Representative Democracy may be required when there are a large number of voters or issues. In a representative democracy, representatives are elected who vote on the issues for their constituency.

Three important aspects of representative democracy

1. behavior of representative both during the campaign to be elected and while in office
2. the behavior of the voters in choosing representatives
3. the characteristics of the outcome

Both representatives and voters are assumed to be rational economic people bent on maximizing utility (or expected utility).

Anthony Downs viewpoint: Parties formulate policies in order to win elections, rather than win elections in order to formulate policies.

Hotelling-Downs

In the Hotelling-Downs model, political opinion is depicted as lying along a single liberal-conservative (left-right) dimension. Preferences are assumed to be single-peaked.

1. As long as all voters vote (i.e., there is no alienation), the median outcome holds regardless of the distribution of preferences; the voters lying between a candidate's position and the further extreme on his side of the other candidate are "trapped" into voting for him.

2. If the probability that a voter does not vote is an increasing function of the closeness of
two candidates' positions, a movement toward the center of a symmetric distribution of preferences has a symmetric effect on the two candidates' vote totals. The pull of the median remains.

(3) If, however, the probability that a voter will abstain is an increasing function of a candidate's distance from him, the candidate is pulled toward the mode.

(4) If distribution is symmetric and unimodal, then mode = mean = median.

(5) Comanor (1976) the distance between the median and mode is not likely to be great enough to cause a significant shift in a candidates' position owing to alienation.

A spreading of candidates may occur if elections consist of two steps:

(1) Competition for nomination within party (pulled towards party's median)

(2) Competition among parties (pulled towards population median)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
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<td>-2</td>
<td>-1</td>
</tr>
<tr>
<td>II</td>
<td>-2</td>
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</tr>
<tr>
<td>III</td>
<td>-1</td>
<td>4</td>
<td>-2</td>
</tr>
</tbody>
</table>

Notice that a majority opposes every issue. Can demonstrate instability in this multidimensional world.
A candidate can form a winning coalition among minorities on each issue:

- PPP wins over FFF
- PPF wins over PPP
- PFF wins over PPF
- FFF wins over PFF

A cycle can be produced so that every platform can lose.

Note: First-mover disadvantage of declaring a platform, since this allows the opponent to put together a winning coalition to defeat it.

1. **A random hypothesis:** The elections are random events, perhaps because voters do not take the trouble to gather information about the candidates, because the incentive to do so is low. This hypothesis leads to the prediction that the probability of a change in the party of the government is 0.5 in the U.S. two-party system.

2. **A conspiracy hypothesis:** The incumbents can manipulate the system or voter preferences so that they are never defeated. The probability of their defeat is zero.

Since the birth of the Republic, the party of the incumbent governor has failed to regain the governorship only one-fourth of the time.

**Two-Party Competition in a Constrained Policy Space**

**Definition:** The uncovered set is the set of all points y within the set of feasible alternatives S, such that for any other alternative z in S, either yPz or there exists some x in S such that yPxPz, where aPb means a beats b under majority rule.

A platform from the uncovered set is at most "once removed" from defeating any other platform. At worst, a given platform will be involved in a cycle of length three with any platform that defeats it.
Consider \( xPy \ yPz \ zPx \)
\( xPw \ yPw \ wPz \)

Shows that the uncovered set is \( \{ x, y, z \} \)

**Multiparty System**

**One view:** Elections serve primarily to choose a government, and only secondarily, if at all, to reflect preferences or opinions of citizens.

**Second View:** Elections are primarily instruments in the hands of the public to signal particular preferences or opinions to competing representatives and only secondarily to fulfill the function of choosing a government.

*Multiparty systems and proportional representation is best for second view.*

**Ideal Proportional Representation:** Assume that citizens can be partitioned into \( s \) groups with all members of each group having homogeneous preferences on public issues. Let the number of citizens with preferences of \( i \)th type be \( n_i \). Then a fully representative body can be formed by selecting \( s \) individuals, one from each group, giving each representative votes in the assembly proportional to the number of individuals represented. Each of \( s \) elected officials cast \( n_i \) votes.

1. If \( s \) is large, then may have to fix the number of seats to \( m \), where \( m \) are the \( m \) highest vote getters.

2. Set a minimum number of voters to hold a seat.

**True Proportional Representation:** The key feature is that the individual parties receive votes in the national assembly in rough proportion to the percentage of the votes that they receive in the national election.

real PR \( \Rightarrow \) each representative has one vote, but number of representatives is proportional to the vote.
## Distribution of Votes Across 10 Electoral Districts

*(number of votes in millions)*

<table>
<thead>
<tr>
<th>District</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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Plurality: E wins 2 seats, D wins 3 seats, C wins 5 seats.

PR most appropriate electoral rule if the purpose of the election is to select a body of representatives that mirror as closely as possible the preferences of population.

### Percentage of National Vote

<table>
<thead>
<tr>
<th>Party</th>
<th>Vote</th>
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<tbody>
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<tr>
<td>B</td>
<td>25</td>
</tr>
<tr>
<td>C</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>15</td>
</tr>
<tr>
<td>E</td>
<td>10</td>
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