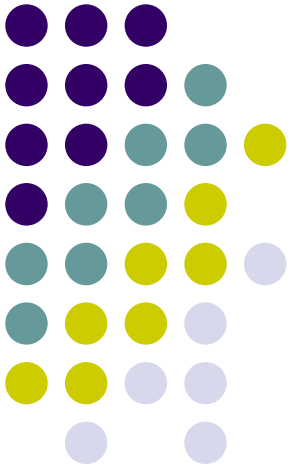
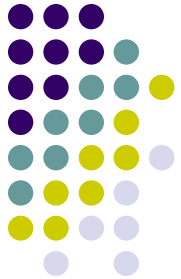
Polimetrics

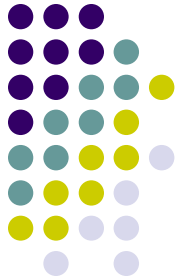
Lecture 2
The Spatial-Voting Model
(and its extensions)





Some extensions

Positional dimensions of voting



An empirical puzzle

1) In two-party elections not always parties converge

For example, beginning in the late 1970s the British Conservatives led by Margaret Thatcher (and her successor John Major) and the American Republican Party under Ronald Reagan (and his successors) shifting their policies sharply to the right, away from their opponents' positions and from the center of public opinion

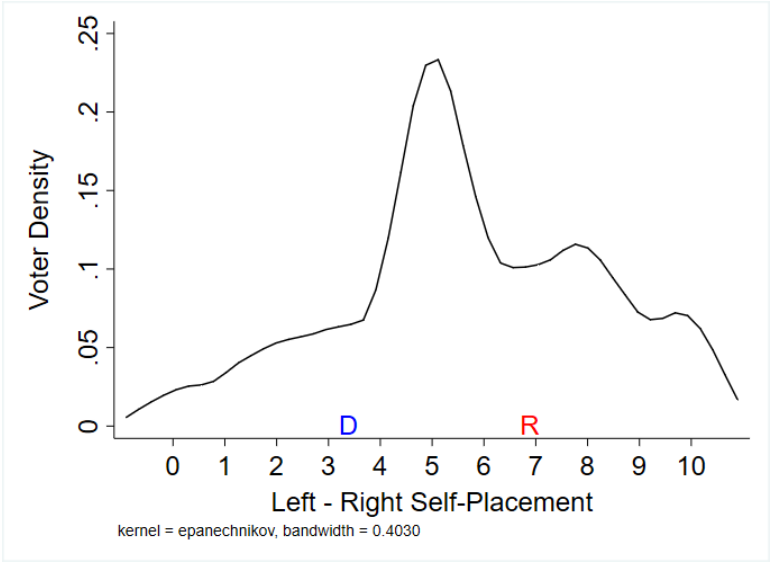
Positional dimensions of voting

An empirical puzzle

2) Moreover, contra the Downsian prediction that **radical policy positioning is electorally damaging**, both conservative parties' right-ward shifts met with electoral success

And, the policy divergence between Republican and Democratic Party elites has continued to widen since the 1980s

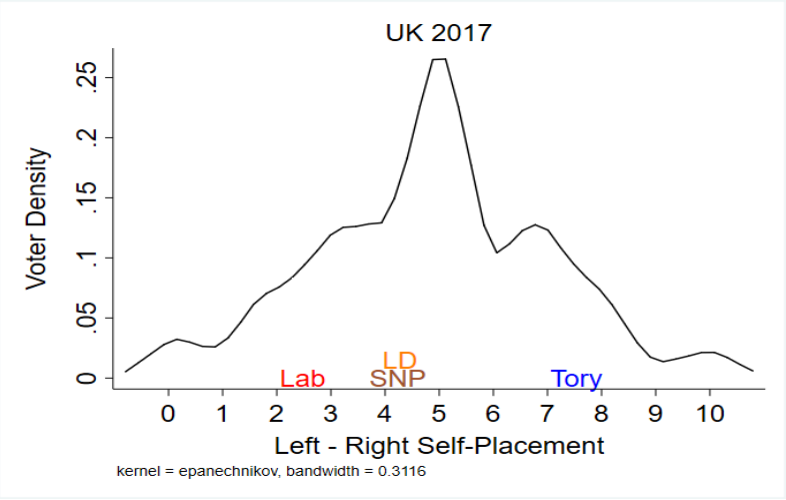
US 2016 actual voters distribution and party placements

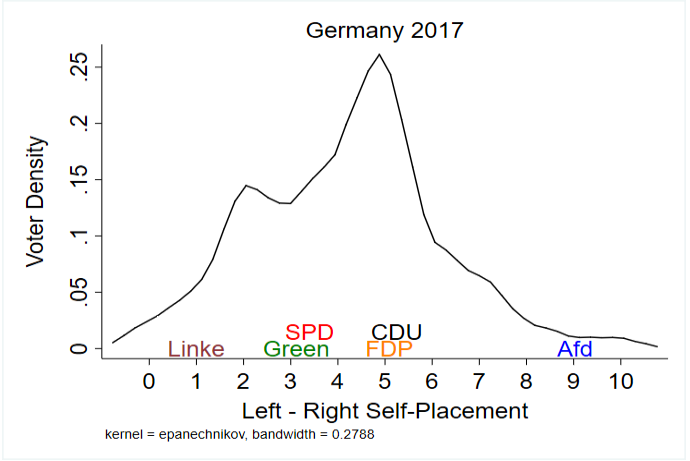


Positional dimensions of voting

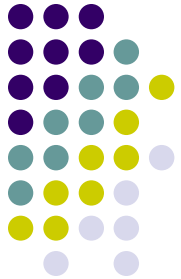
An empirical puzzle

3) On the other side, empirical patterns of party positioning in multiparty systems often feature the anomaly of **radical "peripheral" parties** that present positions that are far more extreme than those of their nearest competitor





Valence dimension of voting



A possible solution?

Stokes (1963) coined the term “valence dimensions” to denote dimensions “on which parties or leaders are differentiated **not by what they advocate**, but by **the degree to which they are linked** in the public’s mind with conditions, goals, or symbols of which almost **everyone approves or disapproves**”

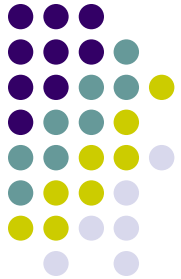
Valence dimension of voting

A possible solution?

Valence dimensions include such attributes as parties' (and party leaders') images with respect to honesty, competence, empathy, and charisma

These dimensions contrast with the Left-Right positional dimension, on which "parties or leaders are differentiated by their advocacy of alternative **positions**"

Valence dimension of voting

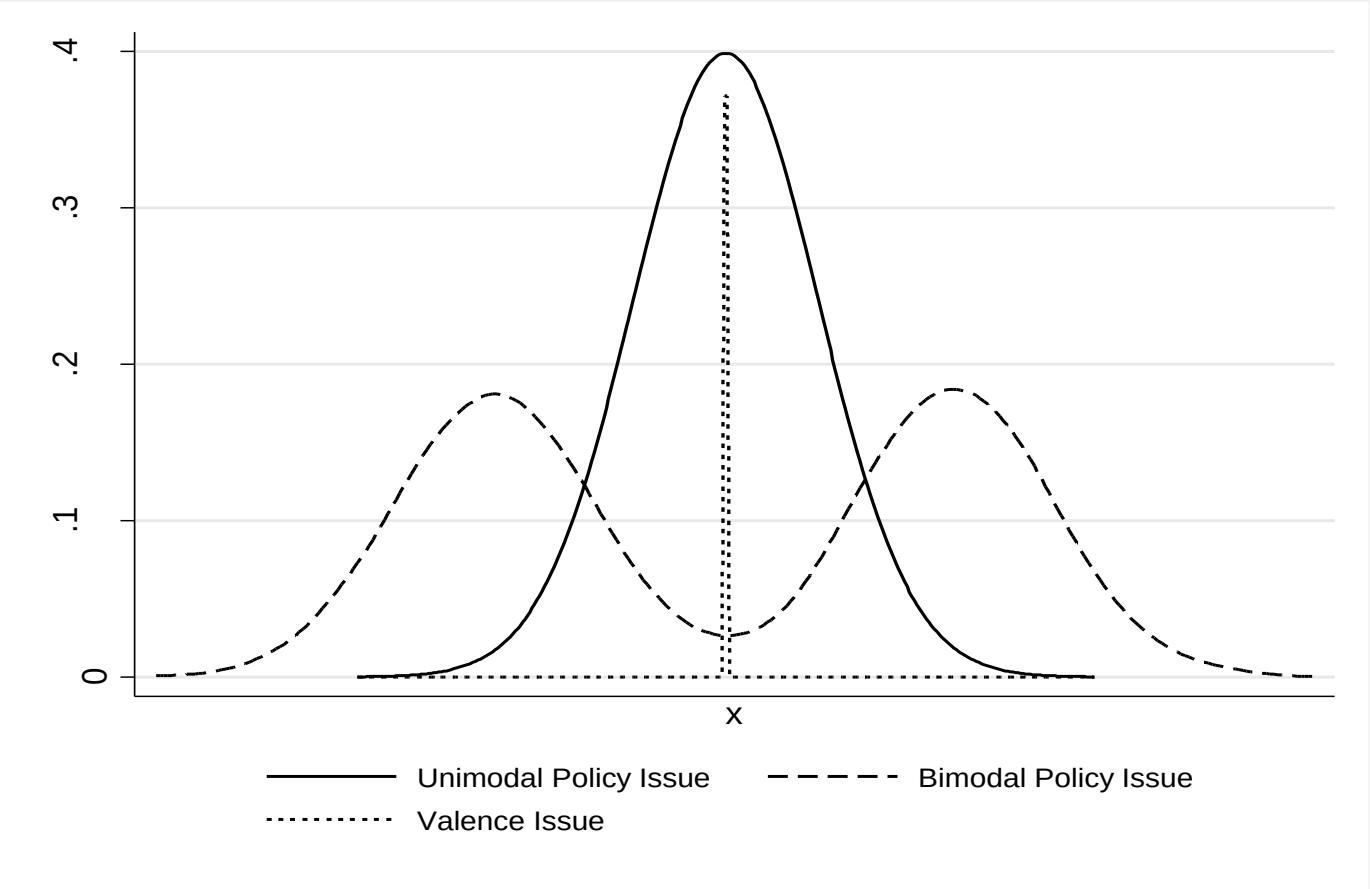


A possible solution?

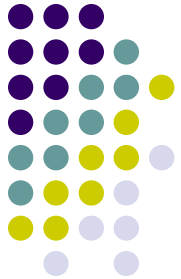
Valence dimensions differ from positional dimensions in that **nearly all voters share the same preferences with respect to valence**, i.e., voters prefer that party elites display higher degrees of competence, integrity, unity, compassion, and leadership ability, and moreover all political parties strive to publicly project these positive valence-based qualities

Valence dimension of voting

A possible solution?



Valence dimension of voting

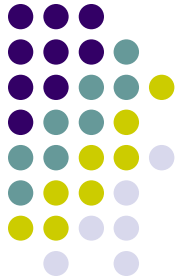


A possible solution?

Valence considerations matter because although nearly all voters prefer that parties be more competent and honest, **voters may perceive different parties** possessing differing degrees of positive valence

As a result, some parties may **enjoy valence advantages** compared to their opponents for a number of exogenous or endogenous reasons

Valence dimension of voting



A possible solution?

Furthermore, unlike positional dimensions where parties are free to change their positions, parties have only limited abilities to "**strategize**" over their **valence images**: they can only strive to achieve and convey to the public an image of competence and/or honesty, but if these efforts fail, parties trying to improve their valence images won't find that task that easy…

Therefore, in the short-term political parties can be considered to occupy more-or-less fixed (positive or negative) positions along valence dimensions of voter evaluation

Valence dimension of voting

A possible solution?

Note however that parties can have more (or less) incentives to invest resources to try to improve their valence endowments or to decrease the valence endowments of other parties (more on this later)

Valence dimension of voting

A possible solution?

Suppose this scenario: citizens choose between parties A and B that are positioned at 3 and 7, respectively, along the scale, by comparing these parties' left-right positions and their valence images

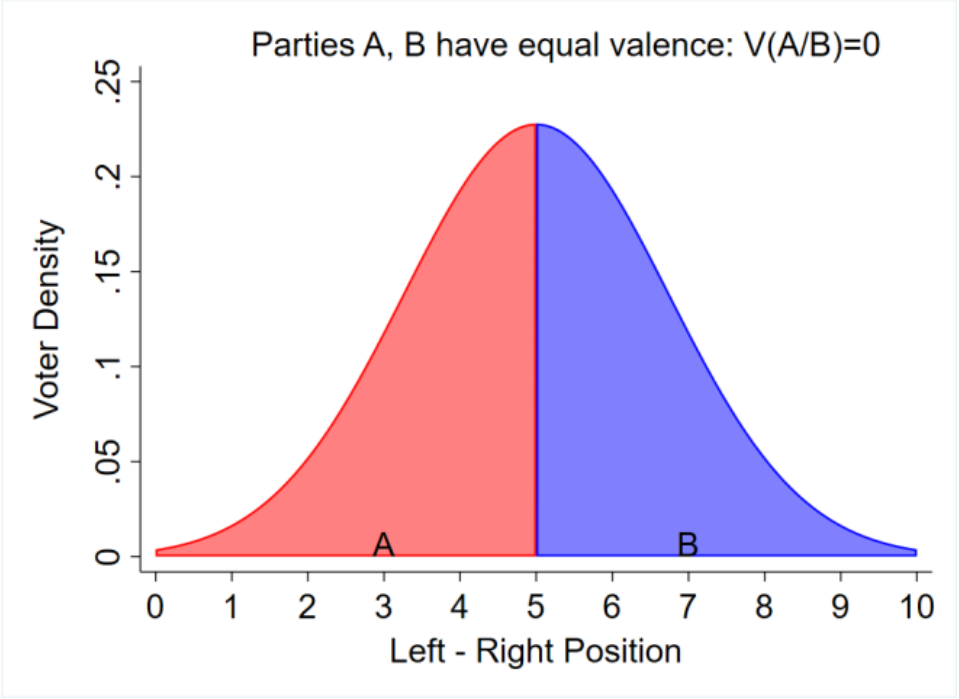
First assume a scenario where the parties have equal valence, i.e., V(A/B)=0, so that all voters prefer the party with the more proximate Left-Right position

Valence dimension of voting

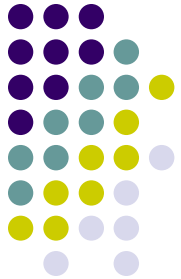
A possibile solution?

Figure below incorporates voters' valence considerations into a spatial model that also includes the positional Left-Right dimension

A voter with a Left-Right ideal point located at 5 is **indifferent** between the parties, since this voter's position is equidistant between parties A and B (i.e., (3+7)/2=5). All voters located to the left of 5 prefer Party A, while voters to the right of 5 prefer B.



Valence dimension of voting



A possible solution?

Now suppose that Party A has a **superior valence image**. Specifically, citizens evaluate Party A's valence advantage relative to Party B as equivalent to two units of position along the 0-10 Left-Right scale, which we denote V(A/B)=+2

This implies that a **voter will prefer Party A to B unless** the voter's Left-Right ideal point is located at least 2 units nearer to Party B than to A

Valence dimension of voting

The utility function for voting party A (assuming, as we did earlier, a linear utility loss function) now becomes:

$$U_i = -|x_i - A| + 2$$

where U_i is the utility function of voter *i*, x_i is the ideological position of such voter along the Left-Right dimension, A is the position of party *A (=3)* along that same dimension, and +2 is the valence advantage of party A over party B (located at 7)

While the utility function for voting party B now remains:

$$U_i = -|x_i - B|$$

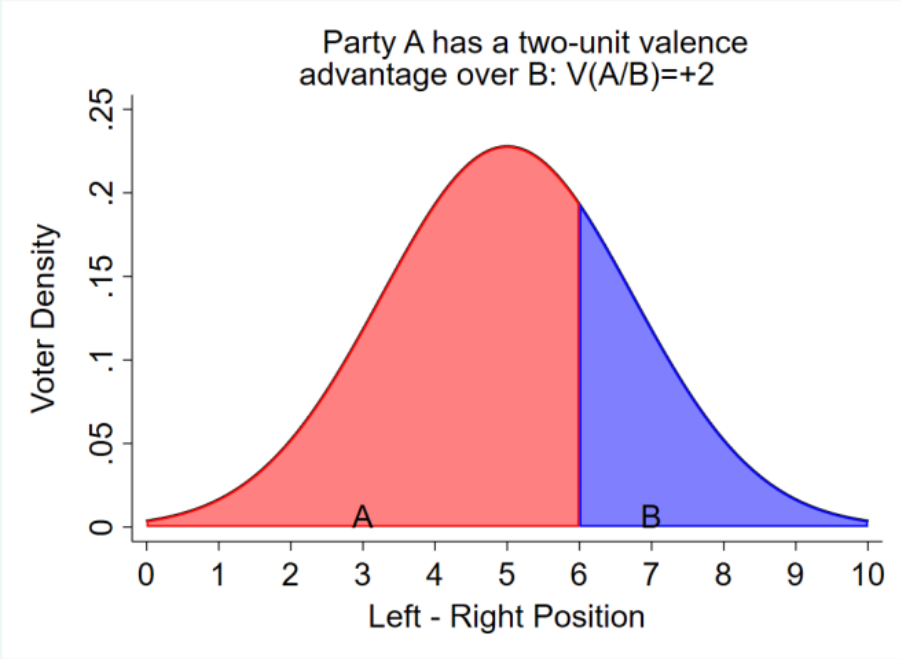
Valence dimension of voting

A possibile solution?

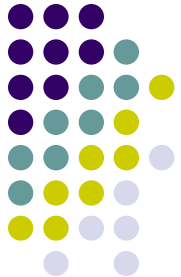
With V(A/B)=+2, the **indifference voter** is located at which position?

6! (i.e, ((3+2)+7)/2=6)

A voter located at 6 on the positional scale is now indifferent between parties A and B – which are located at the points 3 and 7, respectively – since this voter is located **two units** closer to B than to A on the Left-Right scale, a positional preference for B which exactly balances the voter's valence-based preference for A



Valence dimension of voting

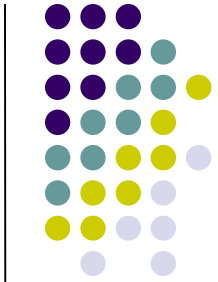


A possibile solution?

With V(A/B)=+4, the **indifference voter** is located at which position?

At 7! (i.e, ((3+4)+7)/2=7)

Valence dimension of voting

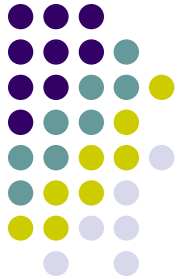


Which implications?

A key insight is that valence-disadvantaged parties have incentives to **diverge on position from their valence-advantaged rival(s)**. Why that?

If two parties converge on position then all voters rate the parties equally on position, and choose between the parties based **entirely** on valence considerations

Valence dimension of voting

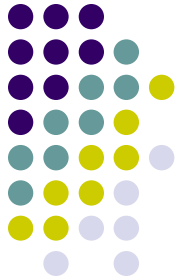


Which implications?

Therefore if one party's valence substantially exceeds its competitor's, the valence-disadvantaged party **must diverge** from its opponent to win (at least some) support

In this way the valence-disadvantaged party attracts voters whose ideal points are close to its position but far away from its opponent's position

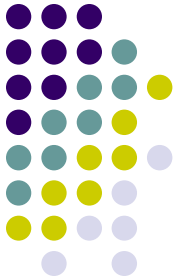
Valence dimension of voting



A possibile solution?

For this reason, when voters' policy preferences are **unimodally distributed** (which is true in most Western democracies) **valence-advantaged parties** should be motivated to position themselves near the center of the voter distribution (so it is sure to win the election!)…

Valence dimension of voting



A possibile solution?

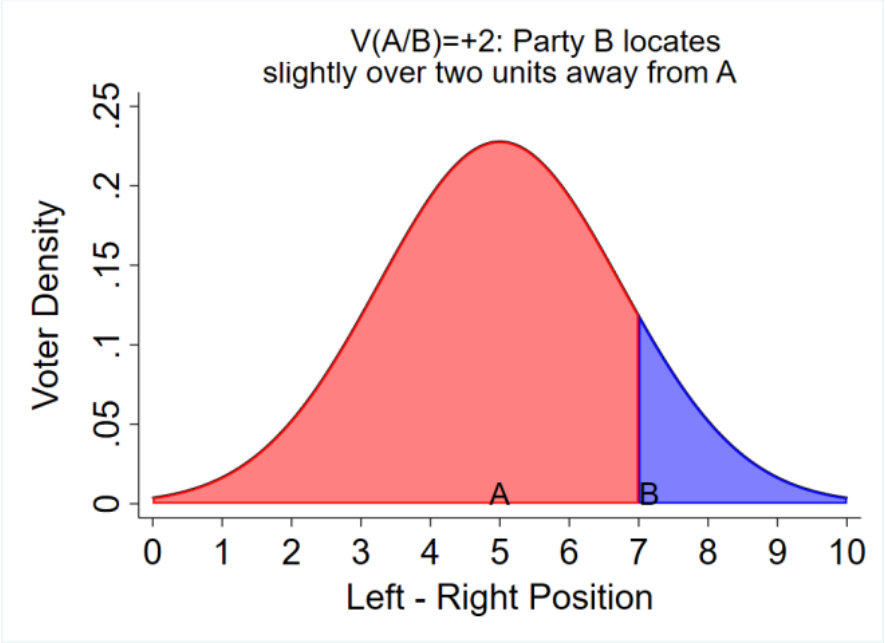
….whereas **valence-disadvantaged parties** have **centrifugal incentives** to diverge from the centrist positions of their valence-advantaged rival(s)

This is true particularly given proportional representation elections, where office-seeking parties seek to maximize seats and thus votes, even if they cannot win a popular plurality

Valence dimension of voting

Let's go back to theV(A/B)=+2 example. And let's suppose that the median voter position is located at 5

Party A locates at the median voter position, which forces Party B to locate more than two units away from this position in order to attract any support at all; in this example, Party A wins the election while attracting support from all voters located at or to the left of 7, while B wins support from voters located to the right of 7

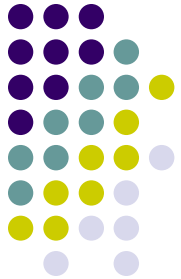


Valence dimension of voting

In this example Party A is assured of victory so long as its position is **sufficiently moderate relative to the center of the voter distribution** – in this case provided A locates anywhere inside the Left-Right interval [3,7]

Regardless of A's strategy, Party B optimal strategy will be to locate slightly more than two units away from A

Valence dimension of voting



And in a **multi-party scenario**?

Let's assume a four-party scenario involving parties A, B, C, D, where the two interior parties B and C each possess a two-unit valence advantage over their peripheral rival parties A and D, i.e., V(B/A)=+2 V(C/D)=+2, and where we additionally assume that B and C have equal valences, i.e., V(B/C)=0

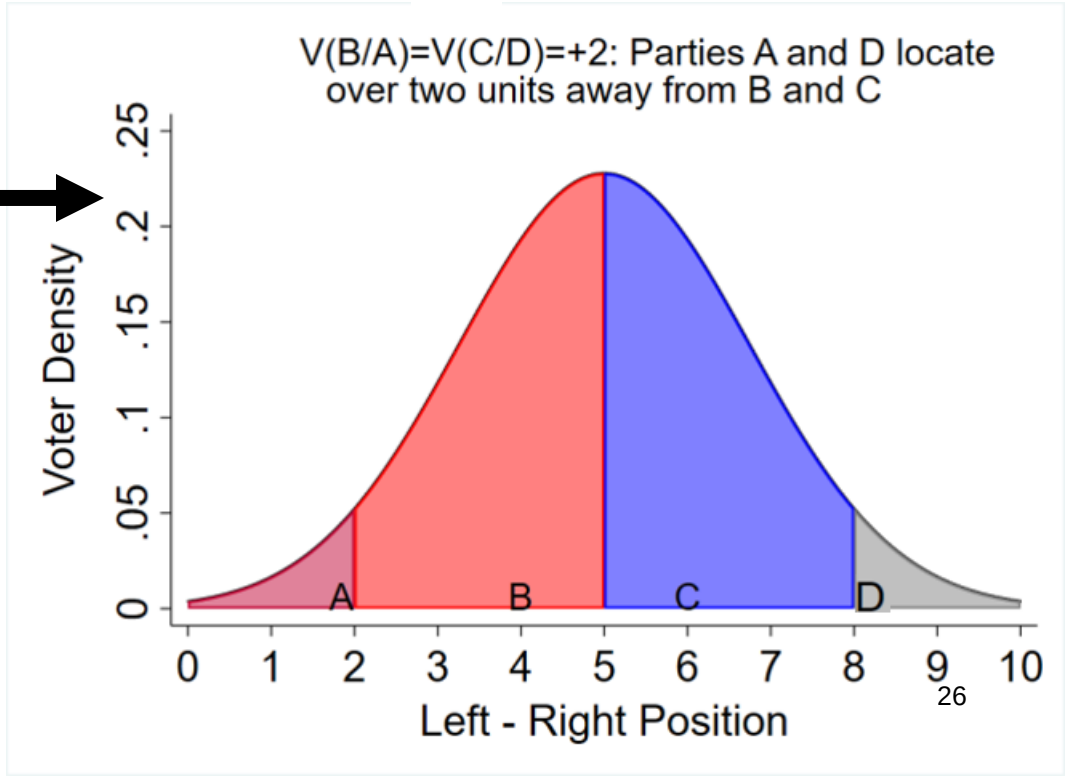
Let's also assume that the valence-advantaged parties B and C located at the moderate positions 4 and 6

What should party A and D do?

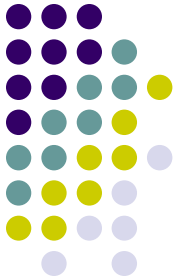
Valence dimension of voting

The peripheral parties A and D are no longer motivated to converge towards their ideological neighbors; instead they locate just over two units away from these rivals, near 2 and 8, respectively

Note that this four-party configuration is not an equilibrium (can it be with 1 mode and 4 parties???) since the interior parties B and C, who are equally-matched with each other on valence, can each increase their support by unilaterally shifting position closer to the center of the voter distribution



Valence dimension of voting

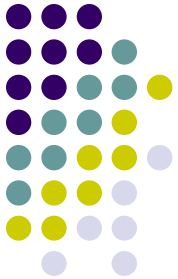


Summary

By adding a valence dimension we were able to explain two empirical facts

1) In a two-party system, **parties cannot converge**
2) In a multi-party system, **peripheral parties do not necessarily converge** towards the position of the most proximate interior party

Adding policy-seeking party motivations

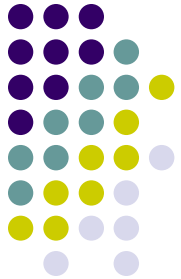


A further empirical puzzle

There are many real-world examples of large, valence-advantaged parties that also present **sharply noncentrist positions** – such as the two previously quoted examples (the British Conservatives under Margaret Thatcher and the Republicans under Ronald Reagan)

How to explain such outcome? After all, the valence-disadvantaged parties should be the one that may rationally present sharply noncentrist positions, away from their valence-advantaged opponents (and from the center of the voter distribution)

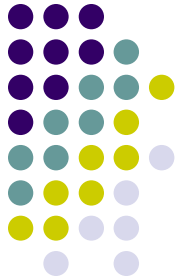
Adding policy-seeking party motivations



Changing parties' motivations

Let's assume *policy-seeking* politicians who attach utilities to the policies that the winning party implements after the election, i.e., parties have **preferences over the policies** they are committed to implementing if they win office. Why so?

Adding policy-seeking party motivations



Changing parties' motivations

First, elected officials face pressures to implement the policies they promised during the election campaign, since to do otherwise would undermine the credibility of their promises in future elections

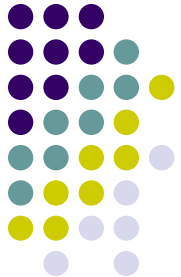
Second, party elites – in common with rank-and-file voters, as well as activists – experience the 'public good' of government policy outputs, so they care about them

Adding policy-seeking party motivations

Spatial models with policy-seeking parties assume that each party, like each voter, has an **ideal point** which is the policy position it would prefer to implement

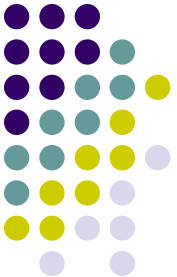
But this does not imply that a policy-seeking party - in attempting to optimize its policy expectations - should advocate its ideal point in elections. Why that?

Adding policy-seeking party motivations



Cause party elites **must still consider the electoral consequences of their policy promises**, since they must win office in order to implement these promises (and to prevent the implementation of disagreeable policies if a rival party wins)

Adding policy-seeking party motivations



For a two-party election involving one positional dimension **without valence**, and where the rival parties' ideal points fall on opposite sides of the median voter's position, then provided that party elites **have perfect knowledge of this position** the positional spatial model implies that policy-seeking parties will do what?

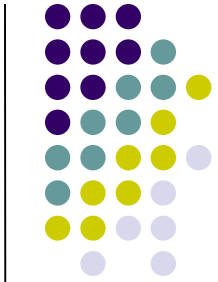
They will **converge** towards the median voter's position – the same outcome as for office-seeking parties!

Why?

Adding policy-seeking party motivations

When a party with **sincere left-wing policy preferences** relative to the median voter position competes against a party whose elites hold sincerely **right-wing views**, then if the left-wing party takes a position to the left of the median voter, the right-wing party need only choose a position to the right of the median, but nearer to that median voter, to win office and implement a policy it prefers to its opponent's position

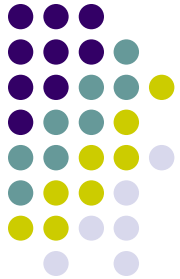
Adding policy-seeking party motivations



Since the **same logic** applies to the left-wing party's strategic reaction to any right-of-the-median position its opponent announces, it follows that…

…given a bipartisan system, the unique equilibrium in policy-seeking party strategies is once again the **median voter position**!!!

Adding policy-seeking party motivations and valence

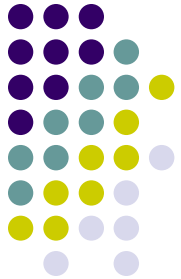


But what does it happen if we once again add in the framework a **valence dimension**?

In contrast to valence-advantaged parties' **centripetal incentives** in the office-seeking case, such policy-seeking parties typically have **centrifugal incentives** to announce non-centrist positions relative to the voter distribution

Why?

Adding policy-seeking party motivations and valence



Consider the case of positional spatial competition between a valence-advantaged party **R** with sharply right-wing policy preferences, and party **L** with sincere policy preferences at or to the left of the median voter's position

In this scenario party **R**'s valence advantage gives it leeway to diverge some distance to the right of the median voter position and st**ill be assured of winning**, with this degree of divergence increasing with the size of **R**'s valence advantage

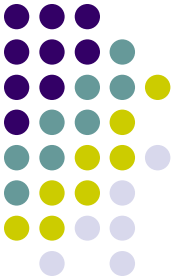
Adding policy-seeking party motivations and valence

Suppose that V(R/L)=+2, the median voter is located at 5 and that the ideal point of **R** is 7, and the ideal point of party **L** is 3

What would **L** and **R** do?

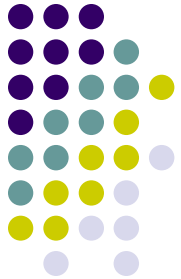
The unique equilibrium in policy-seeking strategies is for **L** to locate at the median voter position while the valence-advantaged party **R** locates as near as is possible to its preferred right-wing position (say at 6.9) while, by leveraging its valence advantage, still retaining the median voter's support

Adding policy-seeking party motivations and valence



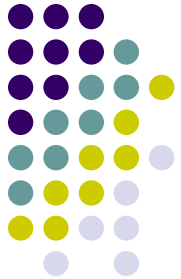
Indeed, if **R**'s sincere policy preference is sufficiently moderate and/or its valence advantage sufficiently large, any configuration in which **R** locates at its preferred position is an equilibrium!

Adding policy-seeking party motivations and valence



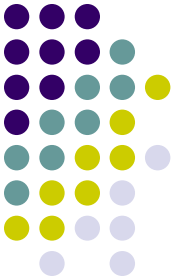
This intuition about the positional motivations of valence-advantaged, policy-seeking parties provides a **plausible account of the empirical puzzle** of the sharply noncentrist positional strategies of British Conservatives under Margaret Thatcher, and the Republicans under Ronald Reagan (two leaders who were unusually focused on pursuing their policy objectives)

Adding policy-seeking party motivations and valence



Both parties benefitted from **valence advantages** vis-à-vis their main competitors during much of the periods of these leaders' tenure in office – the Republicans' advantage was due largely to Reagan's image as a strong, charismatic leader, the Conservatives' advantage was because the Labour Party throughout the 1980s was plagued by public divisions and an image of weak leadership

Adding policy-seeking party motivations and uncertainty

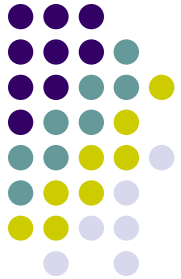


A final empirical puzzle

Why large, mainstream parties can take positions **BOTH** sharply different from each other and from the center of public opinion, particularly - in light of the median voter theorem - when they are the only parties present?

The role of uncertainty

Adding policy-seeking party motivations and uncertainty



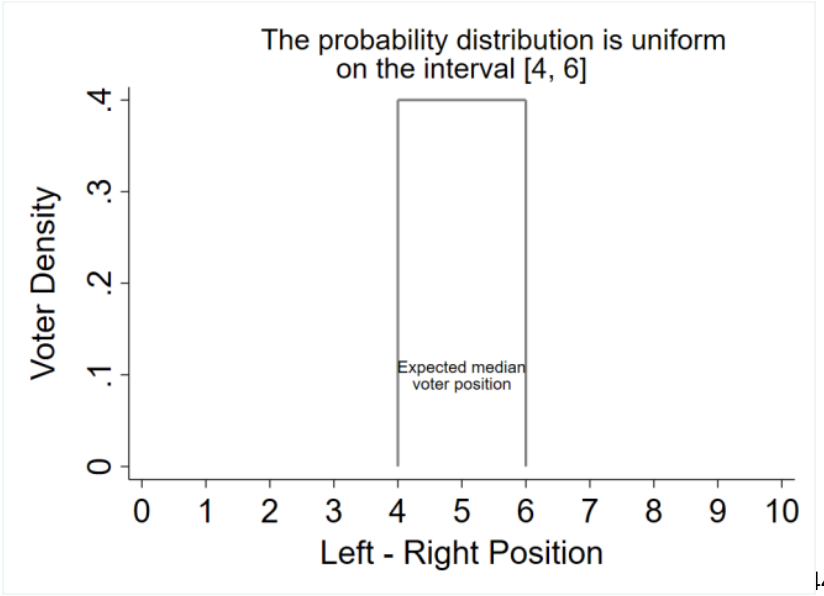
Let us assume, more realistically (?), that **policy-seeking** politicians **are not certain anymore** of the median voter's location in advance of the election, where this uncertainty may reflect the limitations of public opinion polling or uncertainty over voter turnout

Suppose, instead, that leaders of each party have a general idea of where the median voter should be located, but not a precise notion

Adding policy-seeking party motivations and uncertainty

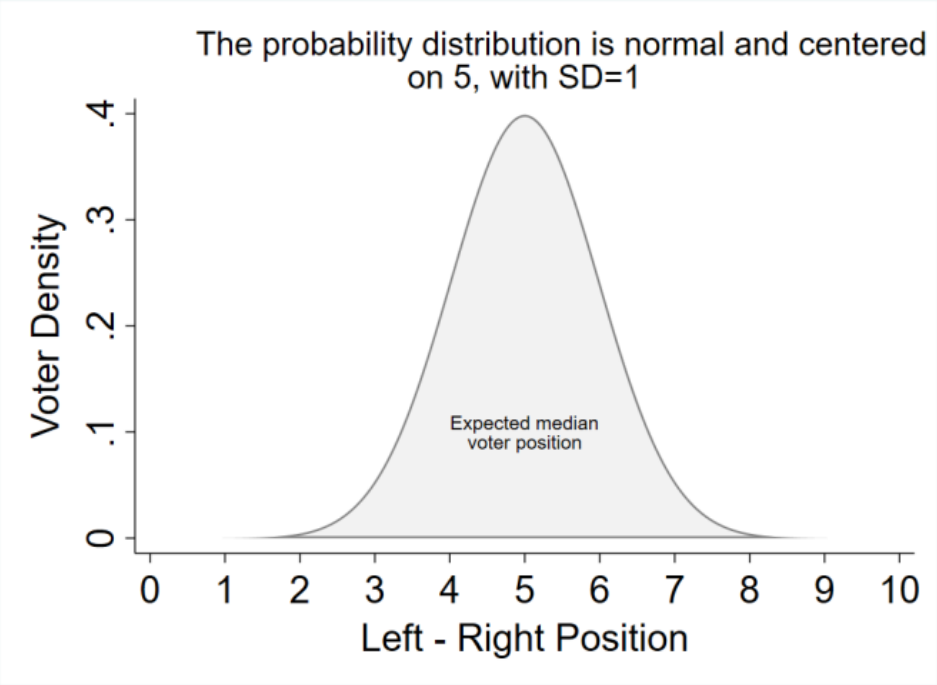
For example, assuming a Left-Right scale from 0 (most left-wing) to 10 (most right-wing), party leaders might be quite confident that the median falls somewhere in the middle part of the scale, perhaps between 4.0 and 6.0, but **otherwise be unsure** just where

In other words, they could represent their uncertainty about the median location by a uniform distribution between 4.0 and 6.0

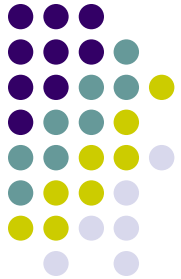


Adding policy-seeking party motivations and uncertainty

Or they might judge that the possible **locations of the median** voter follows a normal distribution, with say a mean (m) of 5.0 and a standard deviation (sd) of 1.0



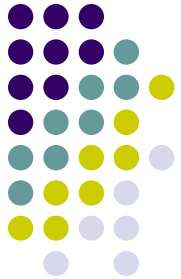
Adding policy-seeking party motivations and uncertainty



Let's assume in this latter scenario two parties, one that prefers leftist policies that we will call **L**, located at =4, and another that prefers right-wing policies that we label **R**, located at =7. **L** is therefore located nearer to m=5 than is **R**

Note that party **L** will win the election if the actual median voter position turns out to be…where?

Adding policy-seeking party motivations and uncertainty



To the left of the **midpoint** (L+R)/2 between the two party locations; in this example the midpoint is (4+7)/2=5.5!

Party **R** will in fact win only if this midpoint turns out to be to the right of this midpoint

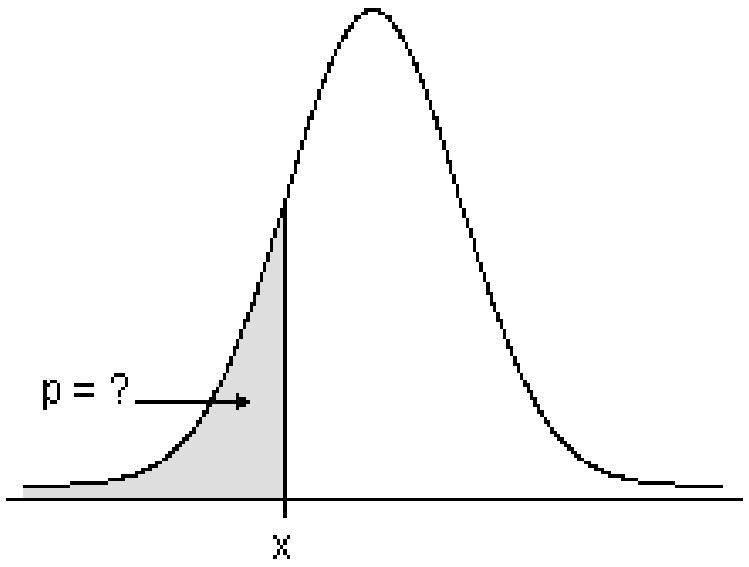
More in details, the probability that L wins is equal to the **cumulative probability** (!?!) from the extreme left up to the midpoint; while the probability that R wins is 1 minus that cumulative probability

Adding policy-seeking party motivations and uncertainty

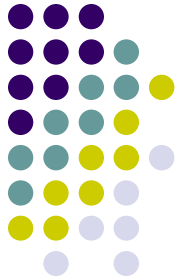
How to derive a cumulative probability? From the cumulative distribution function (CDF)!

The CDF calculates the cumulative probability for a given x-value

For continuous distributions, the CDF gives the area under the probability density function, up to the x-value that you specify

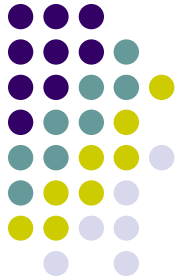


Adding policy-seeking party motivations and uncertainty



You use the CDF to determine the **probability** that a random observation that is taken from the population will be **less than or equal to a certain value**

Adding policy-seeking party motivations and uncertainty



You can use Excel to compute that!

The function:

NORMDIST(x,mean,standard_dev,cumulative)

Where:

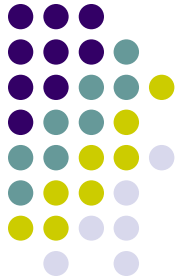
x is the value for which you want the distribution.

Mean is the arithmetic mean of the distribution.

Standard_dev is the standard deviation of the distribution.

Cumulative is a logical value that determines the form of the function. If cumulative is TRUE, NORMDIST returns the cumulative distribution function; if FALSE, it returns the probability mass function. You need to write “TRUE” in our example since we want the area under the curve!

Adding policy-seeking party motivations and uncertainty



In the Italian Excel, the function is called DISTRIB.NORM and you have to write “VERO” in place of “TRUE”

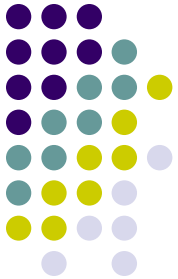
Back to our example, “the probability that L wins is equal to the **cumulative probability** from the extreme left up to the midpoint (i.e., 5.5); while the probability that R wins is 1 minus that cumulative probability”

Therefore, write what in the Excel function?

The function: NORMDIST(5.5,5,1,TRUE)

Where 5.5=midpoint; 5=m; 1=sd

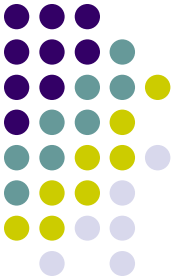
Adding policy-seeking party motivations and uncertainty



In our example the probability that **L** wins is about 0.69, and **R**'s election probability is about 0.31

Thus unlike in the positional model with certainty over the median voter position, here the party with the more advantageous position (Party **L** in this example) is no **longer certain** to win election!

Adding policy-seeking party motivations and uncertainty



Let's see another example

L=3

R=9

Mean (m)= 5.5; standard deviation (sd) = 2.0

Estimate the probability of winning for party L and party R

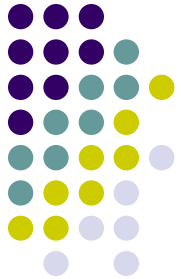
Midpoint=6 (i.e., (3+9)/2=6)

The function: NORMDIST(6,5.5,2,TRUE) [in Italian: DISTRIB.NORM(6,5.5,2,VERO)]

Probability of winning for party L? 59.9%

For party R? 1-0.599=40.1%

Adding policy-seeking party motivations and uncertainty



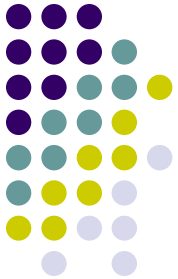
This is important: **policy-seeking parties** have always to **weight two aspects** (i.e., their utility function consists of two arguments):

I. winning the election (by moving closer to the centre of the voters' distribution)

and

II. sticking to their (possibly not centrist) ideal policy positions

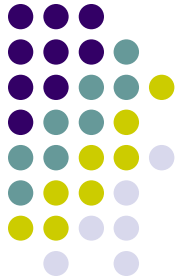
Adding policy-seeking party motivations and uncertainty



The **weigthing depends on uncertainty**. If they know for sure the position of the median voter, I) outweighst II) - as we have already discussed. II) begins to become important when there is uncertainty. If there is a complete uncertainty, then II) outweights I)

This makes sense: if the uncertainty is very large, the median voter can be anywhere…and therefore, makes no sense to «look for it» to win the elections

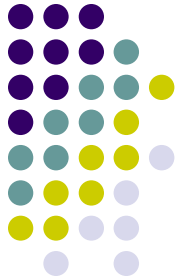
Adding policy-seeking party motivations and uncertainty



The fact that they are uncertain about the real position of the centre of the voters' distribution, could therefore **mitigate somehow** their incentive to move to the centre to win the election (something that they can never be sure about…)

More in details, it can be shown that at equilibrium the positions of **policy-seeking parties** experiencing uncertainty about the location of the median voter are separated by a distance that is related to the degree of spread (i.e., standard deviation) of the subjective median distribution

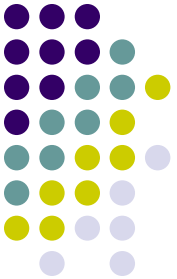
Adding policy-seeking party motivations and uncertainty



If the subjective notion of the median voter is normally distributed, then the *equilibrium separation* is equal to approximately 2.5**sd* around the average median position, where *sd* is the standard deviation of the uncertainty distribution

Suppose that the ideal points of L and R are respectively 0 and 10

Adding policy-seeking party motivations and uncertainty

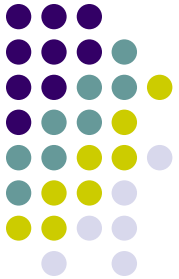


Thus, in our example (given m=5 and s.d.=1) what about the optimal positions for parties L and R?

The policy-seeking parties L and R are going to be separated in this case by 2.5 units at equilibrium (i.e., 2.5*1), i.e., L=3.75 (i.e., 5-2.5/2) and R=6.25 (i.e., 5+2.5/2)

That is, both L and R will place themselves between their favorite position (0) and the uncertain mean position of the median voter (5)

Adding policy-seeking party motivations and uncertainty

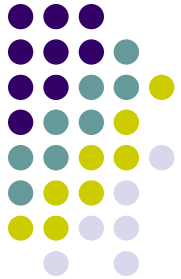


This also implies that the separation at equilibrium increases with uncertainly (i.e., the value of s.d.) about where the median voter may be located

Now suppose that the uncertainty is very large (say, s.d. 4)

Under this condition the optimal positions of L and R would be what?

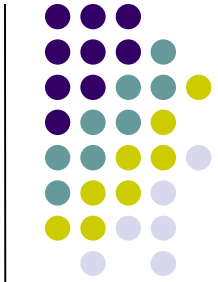
Adding policy-seeking party motivations and uncertainty



The policy-seeking parties L and R are separated by 2.5*4 units at equilibrium, i.e., L=0 (i.e., 5-(2.5*4)/2) and R=10

Given that parties have no idea where the median voter is located, each of them locates where its ideal points is! It cannot get any better (i.e., getting a higher utility) by doing something else!

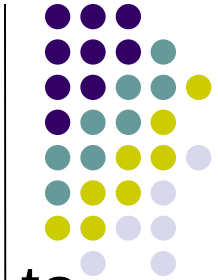
A summary



Beginning with Anthony Downs' pioneering work, research on the spatial model of elections has been extended along several ways:

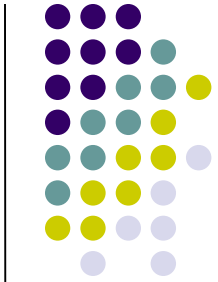
1. from two-party to multi-party elections
2. from electorates whose voters are purely policy-focused to electorates that also weigh parties' character-based valence characteristics

A summary



3. from competition between office-seeking parties to elections where parties have policy motivations
4. from competition between parties with complete information to elections where parties experience uncertainty about the distribution of the voters' ideal points

A summary



These extensions are intended to capture real-world election contexts, and also to explain why actual political parties and candidates rare converge to identical, centrist policies – the prediction associated with the basic Downsian model of two-party, one-dimensional, positional competition

A summary

The variations on the basic Downsian model are even larger, and consider for example:

- the possibility that citizens **abstain** from voting if neither party offers a sufficiently attractive position
- that parties seek to **deter entry** by new parties
- that political parties **select their candidates through primary elections**
- that voters present a **party identification** as a long-term, affective orientation (in such circumstances parties may have electoral incentives to appeal on policy grounds to their pre-existing partisans)