

# MA111: Contemporary mathematics

No entrance quiz today!

Schedule:

- Mini-exam 1 is in-class in about 15 minutes.
- HW 1 part 2 is due 5pm Friday, Sep 11th, 2015
- HW 2 is due 7am Tuesday, Sep 15th, 2015
- HW 3 is due 7am Tuesday, Sep 22nd, 2015
- Exam 1 is in-class on Thursday, Sep 24th, 2015

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
- How do we decide between two candidates?

<b>Amari</b>	<b>Blair</b>	<b>Charlie</b>	<b>Dakota</b>	<b>Emerson</b>
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

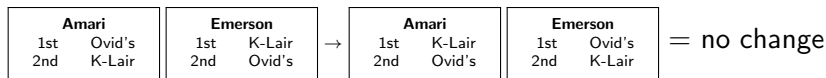
- In groups, I want you to explain our voting method.
- Amari, Blair, Charlie, Dakota, and Emerson will all rank Ovid's vs K-Lair
- How do we decide the winner (once they've fixed their ranks)?  
What exactly is our method?
- What are some other (probably worse) ways of deciding it?
- Why is our way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

# Old words

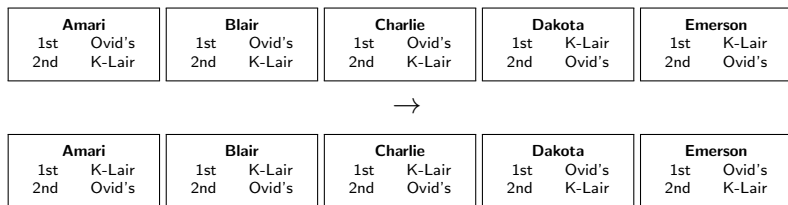
- ballot, preference schedule,
- voting method, majority winner,
- plurality method, soccer rule, Borda count = Thomas's rule, Daisia's rule
- \* standard elimination (plurality with elimination)
- pairwise comparison, Condorcet candidate

# 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