

## Procedure for Tabulation of STV (Single Transferable Vote)

29-Sep-2011

1. STV (Single Transferable Vote) is used for elections of Directors to the Board of Mind's Eye Society. This system has benefits to us as an organization in a number of ways. It provides proportional representation while allowing votes to be explicitly cast for individual candidates; it does this by transferring votes to minimize votes that otherwise would be wasted, and therefore minimizes the number of unrepresented or disenfranchised voters in the result. As a smaller benefit, it also allows us to use the familiar ballots where the member ranks their first choice (1), second choice (2).
  - a. Please note that this is a complex system to tabulate, especially with twenty or more candidates, but that is fine. We have a number of talented people, and it well worth the small additional effort to use a system that both yields us better and more accurate results than a simple plurality and also is not that much more complex for the average member to vote in than their typical chapter or domain election.
2. This procedure is be used for selecting candidates to fill a single seat, or multiple seats. Possible results are: All of the seats are filled with winning candidates, some of the seats are filled with winning candidates and the rest vacant, or all of the seats are vacant. The last two are only possible if the members do not rank all of the candidates, or in other words, they rank "None of the Above" (NOTA) on their ballots.
  - a. It is possible that by the Bylaws, the Board of Directors may need an order to the winners to first fill full terms, before filing partial terms. In which case, the order of winning candidates will need to be recorded. In the rare event that two or more tied winners result in a manner that exceeds a category, then all those tied winners will be considered to be in the next category.
3. An election administrator is selected for the election, who then selects a minimum of two proctors to tabulate the results. Members who are eligible to vote are determined by verifying their membership for the date the ballots are announced; no member who is otherwise eligible forfeits their right to their vote.
4. Ballots are made available that allow the member to select their choices as their vote. Votes will remain secret, though individual members may waive their right to keep their votes secret with a written statement to the election administrator. The precise method of ballots, votes and their collection is determined by the election administrator, such that the method used must fulfill any requirements in our organizational documents. If the method used allows for members to replace their vote with a new one, only the last vote submitted during the voting period will be considered.
5. The ballot allows the member to show their single vote, by choosing their first choice (1), second choice (2), and so on. A valid vote may rank all of the candidates, none of the candidates (NOTA), or any number of candidates in between. The first choice is to be marked with a one (1), and so on. If the election proctors together are unable to determine the intent of a vote, then that vote is invalid and is not counted as part of the total votes.
6. After the voting ends, the total number of votes is determined. The quota to be a winner in the election is determined by the Droop Quota, where  $X$  is the number of seats up for election and  $T$  is the total number of votes:  $(T/(X+1))+1$  rounded down.
  - a. *Ex: If there is one seat up for election, and there are 1,000 total votes, then  $(1000/(1+1))+1$  is 501. If there are three seats up for election, and there are 1,000 total votes, then  $(1000/(3+1))+1$  or 251 votes is the quota.*
7. To ease tabulation, it recommended that identical votes – i.e. votes where all 1<sup>st</sup>, 2<sup>nd</sup>, et al choices are identical – should be grouped together and a count kept by group. It is also recommended that an electronic spreadsheet be used to assist with calculating transferred votes. During the tabulation, candidates are divided into three groups: winning candidates, pending candidates, and removed candidates. Whenever a candidate is selected as a winner, or is removed, then all ballots will reflect that change from that point forward.
  - a. *Ex: If Bob is selected as a winner, then a vote showing 1st-Amy, 2nd-Bob, 3rd-George, will now be treated for tabulation from that point onward as if it were: 1st-Amy, 2nd-George*
8. (START) For each pending candidate, determine the total of current first choice votes and examine the candidate with the most first place votes. If there is a tie, compare second place choices. If there is still a tie, compare third place choices, and so on until you select a single candidate. If unable to determine a single candidate after exhausting first through last place choices, then all such tied candidates are handled simultaneously.
9. If that candidate with the highest number of first place choices has achieved the quota, then declare them a winning candidate.

- a. If all of the seats have been filled with winning candidates, then conclude the election by going to (CONCLUDE).
  - b. If we still have seats that need winning candidates, next redistribute the ballots from that winning candidate.
    - i. Determine the total number of surplus votes to be transferred by taking a difference between the total number of votes on that candidate, and the quota. The transferred votes will be figured using a fraction of the surplus votes on that candidate to the total first place votes for that winning candidate.
      1. *Ex: If the quota was 100, and the pending candidate received 125 first place choices, the surplus votes to transfer are 25 votes. The fraction will be  $(125-100)/125$  or  $25/125$  or 0.20.*
    - ii. Taking the ballots for that winning candidate, group them by their remaining choices, and apply that fraction to each group. The total number of transferred votes will be equal to the surplus votes. It is possible and likely that fractional votes will occur.
      1. *Ex: Out of those 125 first choice votes, when looking at the 2<sup>nd</sup> place choices, 25 were for Able and a 3<sup>rd</sup> for Dexter, 25 were for Able with a 3<sup>rd</sup> as NOTA, 61 were for Betty with a 3<sup>rd</sup> as NOTA, and 14 were for none of the above (NOTA). Then the transferred total would be  $25*0.20$  or 5.0 for 1<sup>st</sup>-Able, 2<sup>nd</sup>-Dexter,  $25*0.20$  or 5.0 for 1<sup>st</sup>-Able, 61\*0.20 or 12.2 for Betty, and  $14*0.02$  or 2.8 for NOTA, for a total of 25 surplus votes transferred..*
10. Repeat by going back to (START) until there are no longer any candidates currently that exceed the quota.
  11. If there are no more pending candidates, declare any remaining unfilled seats vacant and conclude the election, by going to (CONCLUDE).
  12. Select the pending candidate with the least number of first place votes. If there is a tie, compare second place choices. If there is still a tie, compare third place choices, and so on until you select a single candidate. If unable to determine a single candidate after exhausting first through last place choices, then all such tied candidates are handled simultaneously.
  13. Remove that last place candidate. If there are no more pending candidates, declare any remaining unfilled seats vacant and conclude the election, by going to (CONCLUDE).
  14. Distribute the votes from the last place candidate removed. All votes from the removed candidate are transferred in full. Repeat by going back to (START) while there are still pending candidates.
  15. (CONCLUDE) Each proctor should independently tabulate and agree with the results before the results are announced by the election administrator. The publishable results are: The total number of votes received, the quota used, each candidate that won in order, including their votes before the surplus was removed.
    - a. *Ex: The total votes received were 1,000, and the quota was 251. The winners are, in order: Able received 372 votes before surplus was removed, Betty received 462 votes before surplus was removed, and George received 312 votes before surplus was removed. Please note that the cumulative total of votes for each candidate (each before the surplus was removed) can exceed the total votes, as each member has the choice of declaring a second choice on their ballot, if not a third or more.*