

Practice--Group Ranking Methods

1. 21 members of a fraternity are planning on watching sports on a Sunday afternoon. Unfortunately, there are 5 big games being played at the same time, and the house only has one TV. The president of the fraternity decides to have the members of the fraternity vote. The preference ballots are shown below.
(B = Basketball, H = Hockey, N = Nascar, F = Football, S = Soccer.)

Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot
N	H	B	H	N	F	H	B	H	F	F
S	F	S	B	S	N	B	S	B	N	N
F	B	H	N	F	B	N	H	N	B	B
H	N	N	F	H	S	F	N	F	H	S
B	S	F	S	B	H	S	F	S	S	H

Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot	Ballot
H	F	F	H	N	H	B	N	H	N
F	N	N	B	S	F	S	S	B	S
B	B	B	N	F	B	H	F	N	F
N	H	S	F	H	N	N	H	F	H
S	S	H	S	B	S	F	B	S	B

- A. Give the preference schedule for this election.
B. Determine the plurality winner. Hockey
C. Is the plurality winner a majority winner? no

$$\frac{1}{2}(21) = 10.5 \text{ maj} \geq 11$$

5	3	3	5	3	2
N	H	B	H	F	F
S	F	S	B	N	N
F	B	H	N	B	B
H	N	N	F	S	H
B	S	F	S	H	S

N H B F S
5 3 3 5 3 2

2. Determine the plurality and plurality with elimination winner:

plurality

A	7
B	5
C	7
D	8

Number of voters	7	7	8	5
First choice	A	C	D	B
Second choice	B	B	C	A
Third choice	C	A	B	C
Fourth choice	D	D	A	D

plurality w/ elim

Round 1	Round 2
A 7	A 12
B 5	C 7
C 7	D 8
D 8	

Round 3

A 19
D 8

A wins

D wins

3. Determine the Plurality, Borda, Runoff, and Sequential Runoff winners for the following preference schedule.

A	B	C	C
D	D	B	D
C	A	D	A
B	C	A	B
16	20	12	7

plurality

A	16
B	20
C	19
D	0

B wins

seq. run-off

Round 1	Round 2	Round 3
A 16	A 16	B 20
B 20	B 20	C 35
C 19	C 19	
D 0		

C wins