MA111: Contemporary mathematics

Entrance Slip (due 5 min past the hour):

Four teams have been ranked by 20 different statistics.

	8	5	4	3
1st	Dinos	Badgers	Aardvarks	Badgers
2nd	Aardvarks	Aardvarks	Badgers	Crows
3rd	Badgers	Crows	Crows	Dinos
4th	Crows	Dinos	Dinos	Aardvarks

When the Aardvarks play the Badgers, 8+4 of the stats favor the Aardvarks, while 5+3 of the stats favor the Badgers. Let's say the Aardvarks are favored over the Badgers (since 12 > 8). For each pair of teams, which team is favored?

Draw a picture of who is favored over whom.

Schedule:

- HW 1 is due 7am Tuesday, Sep 8th, 2015
- Mini-exam 1 is in-class on Thursday, Sep 10th, 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

Discuss our quiz answers

- Why is A the best?
- Why is B just as good as A?
- Why is D better than A?

- Who wins pairwise comparison?
- Who is better, A or B?





New words: pairwise comparison

- If we eliminate all but two candidates we get a **head-to-head matchup**
- The **pairwise-comparison method** gives 1 point for every head-to-head matchup won, 1/2 point for every tie
- A **Condorcet winner** wins every head-to-head matchup
- Borda count does not always choose the Condorcet winner
- **Condorcet's paradox** is that a group can prefer Ovid's to K-lair, K-Lair to Starbucks, and Starbucks to Ovid's (so which is best?)

(It is like rock-scissors-paper.)

Exit quiz

• Give an example preference schedule where there is a Condorcet winner (wins every head-to-head) that is not the plurality winner (does not have the most first place votes)



- Write down all the head-to-head matchups (picture with margins)
- Write down how many first place votes each candidate gets, and circle the plurality winner