Reducing Manipulability
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Criteria for Voting Systems

<table>
<thead>
<tr>
<th>Veto…</th>
<th>Set of voting systems</th>
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<tbody>
<tr>
<td></td>
<td>Informed majority coalition criterion (InfMC)</td>
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<td>Ignorant majority coalition criterion (IgnMC)</td>
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<td>Majority favorite criterion (MF)</td>
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<td>Condorcet criterion (Cond)</td>
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</tbody>
</table>

Goal: Minimize the Manipulability Rate

\[ \rho(f) = \mathbb{P}(\text{voting system } f \text{ is manipulable}) \]

Transformations

- Initial voting system \( f \)
- Condorcification of \( f \):
  - Elects Condorcet winner when she exists.
  - Otherwise, same outcome as \( f \).
- Best slice of \( f^c \):
  - Depends only on orders of preference.
  - Meets the Condorcet criterion.

Condorcification Thm.

If \( f \) meets InfMC:

\[ \rho(f^c) \leq \rho(f). \]

Slicing Theorem

If voters are independent:

\[ \rho(f^{cs}) \leq \rho(f^c). \]

Consequences

To minimize manipulability while keeping InfMC, one may restrict to voting systems that:

- Depend only on orders of preference,
- And meet the Condorcet criterion.