

Review of rules - Here are some of the many rules used to turn a group of individual preferences into a group's preferences.

Point-methods: Decide how many points each place vote gets; most points wins.

Plurality - first place worth 1 point, other places none.

Soccer - first place worth 3 points, second place with 1 point, others worth none.

Daisia's rule - first and second place worth 1 point, other places none.

Thomas = Borda - last place worth 1, second to last worth 2, third to last worth 3, and so. Also known as: first place is worth the most, second place is worth one less, third place is one less than that, and so on down to last place worth 1.

Elimination-methods: Decide who to get rid of, and then try again.

Plurality with elimination - fewest first place votes is eliminated

Survivor - most last place votes is eliminated

Borda elimination - least Borda points is eliminated

Head-to-head methods: Use the results of head-to-head comparisons to decide.

Pairwise comparison - do ALL head-to-head comparisons and tally up the head-to-head wins and losses. Ties count as half a head-to-head win. Most head-to-head wins is the overall winner.

Bracket - Candidates are compared head-to-head, but one loss and you are out. The winners of one round play each other in the next. We'll explore this method today.

Beat path methods - If A can beat B, and B can beat C, then in some sense we think A can beat C (even if A loses against C). These methods use this idea and choose the winner as the one who "beats" the other candidates the "best". (Specific methods have specific definitions of "best"; for instance by how many points did A beat B and did B beat C? If either game was close, then it barely counts as A beating C.)

There are many other rules. Handling ties is also a big area.

Construction

Some people confuse plurality with majority. Give an example where Ovid's wins the plurality rule, but Ovid's does not have a majority:

1st	Ovid's	Ovid's	K-Lair	K-Lair	Starbucks	Starbucks
2nd	K-Lair	Starbucks	Ovid's	Starbucks	Ovid's	K-Lair
3rd	Starbucks	K-Lair	Starbucks	Ovid's	K-Lair	Ovid's

How many total voters are there?

How many first places does each candidate get?

Who wins plurality?

How many first place votes are needed for a majority?

Some people confuse two elimination methods: plurality with elimination (least first place is eliminated) and survivor (most last place votes is eliminated). Construct a preference schedule where the two methods give different answers.

1st	Ovid's	Ovid's	K-Lair	K-Lair	Starbucks	Starbucks
2nd	K-Lair	Starbucks	Ovid's	Starbucks	Ovid's	K-Lair
3rd	Starbucks	K-Lair	Starbucks	Ovid's	K-Lair	Ovid's

How many first places does each candidate get?

Who got the fewest first place votes (including 0)?

Who wins after they are eliminated?

How many last places does each candidate get?

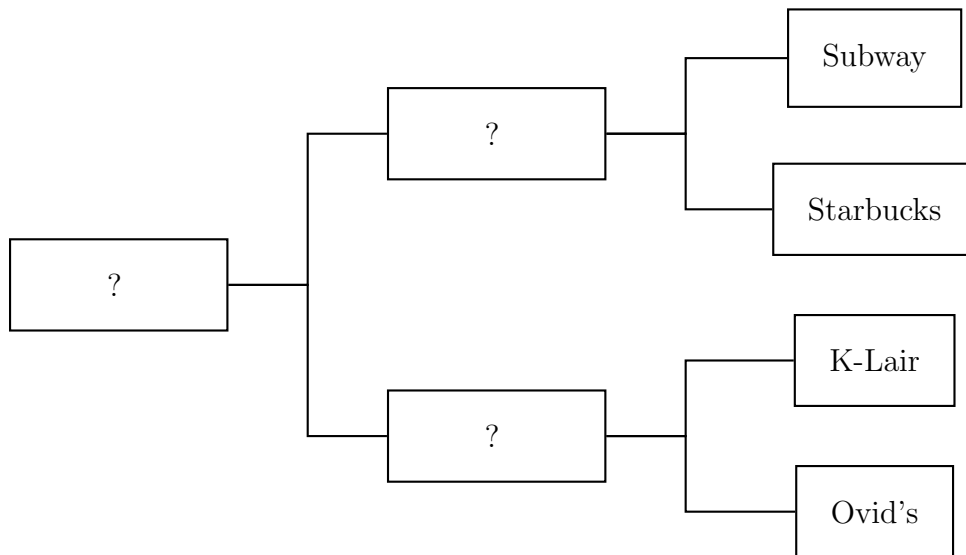
Who got the most last place votes?

Who wins after they are eliminated?

Bracket methods

A bracket is a way to organize who goes head-to-head with who. A candidate is eliminated after any loss. The survivors are then paired up. The pairings are decided before any of the head-to-heads, so “the winner of this game will play the winner of that game” is ok, but “A won and B won, so let’s have them play against each other” is NOT ok.

Here is a bracket for four candidates:



Who wins if this is the preference schedule? Fill in the bracket.

	5	4	3
1st	O	Su	St
2nd	K	K	Su
3rd	St	St	K
4th	Su	O	O

Can you make K-Lair win by changing the original bracket (not the preference schedule)?

Draw a bracket for three candidates. Who wins if this is the preference schedule?

	5	4	3
1st	A	B	C
2nd	B	C	A
3rd	C	A	B

Which candidates can win a bracket method?