

Voting Theory - I

How to make a decision in a group?

Voting : Gather preferences from all parties & try to determine which choice is most "fair"

- Preference _____: for gathering preferences
- Preference _____: for organizing/summarizing preferences

Ex:

# Votes	3	2	3	4
1 st Choice	Reeses'	Reeses'	SKittles	M& M's
2 nd Choice	M& M's	SKittles	M& M's	SKittles
3 rd Choice	SKittles	M& M's	Reeses'	Reeses'

- Fairness Criteria: Statements that _____ like they should be true in a _____.

Demo: Imagine you are leading a bible study this summer...

- See hand-out. There are 4 choices to make.
- Divide into 4 groups.
- Fill out pref. ballots individually.
- Each group will work with one of the 4 choices.
 - Make preference schedule.

Plurality Method

The option with the most number of _____ votes wins.

Ex: Reese's wins with 5 out of 12 1st Choice votes.

(M&M's : 4/12, SKittles : 3/12)

Note: Plurality is not necessarily _____, if there are more than two options.

Groups: Determine the winner, using Plurality Method.

Downside 1: May violate _____, which says that if an option is more preferred in every head-to-head comparison, that should be the winner.

<u>Ex</u> Reeses' vs M&M's		Reeses' vs SKittles	M&M's vs SKittles
5	7	5	7
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Acc. to Condorcet Criterion: _____ should be winner.

Downside #2: Can be "gamed" by _____, which is when a person casts a ballot _____ to their actual preference for _____ purposes.

Instant Runoff Voting (IRV) or Plurality with Elimination

- Option with _____ number of 1st Choice votes is eliminated.
- Any votes for eliminated option are redistributed to the voter's next choice.
- Continue until an option has a majority (over 50%).

# Votes	3	2	3	4
1 st Choice	Reeses'	Reeses'	SKittles	M& M's
2 nd Choice	M& M's	SKittles	M& M's	SKittles
3 rd Choice	SKittles	M& M's	Reeses'	Reeses'

First Choice Votes: Reeses': _____ SKittles: _____ M&M's: _____

Eliminate _____ & redistribute. Reeses': _____ M&M's: _____

⇒ IRV Winner: _____

Groups: Determine winner with IRV method.

Downside 1: May violate Condorcet Criterion.

Downside 2: May violate _____, which says that if voters change votes to increase preference for an option, that should not _____ that option's chances of winning.

