

MA 1015: Homework #1

Important note about when ties arise during RCV: if, in any round, there is a tie when determining who should be eliminated, then *all* candidates who are tied for last should be eliminated at once.

Question 1. I'm voting with my friends about the best local dog salon. (These are all real names of dog salons in Fairfield county. Unfortunately Snip Doggy Dog has closed.) The votes are like this:

Me	Friend 1	Friend 2	Friend 3	Friend 4
Snip Doggy Dog	Ruff Cut	Waggies	Ruff Cut	Woof
Woof	Woof	Snip Doggy Dog	Snip Doggy Dog	Snip Doggy Dog
Waggies	Waggies	Woof	Waggies	Ruff Cut
Ruff Cut	Snip Doggy Dog	Ruff Cut	Woof	Waggies

Please determine the results if we are using:

- a) Plurality
- b) Ranked Choice Voting

Question 2. In the 1980 US senate race in New York, the candidates were D'Amato (D), Holtzman (H), and Javits (J). Based on polling people's opinions between the three, the population's preferences were something like this:

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

Please determine the results if we are using:

- a) Plurality
- b) Ranked Choice Voting

Question 3. Please invent your own example where the plurality winner is different from the ranked choice winner.

Question 4. The Condorcet paradox example we discussed in class was this:

3	3	3
A	B	C
B	C	A
C	A	B

Please build a similar example using 4 candidates A,B,C,D where A is above B in 3/4 of the ballots, B is above C in 3/4 of the ballots, C is above D in 3/4 of the ballots, and D is above A in 3/4 of the ballots.