

Recall the profile p from last week:

29	$A > B > C$	15	$C > B > A$
2	$A > C > B$	26	$B > C > A$
13	$C > A > B$	1	$B > A > C$

1. Find the decomposition of p in terms of the basis $\{K, C_y, R_1, R_2, B_1, B_2\}$
2. Find the point for p in pairwise space \mathbb{R}^3 .
What does this tell you about the pairwise outcome?
3. Find the point on the transitivity plane for p .
What does this tell you about the Borda count outcome?
4. Use the cyclic component in your decomposition and the geometry of pairwise space to explain the difference in the Borda count and pairwise outcomes.

Create a profile on three candidates where the Borda outcome is $A > B > C$ and the pairwise outcome is $A > C > B$

1. Use a linear combination of B_1 and B_2 to get the desired Borda outcome.
Hint: What is the Borda outcome for B_1 ? for B_2 ?
2. Take your profile from #1 and add a multiple of C_y so that you change the $B > C$ pairwise outcome but not the $A > B$ pairwise outcome.
3. Now add a multiple of K so that you do not have a negative number of voters.
4. Verify that your profile gives the desired results.