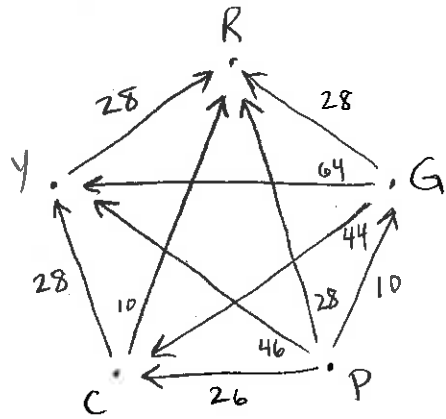


Paulos 11/10/11

36	28	18	9	9
R	C	Y	G	P
G	P	P	Y	G
P	G	G	C	Y
C	Y	C	P	R
Y	R	R	R	C



- R: G 36:64
- R: P 36:64
- R: C 45:55
- R: Y 36:64
- G: P 45:55
- G: C 72:28
- G: Y 72:18
- P: C 63:37
- P: Y 73:27
- C: Y 64:36

Plurality: Romney wins

Borda

$$R = 55 + 18 + 0 + 0 + 180 = 253$$

$$G = 0 + 0 + 138 + 180 + 45 = 363$$

$$P = 0 + 18 + 108 + 184 + 45 = 355$$

$$C = 9 + 108 + 27 + 0 + 140 = 284$$

$$Y = 36 + 56 + 27 + 36 + 90 = \frac{245}{1500} = 15(100)$$

Gingrich wins

Pairwise:

$$R = 0$$

$$G = 3$$

$$P = 4$$

$$C = 2$$

$$Y = 1$$

Paul wins

Runoff: R and C R:C 45:55 Cain wins

Elimination: elim G and P, so 1st place votes are now

36	28	18	9	9
R	C	Y	Y	Y

elim C, so now R:Y 36:64 Y wins.

Perry wins.

Spoilers in the Paulos Election

where G = Gingrich, P = Paul, C = Cain and R = Romney, Y = Perry

Cain is a spoiler using Borda

Gingrich won by Borda. If Cain dropped out of the election, the new preference schedule would be as follows:

36	28	18	9	9
R	P	Y	G	P
G	G	P	Y	G
P	Y	G	P	Y
Y	R	R	R	Y

$$\begin{aligned}
 R &= 64(1) + 0 + 0 + 36(4) = 64 + 144 && = 208 \\
 G &= 0 + 18(2) + 73(3) + 9(4) = 36 + 219 + 36 && = 291 \\
 P &= 0 + 45(2) + 18(3) + 37(4) = 90 + 54 + 148 && = 292 \\
 Y &= 36(1) + 37(2) + 9(3) + 18(4) = 36 + 74 + 27 + 72 && = \underline{209} \\
 &&& \text{total } 1000 = 10 (100)
 \end{aligned}$$

so P wins. $W' = \{P\}$

Perry is a spoiler using Borda

Gingrich won by Borda. If Perry dropped out of the election, the new preference schedule would be as follows:

36	28	18	9	9
R	C	P	G	P
G	P	G	C	G
P	G	C	P	R
C	R	R	R	C

$$\begin{aligned}
 R &= 55(1) + 9(2) + 0 + 36(4) = 55 + 18 + 144 && = 217 \\
 G &= 0 + 28(2) + 63(3) + 9(4) = 56 + 189 + 36 && = 281 \\
 P &= 0 + 45(2) + 28(3) + 27(4) = 90 + 84 + 108 && = 282 \\
 C &= 45(1) + 18(2) + 9(3) + 28(4) = 45 + 36 + 27 + 112 && = \underline{220} \\
 &&& \text{total } 1000 = 10 (100)
 \end{aligned}$$

so P wins. $W' = \{P\}$

Romney is a spoiler using runoff

Cain won by runoff. $W = \{C\}$

If Romney dropped out of the election, the new preference schedule would be as follows:

36	28	18	9	9
G	C	Y	G	P
P	P	P	Y	G
C	G	G	C	Y
Y	Y	C	P	C

runoff G and C, G: C is 72 : 28 so G wins. $W' = \{G\}$

Romney is a spoiler using elimination

Perry won by elimination. $W = \{Y\}$

If Romney dropped out of the election, the new preference schedule would be as follows:

36	28	18	9	9
G	C	Y	G	P
P	P	P	Y	G
C	G	G	C	Y
Y	Y	C	P	C

eliminate P, so we have:

36	28	18	9	9
G	C	Y	G	G

eliminate Y, so we are left with G and C, and G: C is 72 : 28 so G wins. $W' = \{G\}$