

## Survivor method

Eliminating a candidate is easy: just erase them.

$$\begin{array}{l}
 \begin{array}{|c|c|c|c|}
 \hline
 7 & 6 & 4 & 2 \\
 \hline
 \text{1st} & A & C & B & C \\
 \hline
 \text{2nd} & B & A & C & B \\
 \hline
 \text{3rd} & C & B & A & A \\
 \hline
 \end{array}
 \xrightarrow{\text{Eliminate C}}
 \begin{array}{|c|c|c|c|}
 \hline
 7 & 6 & 4 & 2 \\
 \hline
 A & & & B \\
 \hline
 B & A & & B \\
 \hline
 & B & A & A \\
 \hline
 \end{array}
 =
 \begin{array}{l}
 \begin{array}{|c|c|c|c|}
 \hline
 7 & 6 & 4 & 2 \\
 \hline
 \text{1st} & A & A & B & B \\
 \hline
 \text{2nd} & B & B & A & A \\
 \hline
 \end{array}
 =
 \begin{array}{l}
 \begin{array}{|c|c|}
 \hline
 7+6 & 4+2 \\
 \hline
 \text{1st} & A & B \\
 \hline
 \text{2nd} & B & A \\
 \hline
 \end{array}
 \end{array}
 \end{array}$$

C had the most last place votes. Most hated. It was good to eliminate them. What if that is our vote counting method? What if we eliminate most hated, until only one candidate left? Clearly A wins this one.

However the two voters on the right hate this result. They decide to lie and vote ironically.

$$\begin{array}{l}
 \begin{array}{|c|c|c|c|}
 \hline
 7 & 6 & 4 & 2 \\
 \hline
 \text{1st} & A & C & B & \text{"A"} \\
 \hline
 \text{2nd} & B & A & C & C \\
 \hline
 \text{3rd} & C & B & A & B \\
 \hline
 \end{array}
 \end{array}$$

(Note the eye-roll when they say "A"). Carry out the elimination now. Who is most hated? Who wins?

## Plurality with elimination

Plurality with elimination is similar. You eliminate the candidate that is least liked (fewest first place votes).

	2	6	5	4
1st	A	A	B	C
2nd	C	B	A	B
3rd	B	C	C	A

Show which candidates are eliminated under this rule.

Can the first column change their votes (lie) to get a better outcome for them?