- 1. Review from Voting Theory Day 1
 - (a) majority winner versus plurality winner

(b) Condorcet winner

wins in every one-on-one contest

(c) What can go wrong with plurality voting?

Recall the example from Day 1:

3

2nd choice C C D B C B D B

А

4th choice $\parallel D \mid A \mid A$

Ten Alaskans are asked to vote on the "best" of four Alaskan villages.

1

D

В

Α

Villages: Adak, Bettles, Chevak, Diomede

4 2

B C

1

С

А

D



- Under plurality voting
this person has incentive to
vote for C, even though its
NOT their 1St choice.

2. Insincere Voting

votes

1st choice

3rd choice

When a voter cast a ballot counter to their true preference for strategic reasons

Instant Run off Voting 3. Remedy for insincere voting?

MATH 113: Voting Theory lecture notes
$$\frac{PLV}{PV}$$
 Day 2
4. Instant Runoff Voting (IRV) or Ranked Choice Voting (Used in At!)
Requires a preference schedule!
If no one gets a majority, then eliminate the choice with the LEAST
1st place votes. Construct a new schedule. Repeat, if needed.
5. Find the winner using IRV for the preference schedule below.
 $\frac{\# votes}{1 \text{ st choice}} = \frac{3}{4} \frac{4}{2} \frac{2}{1} \frac{1}{1} \frac{1}{1} \frac{L + \# voters : H}{1 \text{ majority requires : More than } \frac{H}{2} = 5.5$
 $2 \text{ or } 6$
 $4 \text{ th choice} = \frac{3}{4} \frac{4}{2} \frac{2}{1} \frac{1}{1} \frac{1}{1} \frac{L + \# voters : H}{1 \text{ majority requires : More than } \frac{H}{2} = 5.5$
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 $2 \text{ or } 6$
 $4 \text{ th choice} = \frac{3}{4} \frac{4}{2} \frac{2}{1} \frac{1}{1} \frac{1}{1} \frac{L}{1} \frac{L + \# voters : H}{1 \text{ majority requires : More than } \frac{H}{2} = 5.5$
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	# votes		57 22	12	29	Voks: 37+22+12+29=100
undo	1st choi 2nd cho	ice Ad bice Br	ams Brow	vn Brown er Adams	Carter Adams	majority: 51
100	3rd cho	ice Ca	rter Adam	ns Carter	Brown	tally: A 37 No majority! B 44 least# 1st voks C 29 r eliminated
.»\		37	22	12	29	
Consu	1 St	A	B	В	A	fally A: 37+29 = 66
	2 rd	B	A	A	B	B:22+12 = 34
	ľ	•	Αı	uins a n	najorit	y!

- 7. What can go wrong with IRV?
 - (a) Fail to pick the Condorcet Winner (See example 6 in your text.)
 - (b) Fail the Monotonicity Criteria -

Monotonicity Criteria says that getting more roters should be beller! It should increase your chances of winning. Said another way, getting more votes should not cause a candidate to Lose !! 10 decide to "winning" team!, E Adams wing under IRV. 8. (Example 7 again!) 12 29 22 # votes 37 Brown 1st choice Adams Brown Carter 2nd choice Brown Carter Adams Adams Carter 3rd choice Carter Adams Brown Adams 10 GAINS 10 Ast votes. ID 37 22 29 # votes 1st choice Adams Brown Carter Adams Brown 2nd choice Brown Carter Adams Adams Brown 3rd choice Carter Adams Brown Carter Carter tally: A: 37+10=47 No majority (51 votes) B: 22+2=24 Biseliminated. C: 29ta lly A: 37+10+2=49 29 37 22 10 2 lonry C: 22+29=51 С 15+ A \mathcal{L} A A Carter wins! A A \mathcal{C} C