

MA111: Contemporary mathematics

No entrance quiz today!

Schedule:

- Mini-exam 1 is in-class at the beginning of class today.
- HW 2 is due 7am Tuesday, Sep 16th, 2014
- HW 3 is due 7am Tuesday, Sep 23rd, 2014
- Exam 1 is in-class on Thursday, Sep 25th, 2014

Today (after the mini-exam) we look very closely at 2 candidate elections (Ovid's vs K-Lair, no other choices)

Imaginary worksheet today

- Please pass your mini-exams to the edges
- The worksheet today will be on your own paper
- Bracket voting lets us concentrate on 2 candidates at a time
- How do we decide between two candidates?

Amari		Blair		Charlie		Dakota		Emerson	
1st	Ovid's	1st	Ovid's	1st	Ovid's	1st	K-Lair	1st	K-Lair
2nd	K-Lair	2nd	K-Lair	2nd	K-Lair	2nd	Ovid's	2nd	Ovid's

Write down our system carefully

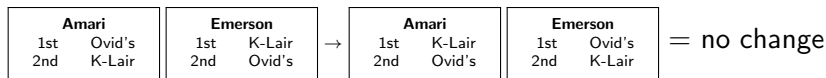
- In groups, I want you to explain our voting method.
- Amari, Blair, Charlie, Dakota, and Emerson will all rank Ovid's vs K-Lair
- How do we decide the winner (once they've fixed their ranks)?
What exactly is our method?
- What are some other (probably worse) ways of deciding it?
- Why is our way better?

Old words

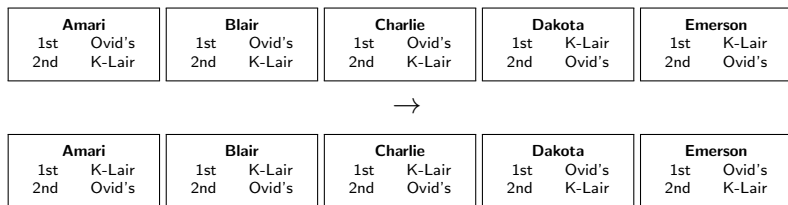
- ballot, preference schedule,
- voting method, majority winner,
- plurality method, soccer rule, Borda count = Thomas's rule, Daisia's rule
- standard elimination (plurality with elimination)
- pairwise comparison, Condorcet candidate
- bracket voting, shape, agenda=seed

New words

- **Fairness criteria** are requirements we make of voting methods
- **Anonymity** is the requirement that if two voters switch ballots, the results don't change



- **Neutrality** is the requirement that if all the voters switch two candidates, the results change in the obvious way (they are switched too)



= K-Lair wins instead of Ovid's

New words

- **Monotone/No Sabotage** is the requirement that if a voter moves the winner up on their ballot, the results don't change (voting for someone does not make them lose)

Amari	Blair	Charlie	Dakota	Emerson
1st Ovid's	1st Ovid's	1st Ovid's	1st K-Lair	1st K-Lair
2nd K-Lair	2nd K-Lair	2nd K-Lair	2nd Ovid's	2nd Ovid's



Amari	Blair	Charlie	Dakota	Emerson
1st Ovid's	1st Ovid's	1st Ovid's	1st Ovid's	1st K-Lair
2nd K-Lair	2nd K-Lair	2nd K-Lair	2nd K-Lair	2nd Ovid's

= Ovid's still wins

- **May's theorem** says the only voting method with all three is our rule, majority rule

Exit quiz

- Amari, Blair, Charlie, Dakota, and Emerson will all rank Ovid's vs K-Lair
- For each method, decide if it is anonymous, neutral, and/or monotone:
 - (1) Whatever Amari decides is best
 - (2) Whatever Amari decides is worst
 - (3) We always go to K-Lair
 - (4) We go to the one with the most last place votes