Chapter 1, #72

(b) Plurality-with-runoff violates monotonicity criterion.

Nbr of voters	7	8	10	4
1st	A	B	C	A
2nd	B	C	A	C
3rd	C	A	B	B

Runoff is between A and C. Striking B from table gives result for first place votes:

A --- 11, C --- 18. C wins.

Now suppose in a re-election, the voters in the last column change the order of A and C. New preference schedule.

Nbr of voters	7	8	14
1st	A	B	C
2nd	B	C	A
3rd	C	A	B

Now runoff is between B and C. Results:

B --- 15, C --- 14. B wins.

This violates the monotonicity criterion: C had the election won. In the re-election all changes were in favor ONLY of C. But C did NOT win the re-election.

(c) Plurality-with-runoff violates the Condorcet criterion.

Nbr of voters	10	8	6
1st	A	C	B
2nd	B	B	C
3rd	C	A	A

The runoff is between A and C, and C wins 14 to 10.

Is there a Condorcet candidate? Compare:
B to A: 14 to 10. B wins that comparison.
B to C: 16 to 8. B wins that comparison.
Hence, B is a Condorcet candidate.

Thus, this election violates the Condorcet criterion.