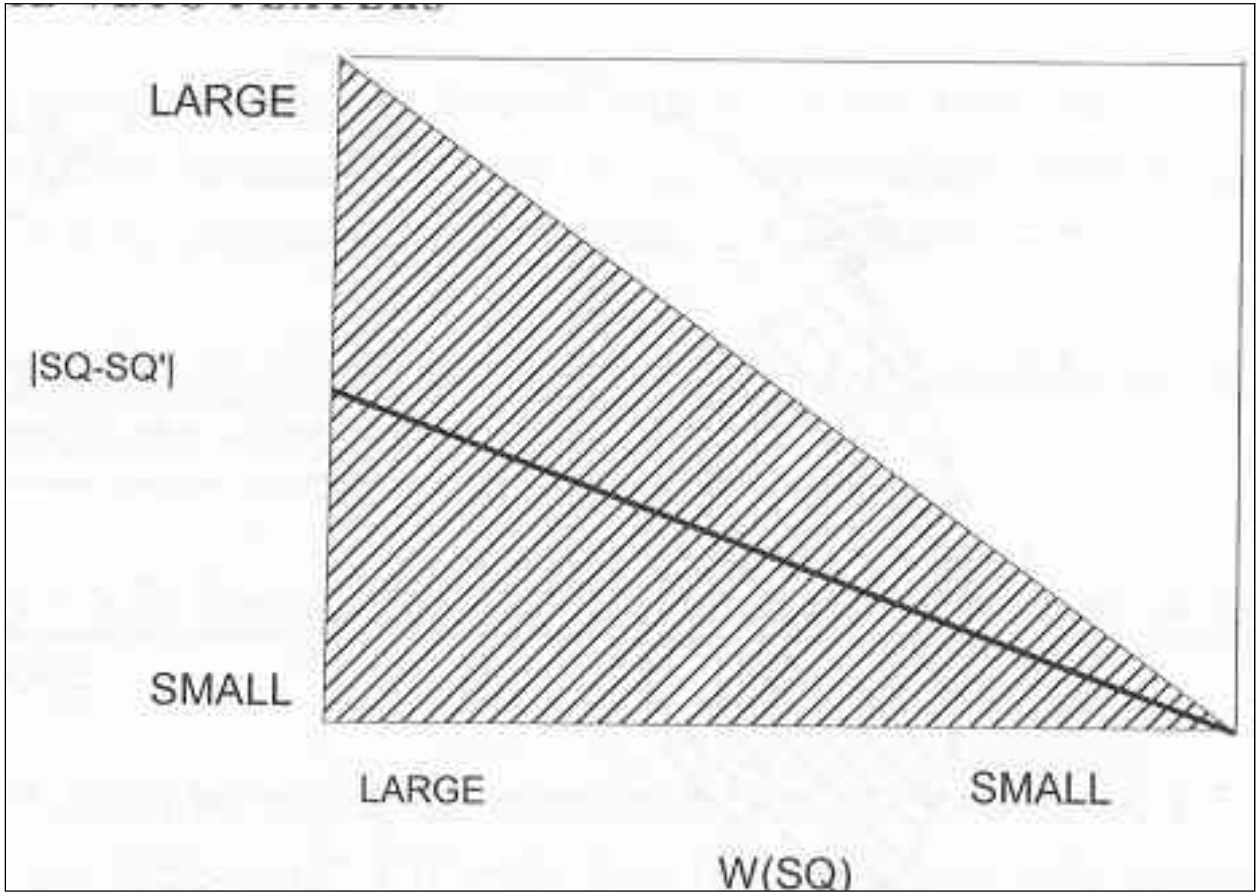
B. Essential Argument:

1. ↑ # &/or ideological/interest polarization of policymaking actors whose approval required to ΔSQ, i.e., *veto actors*, => loosely ↓ probability &/or magnitude policy Δ.

2. I.e., strictly, as size W(SQ) ↓, which gen does as # &/or polarization VA ↑, range of possible policy Δ from SQ ↓, => following empirical prediction (Tsebelis 2002, Fig. 1.7):



C. Figure 1: Distance of New Policy from Status Quo as Function of Size of W(SQ)



1. *Suggests* both mean/expected ***policy-change*** & variance of ***policy-change*** ↑↓ with W(SQ) ↑↓

a) No prediction of policy level or direction policy-Δ!

b) Only *suggests* smaller mean/variance policy-Δ b/c prediction strictly regards *range of possible change*

(1) Need agenda-setter(s) & amender(s) & SQ location to say more;

(2) If assume large # cases randomize over or 1 case random draw from conditions, then get these further predicts;

(3) If symmetry in distrib, get center line; need something else (more?) restrictive for var. predict, but sym not nec.

2. => Dispersion policy-making authority across multiple actors:

a) *Privileges SQ/ retards pol-adjustment rates/ delays stabilization,* ↓range poss pol-Δ &, possibly, ↓ mag/var pol-**Δ** (1st- & 2nd-moment predictions).

b) Re: deficits & debts, for instance: Roubini&Sachs ('89ab) argued; Alesina& Drazen ('91), Drazen & Grilli ('93), Spolaore ('04) formalized

c) Empirical support initially mixed:

(1) Roubini & Sachs, Grilli Masciandaro & Tabellini, Edin & Ohlssen, Heller, Alesina & Perotti: ↑; DeHaan & Sturm, Borelli & Royed, DeHaan & Sturm & Borelli: ↓,

(2) But most not model core theoretical prediction, *fragmentation &/ or polarization retards policy-adjustment*, correctly...

d) In deficit & debt, Franzese ('02) showed

(1) *How model*: pol-adjustment-rate effect = conditional coeff on lag in dynamic model, not level effect: ⇒ support.

(2) *How measure frag/polar in VA theory*: raw #, not effective (size-wtd) # actors; max range, not var/s.d. (size-wtd)

e) *Support by others if effect dynamics or v(pol Δ):* Alesina & Perotti, Alt & Lowrey (& Ferree) ('94, '98, '00, '01, '03), Treisman ('00), Hallerberg ('02), Basinger & Hallerberg ('04), Tsebelis & Chang ('04)...

f) In other context (inequality), Ghandi & Przeworski ('04) show how to model small-expected-mag-Δ (possible) prediction jointly:

$$\Delta Y_t = (Y_t^* - Y_{t-1})/aV_t = [(k - cX_t) - Y_{t-1}]/aV_t = (k/a)(1/V_t) - (c/a)(X_t/V_t) - (1/a)Y_{t-1}$$

VIII. Specific Workhorse Models:

A. MV Model of Redistribution (*Meltzer-Richard 1975, Romer 1978*)

1. Baseline Model: static, median-voter model democratic choice over strictly proportional T&T sys, intended as simplified, reduced-form Romer / Meltzer-Richard. Has Three Main Elements:

a) Output is decreasing in T&T rate (at least beyond some point):

$$y_i = y_i(\tau) \quad ; \quad y' < 0 \quad , \quad y'' < 0$$

b) Considers only "strictly proportional" T&T systems: i.e., tax all persons and income equally and redistribute all the revenue in equal shares.

(1) Individ's taxed at rate, τ, on all income, y_i, & resulting revenues redistrib'd equally each person (N=tot pop):

$$\tau \sum_{i=1}^{N} y_i(\tau) \Big/ N = \tau \bar{y}$$

c) Assume utility of each person i is ↑ in his/her (log) disposable income, ⇒

$$u_i \equiv \ln\left[y_i(\tau) + \tau \cdot \left\{ \sum_{i=1}^{N} \frac{y_i(\tau)}{N} - y_i(\tau) \right\} \right] = \ln\left[y_i(\tau) + \tau \cdot \left\{ \bar{y}(\tau) - y_i(\tau) \right\} \right]$$

d) Optimal T&T rate for MV is implemented in pure dem & is given by maximizing with respect to τ, ⇒

$$\tau^* = -\frac{\bar{y}(\tau) - y_m}{\bar{y}'(\tau) - y_m'} - \frac{y_m'}{\bar{y}'(\tau) - y_m'} \equiv a + b \cdot \left\{ \bar{y}(\tau) - y_m \right\} \qquad with \quad a < 0 \ , \ b > 0$$

e) MV increases T&T rate until negative impact tax on total output just outweighs increased redistribution:

(1) ⇒ MV's optimal T&T rate increases in income distribution skew: $\left\{\overline{y} - y_m\right\}$.

(2) = Central result of such models, that primarily emphasized here and elsewhere.

(3) Several ancillary results surround the magnitudes of y', y'', and $\partial\left(\frac{\partial y}{\partial \tau}\right)\Big/\partial y$; e.g.:

(a) The more negative the cross derivative, the smaller the MV's desired T&T.

(b) Distribution-neutral increases in aggregate wealth reduce MV's desired T&T.

(4) H1: MV's desired T&T increases in skew of income distribution (*cet. par.*).

(5) H2: MV's desired T&T decreases w/ distrib.-neutral increases in agg. wealth.

(6) H3: The more negatively output responds to taxes and more responsiveness increases (absolutely) with income, the less T&T the MV desires.

2. <u>Dynamic Considerations: the Optimal Plan</u>

a) Examining the inter-temporal equivalent of the static utility, **(1)**, suffices:

$$U_i \equiv \sum_{t=0}^{\infty} (1+\delta)^{-t}\left(1+\gamma(\tau)\right)^t \ln\left[y_i(\tau) + \tau \cdot \left\{\overline{y}(\tau) - y_i(\tau)\right\}\right]$$

b) Main differences from static case:

(1) ...individuals discount the future (at rate δ), and

(2) ...beyond output-*level* concerns, output *growth-rate* also reduced by T&T rate-increase: $\gamma=\gamma(\tau)$; $\gamma'<0$, $\gamma''<0$.

c) Thus, given positive discount and growth rates, MV prefers lower T&T rate in dynamic than in static model. Alternatively, and with more empirical relevance:

(1) H4: The less the MV discounts the future, the less T&T she desires.

(2) H5: The more negatively sensitive growth to taxes, the less T&T the MV's desires.

B. Pork-barrel Politics Model of Distribution (*WSJ*)

1. Weingast, Shepsle, Johnsen (1981): districting & distributive/pork-barrel spending (***law of 1/n***):

a) benefits, B, concentrate in district i: $B_i=f(C)$, with $f'>0$ & $f''<0$.

b) costs accrue more uniformly across all n districts: $C_i=C/n$.

c) Individual district then $Max_c\ f(C)-C/n$, which => $f'(C)=1/n$.

d) ∴ optimal project-size from district i's view ↑ in # districts.

2. Alternative Decision Rules/Processes:

a) ***Majority rule***, no log-rolling, universalism, side-payments ⇒ all pork-barrel projects lose $(n-1)$ to 1 …

b) ***Universalism/Log-Roll*** => district-by-district optimal…

c) ***Rikerian MWC***=>side-pays suffic to induce bare-maj's: $(n-1)/2$ others get $C/n+\varepsilon$, which also =>*law of* $1/n$ but more marg'ly so.

d) ***Uncertainty re: MWC => Supermaj => b/w Uni & MWC***.

e) ***Legislative procedures***: all coals *MW-Uni* poss; keys: amend openness, pres or 2nd chamb, &c that add leg step where veto or amend may occur

f) ***Rational Ignorance*** makes sidepays/logrolls easier...

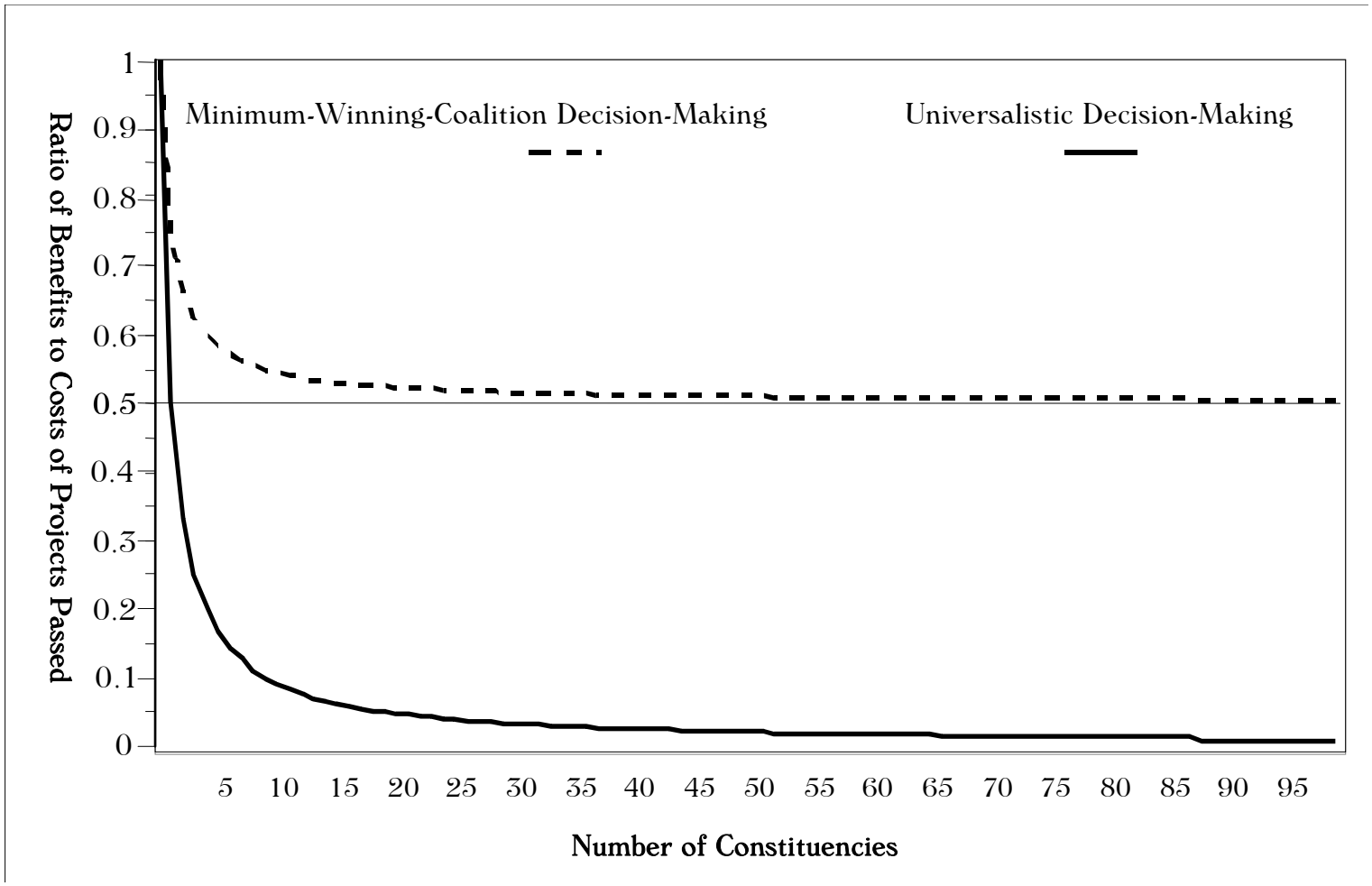


Figure 2: *The Ratio of Benefits to Costs of Minimally Passable Distributive Projects under Universalistic versus Minimum-Winning-Coalition Majoritarian Decision-Making*

3. **=> *Law of 1/n*** general, & stronger as legis behave more *Uni* & less *MW*, which tend ↑ as *rational ignorance*, *winning-coalition uncertainty*, or *legislative-rule closure to amend or veto* ↑

4. **So, total pub revenue = *common pool*** for *n* reps, overused in distrib; this ***collective-action prob worsens proportionally by law 1/n***; more exactly, by somewhere b/w rates at which *(n+1)/2n* (MWC) & *1/n* (universalism) ↓ in *n*

5. Manifestations of collective-action/common-pools:

a) Velasco ('98, '99, '00): w/ regard to inter-temporal totality of public revenues => deficits & debts, too, follow *law of 1/n*

b) Peterson & co-authors, Treisman: ***federalism*** => multiple actors w/ tax authority => several *common-pool*s:

(1) inter-jurisdictional competition (w/ high factor mobility) => common pool of investment resources => over-fishing: taxes too *low*.

(2) national govt ex/implicitly promises/held lender last resort => subnational jurisdictions see federal guarantee & funds behind it as common pool => excessive borrowing by subnational units.

c) EU, EMU & *Euro* => common pools…

6. C-A/C-P endemic to multiple p-m's, but, *thry 2nd-best*, may benefit. ELECTIONEERING:

a) Magnitude incentive to electioneer fades w/ *n*.

b) Control over electioneering diminishes w/ *n*.

7. C-P/C-A distinguishable from V-A Effects:

a) Effects in levels, not in dynams, mags (w/o sign), or vars.

b) Prop. to *1/n* for <u>*equal-sized*</u> actors. Std Olsonian *encompassingness* logic => *n* size-weighted (effective & std.dev./variance)

c) Fract (#'s) & esp. Polar (het.) relate to VA fx; C-P/C-A relate primarily to #'s, although het. can exacerbate some C-A probs.