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Supplementary Submission to the Victorian Parliament's Electoral Matters Committee

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The 2014 Victorian state election was the third to be held since proportional representation for Legislative Council elections was introduced in 2006.

In my original submission I pointed the Committee to the recommendations of the Commonwealth's Joint Standing Committee on Electoral Matters dealing with the operation of group ticket voting.

However, I have a further comment on the formulas that are used for the distribution of preferences. These comments are of greater importance if the Committee moves down a path of reform that would increase the number of ballot papers that 'exhaust' their preferences.

Defining the Relationship between Ballot Papers and Votes

With the Legislative Council's multi-member electoral system, it is important to understand there is a difference between a ballot paper and a vote.

These terms are used interchangeably for single member lower house electorates where the number of ballot papers a candidate holds at any stage of the count is always equal to the number of votes. When a candidate is excluded in a single member electorate, all ballot papers are distributed at their vote value, which is always equal to one.

In the Legislative Council's multi-member system, there are two points in the count when a candidate can have their ballot papers distributed as preferences. These are

(1) On the exclusion of the lowest polling candidate, when all ballot papers are distributed at their current value.
(2) On the election of a candidate having exceeded the required quota of votes, in which case the surplus to quota votes of the candidate are distributed as preferences.

It is this second type of preference distribution that changes the link between ballot papers and votes. To explain by simple example, if a candidate polls 100,000 votes and the quota for election is 80,000, a method is needed to set aside 80,000 votes as the candidate's filled quota, while 20,000 surplus to quota votes need to be chosen to distribute as preferences.

Two main methods are used to determine which 20,000 votes to use. These are –

(1) Random sampling, where 20,000 ballot papers are chosen at random from the 100,000 original ballot papers to be distributed as preferences. Under this method, the value of a ballot paper and a vote remains the same and equal to one.
(2) Fractional transfers, where all 100,000 ballot papers are distributed, but at a reduced value called a Transfer Value. (This is the method used in the Victorian Legislative Council.)

Under the fractional method, a ballot paper and a vote may no longer have the same value. The relationship between the two becomes defined by the following formula

Votes = (Ballot Papers) × (Transfer Value.)

In a lower house election, the transfer value is always equal to one, which is why the number of votes always equals the number of ballot papers.

As I will explain later, the various formulas for calculating transfer value can become complex once you draw a distinction between the value of a vote and the value of a ballot paper in the formula. But for the moment let me express the formula for transfer value in its easiest form -

Transfer Value = (Surplus Votes) ÷ (Total Votes)

In the above example, the total vote is 100,000, the quota is 80,000 and so the surplus is 20,000. The Transfer Value is then 20,000/100,000 which is 0.2. (20% in percentage terms of one-fifth in fractional form).

In the random sampling method (1) mentioned above, the Transfer Value is also calculated and used to determine a sampling from the original ballot papers. In the above example, one in five ballot papers would be sampled and distributed as preferences.

Under the fractional method, all 100,000 ballot papers are distributed, but the ballot paper value is reduced to 0.2.

Let me extend my model to match what we see on the Legislative Council ballot paper. If two candidates are in a single group, then let me assume that the first candidate has 100,000 votes including the surplus of 20,000, and let me assume the second candidate in the group has 1,000 votes.

If 90,000 of the original 100,000 ballot papers flowed to the second candidate as a second preference, then the Transfer Value would convert these 90,000 ballot papers into 90,000 * 0.2 or 18,000 votes. The second candidate on the party ticket would now have 1,000 votes from 1,000 ballot papers at Transfer Value = 1.0, and 18,000 votes from 90,000 ballot papers at Transfer Value = 0.2. The candidate has 19,000 votes corresponding to 91,000 ballot papers at two different Transfer Values.

This vote/ballot paper distinction matters because the transfer value formula specified in the Victoria Electoral Act is not the simple one I listed earlier. The actual formula is

Transfer Value = (Surplus Votes) ÷ (Total Ballot Papers)

This formula would only apply to the second candidate in my above example if their vote tally reached a full quota. But as my example shows, at this early point in the count, my candidate had 19,000 votes consisting of 91,000 ballot papers.

If this candidate was excluded from the count, **the distribution would be done at vote value**. If the candidate had preferences distributed as part of a surplus to quota calculation, **the distribution is done on the basis of ballot papers.**

A candidate reaches a quota entirely on the basis of the number of votes they hold, but the distribution of preferences is then performed on the basis of the number of ballot papers.

This rule was first instituted for the Senate in 1984 at a time when the distribution of preferences was conducted by hand. The instances where the difference in formula would have an impact was thought to be low. The increased number of Transfer Values that would be produced by an alternative formula based on votes was thought to be too difficult to handle manually.

However, at the 2014 Victorian election, **the choice of Transfer Value formula did have an impact and changed the candidate elected to the fifth and final vacancy in Northern Victorias Region.**

To explain why, let me first present the totals for the last four counts in Northern Victoria Region, shown in the table below. The party codes are Shooters and Fishers Party (SFP), Australian Country Alliance (ACA), Greens (GRN) and Labor Party (ALP).

Table 1 – Final Stages of the 2014 Northern Victorian Region Count (Quota 72,936)

Votes at end of Count 151	Young (SFP)	Danieli (ACA)	O'Connor (GRN)	Symes (ALP)	Exhausted/ Loss by Frac
Young (SFP) elected	76,192	52,925	42,149	42,702	4,838
Count 152 (TV=0.01481548)					
Ballot Papers Distributed	219,770	191,189	26,597	172	1,812
Votes distributed	-3,256	+2,832	+394	+2	+28
New Totals	72,936	55,757	42,543	42,704	4,866
Count 153 (TV=1.0)					
O'Connor (GRN) part excluded	..	+211	-31879	+29,861	1,807
New Totals	72,936	55,968	10,664	72,565	6,673
Count 154 (TV=1.0)					
O'Connor (GRN) part excluded	..	+183	-10055	+8,170	+1,702
New Totals	72,936	56,151	609	80,735	8,375

On the distribution of Young's surplus, the Greens gained 394 votes against 2 for Labor, but the Greens finished 161 votes short of Labor's total. With only three candidates remaining in the count, the next two counts excluded the Green candidate O'Connor, and the distribution of Green preferences elected Labor's Symes to the final seat.

(At the end of the count, 609 votes remained with the Greens, representing many different ballot papers at reduced Transfer Value. When a candidate is excluded from the count as the lowest polling candidate, the distribution of preferences takes place in bundles ordered in descending Transfer Value. Counting in Northern Victoria stopped when Symes reached the fifth and final quota.)

If the Greens had passed Labor at Count 152, then Labor's candidate would have been excluded at count 153. Labor's group preference ticket had preference 6 for Danieli (ACA) and 10 for O'Connor (GRN). Had Symes (ALP) been excluded at count 153 rather than O'Connor (GRN) then the last seat would have been won by Danieli (ACA).

The only reason that O'Connor (GRN) did not pass Symes (ALP) was because of a distortion of the Shooters and Fishers surplus caused by the Electoral Act's stipulation that the divisor in calculating Transfer Value be based on Ballot Papers rather than Votes.

The current formula over-valued Liberal/National ticket vote ballot papers in the Shooters and Fishers total at Count 152 and de-valued the ballot papers of all other candidates and parties.

How the 2014 Northern Victoria Region Count was Distorted

Table 2 below sets out the total of votes held Daniel Young (SFP) at Count 152 when he was declared elected. The table is drawn from the Victorian Electoral Commission count reports and sets out the source of ballot papers, the number of ballot papers, transfer values and equivalent vote value.

The final two columns are the most important and detail how the current formula distorted the count on the distribution of Young's surplus to quota preferences.

Table 2: Northern Victoria 2014 Election - Composition of Daniel Young (SFP) Total

Vote source	Ballot Papers	Transfer Value	Votes	% of Ballots	% of Votes
SFP Ticket Votes	13,923	1.00000000	13,923	6.3	18.3
L/NP ticket votes	174,808	0.18049324	31,551	79.5	41.4
Palmer United ticket votes	11,823	1.00000000	11,823	5.4	15.5
Sex Party ticket votes	12,803	1.00000000	12,803	5.8	16.8
Cyclist Party ticket votes	1,813	1.00000000	1,813	0.8	2.4
Below the line votes	4600	(various)	4,279	2.1	5.6
Total	219,770		76,192		

The most important comparison here concerns the Liberal/National ticket votes. These comprise 79.5% of ballot papers held by Daniel Young on election, but only 41.4% of votes.

If Daniel Young had been excluded as the lowest polling candidate then all votes would have been distributed according to their vote vale, meaning the Liberal/National ticket votes would have made up only 41.4% of preferences. As an elected candidate, Young's surplus was distributed using the Transfer Value formula based on ballot papers, so Liberal/National ticket votes made up 79.5% of the preferences distributed.

Under the current rules applied to the Legislative Council, there is a difference between the way a candidate's votes are distributed as preferences depending on whether they distributed on exclusion or on election.

The Transfer Value formula as applied to Senate and Victorian Legislative Council elections is like pouring water on to dry peat moss. What looks like a small dry mound of votes can suddenly reflate into a huge number of ballot papers. In certain circumstances it can also cause ballot papers to increase in value, as happened at the 2001 Western Australian Legislative Council election, resulting in that state changing its rules to use votes rather than ballot papers in calculating Transfer Value.

Let me return to the Northern Victoria example. Table 3 shows how the existing Transfer Values applied in producing the number of preferences distributed from the surplus of Daniel Young.

Table 3: Northern Victoria 2014 – Actual Distribution of Young (SFP) Preferences

Source	Ballot Papers	Old Transfer Value	New Transfer Value	Votes Transferred
SFP Ticket Votes	13,923	1.00000000	0.01481548	206
L/NP ticket votes	174,808	0.18049324	0.01481548	2589
PUP ticket votes	11,823	1.00000000	0.01481548	175
ASXP ticket votes	12,863	1.00000000	0.01481548	189
ACP ticket votes	1,813	1.00000000	0.01481548	26

The Shooters and Fishers and Liberal/National parties had next preferences for the Australian Country Alliance, while the other three parties had next preference for the Greens. Of the ticket votes calculated in Table 2, 2,795 had next preference for the Australian Country Alliance and 390 for the Greens. (Note these numbers are slightly different from the actual distribution in Table 1 as below the line votes have not been included in Table 3.)

The better way to determine preference flows from an elected candidate, as implemented in Western Australia, is to replace 'Total Ballot Papers' in the Transfer Value formula by 'Total Votes'.

New Transfer Value = (Surplus Votes) ÷ (Total Votes)

This New Transfer Value is then applied to all votes rather than ballot papers of the elected candidate. The formula for calculating the votes to be distributed is:
Votes = (New Transfer Value) × Votes

Which is the same as
Votes = (New Transfer Value) × (Old Transfer Value) × (Ballot Papers)

The distribution in Table 3 over-sampled the Liberal/National ticket preferences because they made up 79.5% of the ballot papers. Had the alternative vote-based Transfer Value formula been applied, then the Liberal/National ballot papers/votes would have made up 41.4% of preferences.

Table 4 shows how the surplus calculations would have taken place had the alternative method been used.

Table 4: Northern Victoria 2014 – Distribution of Young (SFP) Preferences Using Transfer Value Formula based on Votes.

Source	Ballot Papers	Old Transfer Value	New Transfer Value	Votes Transferred
SFP Ticket Votes	13,923	1.00000000	0.04273415	594
L/NP ticket votes	174,808	0.18049324	0.00771323	1348
PUP ticket votes	11,823	1.00000000	0.04273415	505
ASXP ticket votes	12,803	1.00000000	0.04273415	547
ACP ticket votes	1,813	1.00000000	0.04273415	77

Under this formula, there would have been 853 fewer preferences to the Australian Country Alliance and an extra 738 for the Greens. This would have altered the final exclusion, as shown in table 5.

Table 5 – Alternate Distribution of Preferences - 2014 Northern Victorian Region Count

Votes at end of Count 151	Young (SFP)	Danieli (ACA)	O'Connor (GRN)	Symes (ALP)	Exhausted/ Loss by Frac
Young (SFP) elected	76,192	52,925	42,149	42,702	4,838
Count 152					
Votes distributed	-3,256	+1,942	+1,132	+2	+28
New Totals	72,936	54,867	43,283	42,704	4,866
Count 153				**Excluded**	

Table 5 shows that the result of the crucial distribution in Northern Victoria would have changed the result using a Transfer Value formula based on votes rather than ballot papers. On the original tallies after Count 152, the Greens finished 161 votes short of Labor and were excluded electing Labor to the last seat.

Under the reconstructed count, The Greens were 579 votes ahead of Labor, Labor would have been excluded and Robert Danieli from the Australian Country Alliance would have won the final seat in place of Labor's Jaclyn Symes.

The 'right' candidate was elected because the distribution was based on the formula specified in the Electoral Act. However, I would argue that the Electoral Act specifies the wrong formula to calculate Transfer Values. **It can therefore be argued that the 'wrong' candidate was elected to the final seat in Northern Victoria Region.**

Technical Note

In this explanation I have avoided using the technical terms to describe the two methods of calculating Transfer Value.

The current method based on ballot papers is referred to in the academic literature as the Inclusive Gregory method.

The method based on votes that I propose be adopted is called the Weighted Inclusive Gregory Method.

Further References

I would refer the Committee to the following references related to the matters raised in this submission.

Dr Narelle Miragliotta, "*Determining the Result: Transferring Surplus Votes in the Western Australian Legislative Council*", Western Australian Electoral Commission, July 2002.

Prof. David Farrell and Prof Ian McAllister, "*The 1983 Changes to Surplus Vote Transfer Procedure for the Australian Senate and Its Consequences for the Single Transferable Vote*", Australian Journal of Political Science, Vol. 38 No. 3, November 2003