EXPLAINING THE SINGLE TRANSFERABLE VOTE

In the Church of England, two methods of electing are permitted: Simple Majority (often called 'first past the post') and the Single Transferable Vote, which is a method of Proportional Representation. This booklet is intended to be of help to the ordinary parishioner who finds himself or herself in one or more of the following situations:

1. as a voter in an election which is to be conducted using the Single Transferable Vote (STV);
2. as a member of a body which has to decide whether certain elections should, in future, be conducted by STV;
3. as a Presiding Officer responsible for the conduct of an election being held under the principles of STV.

THE SINGLE TRANSFERABLE VOTE

In the Church of England, Proportional Representation, if it is to be used at all, must be conducted by means of the Single Transferable Vote, and must use the Regulations which have been approved by the General Synod of the Church of England.

Various elections within the Church of England either may be or must be conducted by STV. For instance,

· elections of diocesan representatives to the General Synod are always conducted by means of STV;
· elections to the Diocesan Synod may be by STV, or by Simple Majority. That Synod has to decide every three years which method of election is to be used in the next triennial period;
· elections by the Annual Parochial Church Meeting to the Deanery Synod and/or the Parochial Church Council may be by means of STV, but this is subject to certain conditions:

1. the new method of voting does not take effect until the following year; *
2. the vote in favour of a change to STV must be by a two-thirds majority of those present and voting at the Annual Meeting; *
3. the rules of STV to be used must be those approved by the General Synod.
* A two-thirds majority is also necessary to revert to Simple Majority
as from the following Annual Meeting.

DETERMINING THE METHOD OF ELECTION

What are the disadvantages of STV?

Three.

· First, most people are used to the X-method of voting. This does not mean that the Simple Majority is a better method; it simply means that people are more familiar with this method.
· Secondly, the counting of votes in an STV election can be a more complicated procedure. More complicated, that is, until the principles of STV, as outlined in this booklet, have been understood.
· Thirdly, the counting of votes in a Simple Majority election can be a quicker process.

It can be, that is, provided that no recount is necessary. If the votes have to be re-counted in a Simple Majority election, there is no alternative but to start again at the beginning. Under STV, the system of checking and counter-checking at each Stage ensures that, at the most, it is only necessary to re-count at one particular Stage.

If people are more familiar with Simple Majority and that method of election is both easier to count and can lead to a quicker result, why do some people advocate the use of the Single Transferable Vote?

What are the disadvantages of Simple Majority?

Let's imagine a "Coffee Drinkers Club" with 40 members who have to elect from their number a Committee of 6. The main difference between them is that 21 of them prefer caffeinated and 19 prefer decaffeinated. For the purpose of the illustration, this difference is crucial. A "caffeine" member would not vote for a "decaffeine", and vice versa.

If the "caffeine" supporters put forward 6 "caffeine" candidates, each of their candidates will get 21 votes. Similarly, if the "decaffeine" folk put forward 6 "decaffeine" candidates, each of them will get 19 votes. The Committee will then consist of 6 "caffeinites" (who each received 21 votes) and 0 "decaffeinites" (who only received 19 votes each).

Is it really fair that all those elected should have come from a group who comprised only just over half (52.5 per cent) of the total "Coffee Drinkers Club", leaving the other 47.5 per cent without a single representative?

But suppose that 7 "caffeinites" stood for election to the Committee, and that each was equally popular. The "caffeine" electors have still got 126 votes between them (21 x 6 = 126). Only now the 126 votes will be divided 7 ways, and, as 126/7 = 18, each "caffeine" candidate would get 18 votes. The new Committee will be quite different, with 6 "decaffeine" members (each or whom received 19 votes) and 0 "caffeine" members (for they only got 18 votes each).

Neither of these results is fair. When the views of the Coffee Drinkers Club are as equally divided as 21-19, it seems only reasonable that the Committee should consist of 3 "caffeine" and 3 "decaffeine".

There is another problem. By putting forward more candidates than there were places available, the "caffeine" supporters did themselves a disservice.

In order to use a Simple Majority system satisfactorily, there has to be a method of pre-selection when it has to be decided who should stand and who should not. People can then find themselves either having to vote for people they do not really want elected or increasing the possibility of a rival being elected.

The situation can be made more complicated.

Within the "caffeine" members, there can be preferences for white/brown/without sugar, with or without milk (skimmed or unskimmed), etc. Even more complicated is the situation when a third group arises who don't like coffee at all, and will only drink tea!

STV seeks to ensure that the 6 members of the Committee of the "Coffee Drinkers Club" are as representative as is possible of the 40 electors whom, after all, they are meant to represent!

HOW THE SINGLE TRANSFERABLE VOTE WORKS

STV works on two complementary principles:

1. that no one elector should have more than one person to represent those views until every other elector has one such representative;
2. that if an elector's first choice cannot be elected (because no one else - or hardly anyone else - wants that candidate!), the elector should have the right to have his/her vote moved to the elector's second choice.

Principle (1) above suggests that the elector should have a SINGLE VOTE.
Principle (2) above suggests that the elector should have, a TRANSFERABLE VOTE. Combine the two and you have a SINGLE, TRANSFERABLE, VOTE – or S.T.V..
If, then, you vote for a not-very-popular candidate, your vote still counts, for it moves on to a more-popular person of your choosing as described a little later (see 'HOW YOUR VOTE TRANSFERS').

What happens, though, if you vote for a very-popular candidate?
Have you wasted your vote by allowing one person to get a lot more votes than was required for election? And, in elections where more than one has to be elected, have I done harm to others whom I should like to be elected by allowing one person to have too big a vote?

The answer is 'no', when the election is by STV. It is now time to introduce the Quota.

THE QUOTA

The Quota is the minimum number of votes required to guarantee the election of a candidate. It is a variable number, dependent on the number of valid voting papers and the number of vacancies to be filled. The number of candidates, however, makes no difference at all to the Quota.
The Quota is found by dividing the number of valid voting papers by one more than the number of vacancies to be filled.

Let me explain why. Imagine that there are four persons to be elected. Under the formula given above, each successful candidate must obtain one fifth of the valid votes. Why is that? If four candidates have each obtained one-fifth (or more) of the votes, then between them they have four-fifths (or more) of the votes, leaving one-fifth (or less) of the votes for any other candidate. (In the unlikely event of a tie with five candidates each obtaining exactly one-fifth of the votes, lots must be drawn - and this would be necessary even if the quota was larger).
In practice, we work the Quota in decimals and to 2 places after the decimal point. If the Quota is exact to 2 decimal places, then that is the Quota.
If the Quota is not exact, then we round up the number to the next 0.01 above.
Here are some examples. In each case there were 57 voting papers, but 2 were declared invalid.
There were, therefore, 55 valid voting papers. Forget all about the other 2: act as if they did not exist!
Vacancies Valid Voting Papers ÷ (Vacancies + 1) Quota

1 $55 \div (1+1) = 55 \div 2 = 27.5$ 27.50
2 $55 \div (2+1) = 55 \div 3 = 18.333333$ 18.34
3 $55 \div (3+1) = 55 \div 4 = 13.75$ 13.75
4 $55 \div (4+1) = 55 \div 5 = 11$ 11.00
5 $55 \div (5+1) = 55 \div 6 = 9.1666666$ 9.17
6 $55 \div (6+1) = 55 \div 7 = 7.8571428$ 7.86
7 $55 \div (7+1) = 55 \div 8 = 6.875$ 6.88
8 $55 \div (8+1) = 55 \div 9 = 6.1111111$ 6.12
9 $55 \div (9+1) = 55 \div 10 = 5.5$ 5.50
10 $55 \div (10+1) = 55 \div 11 = 5$ 5.00

HOW YOUR VOTE TRANSFERS

How do those counting know your order of preference for the various candidates?

Answer: you vote by putting the number '1' opposite your 1st choice, '2' opposite your 2nd choice, '3' opposite your 3rd choice, etc, etc.
Even simpler, and sometimes used where the rules governing an election do not specify a format, is to use a blank sheet as a voting paper. You just list the candidates, one name under another, in the order of your choosing. (The blank sheet voting paper may speed up the actual Count). And remember, until your 1st choice has been either elected or excluded, your 2nd choice has no bearing whatsoever on the result of the election. The order of your choices (or 'preferences', to use the technical term) is thus crucial. You do no harm by listing, if you wish, all the candidates in order of your preference.

Is this fair? Suppose your 1st choice got 20 votes, but only needed 15 to be elected. We then say that 15 ÷ 20 (or 0.75) of each vote should go to that candidate - enough, that is, to get him or her elected. The other 5 ÷ 20 (or 0.25) of your vote is available for transfer to your 2nd choice, as described above. Here again you have a SINGLE VOTE, for 0.75 + 0.25 = 1, but you also have a TRANSFERABLE VOTE, for no one gets more of your vote than was needed for election.

PREPARING FOR A COUNT

Tools for the job

You will need
1. A Presiding Officer who is responsible for seeing that the Count is conducted correctly in accordance with the Regulations;
2. A Table sufficiently large for the voting papers for each candidate to be kept in separate piles. (You will find it useful if you first place on the table some pieces of card, each larger than the voting papers, and each bearing the name of a candidate written clearly at the top);
3. A Result Sheet. (You can make your own, based on the model shown in the centre pages, or one can be obtained from the Electoral Reform Society, 6 Chancel Street, London SE1 OUU);
4. Rubber bands and/or paper clips;
5. A calculator.

Points to remember

1. Calculate, and make a note of, the Quota – the vote which a person normally needs in order to be elected. (See pages 5 and 6).
2. Make a note of:
      (a) the number of vacancies to be filled, that is the number of candidates who will be elected,
      (b) the number of candidates who will be unsuccessful and, therefore, will have to be excluded.
      These two numbers must add up to the number of candidates!
3. Normally, at any Stage, if someone can be elected, we elect that candidate. Only if no one else has reached the Quota do we usually exclude the bottom person. This is important, as some people may get no first preference votes at all. They are not excluded until we have transferred (or deferred) all surpluses.
4. Once a candidate has been elected or excluded, no more votes are added.
5. If, at any Stage, you find that the number of elected persons is as in 2(a) above or the number of excluded candidates is as in 2(b) above, STOP THE COUNT at once.
6. Consequent upon (5), never exclude more candidates than need to be excluded. It may well happen that one or two candidates are elected without reaching the Quota.

STARTING THE COUNT

Ensure that each Voting Paper is valid.

This means,
1. that it must have been signed on the reverse of the Voting Paper. (This is to ensure that each person who voted was entitled to vote and that no person so entitled voted more than once);
2. that there is a '1' on each Voting Paper, but not more than one '1'. (Under the Law, an 'X' is acceptable provided that there is only one 'X' on the voting paper and that there is no '1' also);
3. that no candidate receives both a '1' and another number.
4. Next, count the number of Voting Papers. Subtract the number of papers which have had to be declared invalid for one of the reasons mentioned above.
Calculate the Quota as on pages 5 and 6.

Note for future reference

A Voting Paper when once declared valid cannot subsequently be declared invalid. It may, however, become non-transferable at a certain stage for one of the following reasons:
1. the voter failed to indicate any further preference;
2. the voter left a gap in the numbering;
3. the voter gave more than one candidate the same number;
4. the voter gave more than one number to one candidate.

If the following numbers appeared on Voting Papers, each would be declared non-transferable after the 3rd Preference had been used.

FIRST STAGE OF COUNT

1. Sort the valid voting papers according to first preferences for each of the candidates.
2. Count the papers in each pile, checking that the papers have been sorted correctly.

3. Put rubber bands or paper clips on each bundle (technically called a 'parcel') of candidates' papers, together with a note of the number of papers in each bundle and that each paper is still at a value of 1.00.
4. Write down on a Result Sheet the vote of each candidate at this Stage.
5. Check that the grand total of first preferences equals the total number of valid voting papers.

SUBSEQUENT STAGES

Below is an example of how subsequent stages of a vote might look like The voting sheet is below, with an explanation of how further stages work underneath:

Election Results Sheet		Number to be elected:	3	Total Valid Vote:	55	Quota:	13.75
Candidates	1st Stage	2nd Stage Surplus of A		3rd Stage Exclusion of D		4th Stage Surplus of C	
A	25	-11.25	13.75		13.75		13.75
B	12	+0.48	12.48	+0.48	12.96		
C	9	+1.44	10.44	+3.96	14.40	-0.65	13.75
D	6	+1.44	7.44	-7.44	–		–
E	3	+7.68	10.68	+2.00	12.68		
Non-transferable		0.21	0.21	+1.00	1.21		
TOTALS	55		55.00		55.00		

2nd STAGE

A has reached the Quota.
There is a Surplus of the amount by which the Vote exceeds the Quota.
Surplus = 25 - 13.75 = 11.25.
Of the 25 who voted for A, 2 expressed no further preferences and their voting papers become non-transferable.
The transfer value is calculated by dividing the surplus by the number of papers which can be transferred.
Transfer value = 11.25 ÷ (25 - 2) = 11.25 ÷ 23 = 0.4891304. This number, not being exact to 2 decimal places, is rounded down to 0.48. Checking, 23 x 0.48 = 11.04. There is, therefore, a disregarded difference of (11 .25 - 11.04), i.e. 0.21, which is entered on the Result Sheet.
Of the 23 whose votes could be transferred at value 0.48, B gets 1, C and D get 3 each and E gets 16.

Multiply these numbers by 0.48 and enter on the Result Sheet.
Check that the Grand Total is still 55.

3rd STAGE

No other candidate has reached the Quota. D, as lowest, is excluded.
His 6 votes valued at 1.00 each are transferred first. 3 go to C; 2 to E; 1 is non-transferable as no preference other than D (or D and A) is given.
As no candidate has yet reached the Quota, the 3 at 0.48 are transferred.

B receives 1 and C receives 2.
The transfer values are entered in the left-hand column (the total should be 0) and the running total in the right-hand column, where the Grand Total should remain at 55.
If any candidate had reached the Quota after the Votes at 1.00 had been transferred, the transfer of the 0.48 votes would have continued, but without any of these smaller value votes going to the candidate who has now been elected.

4th STAGE

C has reached the Quota. Surplus = 14.40 - 13.75 = 0.65.
Only those papers which brought about the surplus (i.e. the 2 at 0.48) are available for transfer.
If both can be transferred to either B or E, the transfer value of each will be 0.32 (ie, 0.65 ÷ 2 rounded down), and there will be a disregarded difference of 0.01.
If only one paper is transferable (because no further preferences are indicated),
it transfers at its existing value of 0.48, and there is a disregarded difference of 0.17.
NOTE - a paper must not be allowed to increase in value or that voter would have had a vote valued at more than 1.00.

If neither can be transferred, the disregarded difference is, of course, 0.65.
See what happens if
(a) both are transferable to B;
(b) both are transferable to E;
(c) one each transfers to B and E;
(d) only one is transferable and it goes to B;
(e) only one is transferable and it goes to E;
(f) both are non-transferable.

Note that in every case the 3rd person elected does not attain the Quota.
This is because the person whose vote was non-transferable at the 3rd Stage wasted his/her vote by voting only for a person who was excluded or already elected. Those whose votes were non-transferable at the 2nd Stage did not waste their vote as their first choice was successful. They opted out of any further influence during the rest of the election.

TRANSFER OF A SURPLUS

The Surplus is the amount by which the vote of an elected candidate at the Stage when he/she was elected, exceeds the Quota.

1. The surplus which is the largest is transferred first when the votes of two or more candidates exceed the Quota.
2. Only those papers which have brought about the surplus are eligible for transfer. This means that
(a) in the case of a surplus arising at the 1st Stage, all the papers of the elected candidate are eligible for transfer;
(b) in the case of a surplus arising at a Subsequent Stage, only those papers which gave rise to the surplus are eligible for transfer. They will all be of one value. The elected candidate needed all the votes credited at the previous Stage, but they were not enough. It was only the last bunch of votes that tipped the voting scales in favour. So all that is considered for transfer is the latest bunch: the ones that finally resulted in election.
3. Determine the present total value of the transferable papers. If this exceeds the Surplus, calculate the transfer value of each paper by dividing the Surplus by the number of papers which can be transferred. As with the Quota, calculate to two decimal places, but, this time, ignore the remainder. If, however, the present total value of the transferable papers is less than or equals the Surplus, the transfer value of each paper is its present value.

4. The transfer of a surplus is deferred when, if transferred in its entirety to the bottom continuing candidate, this would not result in that person climbing one or more places. As soon as this condition fails to be fulfilled, the deferred surplus must then be transferred.

EXCLUSION OF CANDIDATES

1. Only one candidate is excluded at a time.
2. The candidate to be excluded is the one who has the smallest vote.
3. Arrange the papers of the excluded candidate in bundles in descending order of transfer values. (Some of the same value may have been received at different Stages).
4. Transfer the bundle of papers of highest transfer value according to the next available preference for continuing candidates.
5. Place to one side all papers which are non-transferable.
6. After transferring papers of the highest value, check to see if any candidate or candidates now exceed the Quota. If so, they will not receive any further transfer papers of lower values.
7. Continue to transfer the papers in descending order of values as in (5) and (6) above.
8. Once a candidate has been excluded, all the papers must be transferred before dealing with any surplus which may have arisen during the process.

CONSTRAINTS

'Constraints' is the technical name for restrictions being placed upon the results as would have been expressed by the voting. In practice it means that there are maxima and/or minima in one or more categories. 'Not more than 3 shall be "caffeine"' or 'not less than 2 shall be "decaffeine"', for instance.

Not more than - a maximum constraint

As soon as the maximum number in the category have been declared elected (if, indeed, that maximum is reached), no further votes must be given to other continuing candidates in that category. The next step is to transfer the votes of all the continuing candidates in that category to continuing candidates in other categories.

Not less than - a minimum constraint

As soon as it is certain that the continuing candidates in a particular category must be elected in order to meet the minimum required, those candidates must not be excluded. However, they may not yet have attained the Quota. Therefore, in spite of the fact that they are already certain of election, they continue to receive votes by transfer until they do reach the Quota (if, indeed, they do).
Constraints are restrictions on the wishes of the electorate being accurately expressed. They can and do result in those chosen not being as proportionally representative as would have been the case without the constraints.
Do not have constraints unless you must (imposed externally, for instance).
The section on 'Constraints' is written, not to encourage their use, but to tell the Presiding Officer how they affect the count when they do exist.
Other than with a simple constraint it is advisable to use an authorised computer program (see back cover).

DEAD HEATS

What happens if the Candidates to be elected at any Stage are equal in their vote? Which Surplus do we transfer first?
The answer is to go back to see what happened to their votes from the 1st Stage onwards. We transfer first the Surplus of the candidate who, at the 1st or 2nd or 3rd Stages, etc, whichever was the earliest,

had the highest vote of those who are now equal. If the candidates concerned have been equal at all Stages, the Presiding Officer draws lots.
What happens if the Candidates to be excluded at any Stage are equal in their vote? Which candidate do we exclude first?
The answer is to go back to see what happened to their votes from the 1st Stage onwards. We exclude first the candidate who, at the 1st or 2nd or 3rd Stage, etc, whichever was the earliest, had the lowest vote of those who are now equal. If the candidates concerned have been equal at all Stages, the Presiding Officer draws lots.

SUITABILITY FOR PAROCHIAL ELECTIONS

Some people consider that it is an unnecessary waste of time for elections at parochial level to be conducted by STV. In fact, from many points of view, the Parish is the ideal situation! The larger the number of vacancies to be filled, the more desirable it is that they should be representative of the whole electorate. STV can seek to ensure that this is not only desirable but possible. Minority interests, as well as the crisscrossing interests of the majority, can be better and more adequately represented.
Here are some of the different interests which may exist at Parish Church level. If they do, then they should be reflected in those elected. If they do not, then they should not be imposed upon the electors.
· Separate congregations where there is more than one Church represented on the Council;
· Young, middle-aged and older Church members;
· Men and women;
· Distinct communities within the parish;
· Those living in private, rented and Council homes;
· Continuing and fresh membership on the Council;
· Church members living inside and outside the parochial boundaries.
Doubtless you can think of other matters on which opinion is divided in your own Parish! Should not all these opinions be fairly represented on the Parochial Church Council?

TAKING THE PLUNGE

A possible Motion to put before an Annual Parochial Church Meeting contemplating the introduction of the Single Transferable Vote -

'This Meeting decides that, in future, elections to
* the Deanery Synod
* the Parochial Church Council
* the Deanery Synod and the Parochial Church Council
shall be by the method of the Single Transferable Vote in accordance with Regulations approved by the General Synod and currently in force'.
* Delete as applicable

The answers to the questions on page x about the 4th stage of voting are as follows:
    a) B
    b) E
    c) B
    d) B
    e) E
    f) B

For those wishing further information regarding the Single Transferable
Vote and/or obtaining suitable Result Sheets and other materials, write to:
The Electoral Reform Society
6 Chancel Street
LONDON SE1 OUU

'The Single Transferable Vote Regulations 1990 to 2004' (GS 1533), as approved by the General Synod,
are obtainable from:
Church House Bookshop
31 Great Smith Street
LONDON SW1P 3BN

Details of an authorised computer program (eSTV), that operates under
Microsoft Windows, may be obtained from:
The Clerk to the Synod
Church House
Great Smith Street
LONDON SW1P 3NZ.

An earlier computer program, written in MS-DOS, remains authorised for use. For details, please write to:
The Clerk to the Synod
Church House
Great Smith Street
LONDON SW1P 3NZ.