SOLUTIONS

Now suppose we have an election between
Arya (A), Bran (B), and Jon (J).

	6	5	3	7
1st	A	B	B	J
2nd	J	A	J	B
3rd	B	J	A	A

1. Find the winner using Plurality with Elimination.

21 voters, need 11 for majority.
No maj. candidate, so eliminate A:

6	5	3	7
J	B	B	J
B	J	J	B

winner is [Jon] with 13

Now suppose the three voters in the third column change their votes: they pick 1st Jon, 2nd Bran, and 3rd Arya.

2. Draw the new preference schedule which reflects this change. Is this change an appropriate way to test monotonicity? Explain.

6	5	(3)	7
A	B	J	J
J	A	B	B
B	J	A	A

The winner was Jon.
The new ballot moves Jon up, and keeps B and A in the same order as before.
This *is* an appropriate test. (regardless of whether winner changes.)

3. Find the winner using plurality with elimination.

No maj. cand; fewest 1st place votes is B with 5:

ELim B:

6	5	3	7
A	A	J	J
J	J	A	A

Now [A wins] with 11 votes.
(This example shows that plur. w/ elim can fail the monotonicity criterion.)

4. Suppose instead, from the original election, that the six voters in the first column changed their votes to pick 1st Bran, 2nd Jon, and 3rd Arya. Is this change an appropriate way to test monotonicity? Explain.

old votes
6
A
J
B

new votes
6
B
J
A

No: The change does NOT move the winner (J) up.
Also, it scrambles A and B (non winners). Either of these are reasons it would not work.