Problems with Politics in the Animal Kingdom

Presenter: Yasha Pushak
Slide content/examples by: C.G.P. Grey

www.CGPGrey.com/blog/
The Lion Royal Family
‘King’ is now an elected office
First Past The Post (FPTP)
‘King’ is now an elected office

Two Rules to Win:
1. one vote per citizen
‘King’ is now an elected office

Two Rules to Win:
1. one vote per citizen
2. most votes wins
Candidates:
Problem 1:

Minority rule.
The Next Election...
Vote Leopard!

Don't let a damn, dirty ape throw poo at you!
The Next Election...
Vote Leopard!

Or Gorilla will throw poo at you!

Vote Gorilla!

Or Leopard will eat you!
The Next Election...
The Next Election...
Vote 3rd party!
Bernie Sanders
Jill Stein
<table>
<thead>
<tr>
<th>Voting System</th>
<th>Prevents Minority Rule (PR)</th>
<th>Allows Political Diversity</th>
<th>Prevents Strategic Voting</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Past The Post (FPTP)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Alternative Vote
WHO WILL BE KING?
meh...

OMG WTF!
Tiger
Gorilla
Turtle
Leopard
Owl
AV/Runoff Flowchart:

Vote!

- Does a candidate have more than 50%? [Yes → Winner, No → Is there only one candidate left?]

- Is there only one candidate left? [Yes → Winner, No → Drop worst candidate and find out who voters liked next best.]

Winner
The Spoiler Effect in FPTP

45%

55%
The Spoiler Effect in FPTP

- 45% (Gorilla)
- 40% (Cheetah)
- 15% (Tiger)
No Spoiler Effect in AV
<table>
<thead>
<tr>
<th></th>
<th>Prevents Minority Rule (PR)</th>
<th>Allows Political Diversity</th>
<th>Prevents Strategic Voting</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Past The Post (FPTP)</td>
<td>×</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>Alternative Vote (AV)</td>
<td>×</td>
<td>×</td>
<td>✅</td>
</tr>
</tbody>
</table>
AV FTW!
Gerrymandering
More democracy!
VOTE BUFFALO!

VOTE JACKALOPE!
Jungle Council Representatives

[Images of various animals with rosettes and a chest labeled 'Taxes']

[Image of a weasel with a Bitcoin symbol]
Voters

53%  47%

Representatives

80%  20%
I HAVE THE POWER!
ROAR!
Your kingdom is still growing.

You must construct additional ranges.
Get busy agreeing or I’ll get busy eating.

Bi-partisan electoral boundary committee.
3 Options:
ShortestSplitLine( State, N ) {
  if N=1 then output entire state as the district;
  A = floor(N/2);
  B = ceiling(N/2);
  find shortest splitline resulting in A:B pop ratio (breaking ties,
  if any, as described in notes);
  use it to split the state into the two Hemistates SA and SB;
  ShortestSplitLine( SB, B );
  ShortestSplitLine( SA, A );
}
Shortest Split-Line Method
Voters

53%

47%

Representatives

60%

40%

Most Proportionate Result Possible
<table>
<thead>
<tr>
<th></th>
<th>Prevents Minority Rule (PR)</th>
<th>Allows Political Diversity</th>
<th>Prevents Strategic Voting</th>
<th>Prevents Gerrymandering</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Past The Post (FPTP)</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Alternative Vote (AV)</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>❌</td>
</tr>
</tbody>
</table>
Mixed-Member Proportional Representation (MMP)
Jungle Council Members:
Range #1 Election Day!

Local Representative:
- Tom Tuatara
- Karen Kea
- Ken Kakapo

Favorite Party:
- Tuatara
- Kea
- Kakapo
Citizens’ Second Votes:

(What they want the council to be)
Kea Party Leaders:

Kea we want on the council:

1. Lumbergh
2. Milton
3. Peter
4. Samir
5. Michael
Kea Party Leaders:

Kea we want on the council:

1. Lumbergh
2. Peter
3. Samir
4. Michael
5. Milton

Milton isn't a team player.

Agreed
<table>
<thead>
<tr>
<th>Voting System</th>
<th>Prevents Minority Rule (PR)</th>
<th>Allows Political Diversity</th>
<th>Prevents Strategic Voting</th>
<th>Prevents Gerrymandering</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Past The Post (FPTP)</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Alternative Vote (AV)</td>
<td>✗</td>
<td>✗</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>Mixed-Member Proportional Representation (MMP)</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
</tbody>
</table>
Votes for Local Representatives

- 48%
- 49%
- 3%

Second Votes for Political Party

- 40%
- 48%
- 12%
MMP

FTW!

What Citizens Want: What Citizens Get:
Single Transferable Vote (STV)
To Win in STV:

\[
\frac{\text{Votes}}{\text{Reps}} = 33\%
\]

Votes -> 100%
Reps -> 3

= 33% <- To win
One range: Two parties? Three representatives
Most votes wins and one representative:
Citizens:

- 67% (tigers)
- 33% (gorillas)
33%
33%
16%
18%
<table>
<thead>
<tr>
<th></th>
<th>Prevents Minority Rule (PR)</th>
<th>Allows Political Diversity</th>
<th>Prevents Strategic Voting</th>
<th>Prevents Gerrymandering</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Past The Post (FPTP)</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Alternative Vote (AV)</td>
<td>✗</td>
<td>✗</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>Mixed-Member Proportional Representation (MMP)</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td>Single Transferable Vote (STV)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
</tr>
</tbody>
</table>