

## Classification of Election Methods

### 1. Positional methods.

For each voter's preference ranking, points are assigned to each place:  $w_1$  for first place,  $w_2$  for second place,  $w_3$  for third place, etc to  $w_n$  for last place when there are  $n$  candidates. The points are summed and the candidate with the most points wins. This is a generalization of the Borda Count, and several methods mentioned in class fit this description. For the method to make sense, we should stipulate that  $w_1 \geq w_2 \geq w_3 \geq \dots \geq w_n$ .

For  $n$  candidates, any sequence satisfying this condition:  $(w_1, w_2, \dots, w_n)$  defines a positional method.

Borda Count:  $(n-1, n-2, n-3, \dots, 1, 0)$

Plurality:  $(1, 0, 0, \dots, 0)$

Anti-plurality:  $(1, 1, 1, \dots, 1, 0)$

Other from class:  $(3, 2, 1, 0, \dots, 0)$

Doubling:  $(8, 4, 2, 1, 0)$  for five candidates

All positional methods satisfy our definition of an election method.

Can always be represented by  $(1, s_2, s_3, \dots, 0)$  by subtracting  $w_1$  (last place value) then dividing by the remaining 1<sup>st</sup> place value.

2. Instant runoff methods:  
runoff between top two  
eliminate one-at-a-time runoffs

use different methods to determine who to eliminate (plurality, Borda Count, etc)

3. Pairwise elimination

Meeting Agenda, consider one pair at a time. (Who determines the agenda?)

“March Madness” everyone is paired and losers eliminated, new pairs. at each round. Like a tournament. (How are the initial and subsequent pairs determined?)

These also satisfy our definition of an election method. (The last two if a procedure for the ?? is determined.)

Other methods which do not fit our definition

Approval Voting

Cumulative Voting