

Math 36 — Daily Homework

Assigned: 11/8

Due: 11/10

1. The standard Borda count ( $n - 1$  points for first place,  $n - 2$  for second, ..., 0 points for last place) is clearly not a dictatorship. You will show that the Borda count satisfies Unanimity but not Independence of Irrelevant Alternatives.

Prove that the Unanimity axiom holds. Recall that Unanimity means if every individual ranks  $A$  above  $B$ , then society must rank  $A$  above  $B$ .

Prove that the Borda count does not satisfy Independence of Irrelevant Alternatives. Show this with a counterexample by giving two sets of votes where each voter gives the same relative ranking of  $A$  and  $B$  in both, but by changing the position of another alternative  $C$ , the societal ranking of  $A$  and  $B$  is changed from profile to the other.