



Factsheet #6: Choice Voting in Action

Choice voting is one of the fairest proportional representation systems allowing voters to choose candidates rather than parties. While the role for the voter in a choice voting election is straightforward, the counting of ballots is more complex. This example shows a sample ballot-count: the principle driving the ballot-count is that as many voters as possible should help elect a preferred candidate.

Election scenario: In this sample choice voting election, six candidates run for three seats elected at-large. To show how choice voting allows like-minded groupings of voters to win a fair share of seats, the candidates are divided into two "parties": Yellow and Blue. Three Yellow party candidates - Garcia, Brown and Jackson - run for the seats, matched by three Blue party candidates - Charles, Murphy and Wong. There are 1,000 voters.

Setting a winning threshold: The first step is to determine the number of votes needed to win a seat – termed "the winning threshold." If no such winning threshold were set, then a very popular candidate might obtain far more votes than necessary to win, resulting in an unfair (a "disproportional") result. For example, in an election for three seats, suppose one candidate obtained 51% of first-choices votes – meaning enough votes to earn two seats, which would be a majority. Setting a winning threshold provides a mechanism to allocate those 51% of votes such that those voters indeed can elect a majority of seats rather than just one.

With 1000 voters and three seats, the threshold of votes needed to win election is 251. Note that the fewest number of votes that only the winning number of candidates can obtain is 251. This winning threshold always can be determined by the "Droop formula":

In this case, the Droop formula is: $(1000 \text{ votes} / 3 \text{ seats} + 1) + 1 \text{ more vote} = 251 \text{ votes}$.

Ballot-Count: The ballot-count occurs in a series of rounds. In each round a voter's ballot always counting toward that voter's top-ranked candidate who remains in the race. A chart follows, with an explanation provided below. The three winners are in bold.

Candidate	Party	1 st Round	2 nd Round	3 rd Round	4 th Round	5 th Round
Brown	Yellow	175	+10= 185	+10= 195	+150= 345	-94= 251
Garcia	Yellow	270	-19= 251	Elected	Elected	Elected
Jackson	Yellow	155	+6= 161	+6=167	Loses	
Charles	Blue	130	+2= 132	+75= 207	+14= 221	+44= 265
Murphy	Blue	150	+0= 150	+30= 180	+3= 183	+5= 188
Wong	Blue	120	+1 = 121	Loses		
(Exhausted)		0	0	0	0	45



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First round: Yellow candidate Garcia has won 270 first choices and wins on the first count by surpassing the victory threshold of 251 votes.

Second round: Garcia has 19 surplus votes - those votes beyond 251. In the most precise method of allocating those surplus votes, all 270 of Garcia's ballots are counted for second choices at an equally reduced value. A little more than half of Garcia's supporters rank fellow Yellow candidate Brown second, about a third rank the other Yellow candidate Jackson second and the rest rank a Blue candidate second. (Voters are not restricted to ranking candidates of one party.) The allocation of surplus votes results in ten more votes for Brown, six more votes for Jackson, two for Charles and one for Wong.

Third round: There are no more surplus votes, and two seats still are unfilled. Thus, the candidate with the least support -- the Blue candidate Wong, who has 121 votes -- is eliminated. All of Wong's votes now count for the next choices on her supporters' ballots, with the exception of votes for Garcia; because Garcia already has won, those votes move onto the next choice after Garcia. The bulk of Wong's votes go to fellow Blues, with a few going to Yellows. After this round of counting, no new candidate reaches the victory threshold.

Fourth round: The candidate who now has the least support, the Yellow candidate Jackson with 167 votes, is eliminated. Jackson's votes now count for his supporters' next choices -- mostly for fellow Yellow candidate Brown. Brown now is over the threshold, and she is elected.

Fifth round: Brown has 94 surplus votes, which are allocated to next choices on these ballots. Note that 45 of Brown's 345 voters chose not to rank either Charles or Murphy, which "exhausts" their ballots -- voters always have the option not to express any preference among the remaining candidates. But most of Brown's supporters prefer the Blue candidate Charles to the Blue candidate Murphy, enabling him to earn the third and final seat. The election is over.

Results and Analysis: The Yellow party candidates Brown and Garcia and the Blue party candidate Charles win. More than 75% of voters directly elect a candidate, and many others rank one of the winning candidates highly. Having won 60% of first choice votes, Yellow candidates almost certainly would have won all three seats with a traditional, at-large "winner take all" system. Based on the results after the counting of first-choices, they also would have won all three seats even if voters had been limited to casting just one vote, as in "the one vote" version of limited voting. The two-to-one split of seats among winners is a fairer reflection of the voters' opinions. Despite greater initial support, the Blue candidate Murphy loses to fellow Blue candidate Charles because Murphy had a ceiling of support. He was not ranked highly on the ballots of supporters of other candidates. Choice voting rewards having a combination of core support (measured by the capacity to be voters' first choice) and crossover support (measured by being ranked highly by supporters of other candidates).