

Math 1015

Homework #2

#1b, 2a, 3, 4a

#1b

Me	Friend 1	Friend 2	Friend 3	Friend 4	Friend 5	Friend 6	Friend 7
SDD	RC	Wa	RC	Wo	Wa	Wo	RC
Wo	Wo	SDD	SDD	SDD	SDD	Wa	Wo
Wa	Wa	Wo	Wa	RC	Wo	SDD	Wa
RC	SDD	RC	Wo	Wa	RC	RC	SDD

points
3
2
1
0

$$\text{SDD: } 3 + 0 + 2 + 2 + 2 + 2 + 1 + 0 = 12$$

$$\text{Wo: } 2 + 2 + 1 + 0 + 3 + 1 + 3 + 2 = 14$$

$$\text{Wa: } 1 + 1 + 3 + 1 + 0 + 3 + 2 + 1 = 12$$

$$\text{RC: } 0 + 3 + 0 + 3 + 1 + 0 + 0 + 3 = 10$$

Woof wins
using Borda!

#2a

22%	23%	15%	29%	7%	4%
D	D	H	H	J	J
H	J	D	J	H	D
J	H	J	D	D	H

$$\text{D vs H: } \begin{aligned} \text{D: } & 22 + 23 + 4 = 49 \\ \text{H: } & 15 + 29 + 7 = 51 \end{aligned}$$

$$\text{D vs J: } \begin{aligned} \text{D: } & 22 + 23 + 15 = 60 \\ \text{J: } & 29 + 7 + 4 = 40 \end{aligned}$$

$$\text{H vs J: } \begin{aligned} \text{H: } & 22 + 15 + 29 = 66 \\ \text{J: } & 23 + 7 + 4 = 34 \end{aligned}$$

H wins all their matches,
so H is the winner
using Condorcet's method.

#3
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48	34	27	24	21	16	11	5	4
M	S	N	M	S	N	N	M	S
N	N	S			M		S	M
S	M	M			S		N	N

M vs (N)

$$M: 48 + 24 + 5 + 4 = 81$$

$$N: 34 + 27 + 16 + 11 = 88$$

(M) vs S:

$$M: 48 + 24 + 16 + 5 = 93$$

$$S: 34 + 27 + 21 + 4 = 86$$

(N) vs S:

$$N: 48 + 27 + 16 + 11 = 102$$

$$S: 34 + 21 + 5 + 4 = 64$$

N wins all his matches, so

N (Begich) is the Condorcet winner.

#4a

Something like:

"If you ask the people of Alaska who they like better: Begich or Peltola, more of them liked Begich. So it's not fair for Peltola to be the winner."