

**Submission to the Joint Standing Committee on Electoral Matters
Inquiry into the Conduct of the 2010 Election**

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Moving to Automatic Enrolment and Re-enrolment

The Australian Electoral Roll is maintained under a Joint Roll Agreement between the Commonwealth and the States, with Electoral Commissions at the two levels sharing the data required to maintain the roll. The method of handling transactions varies from state to state, with some states reliant on the Commonwealth to handle maintenance of a state-based roll, while some states take on a greater share of the transaction load.

Until two years ago, changes to the roll came from two sources.

- If electoral authorities became aware that a voter had moved or died, a process would be initiated to remove them from the electoral roll. Where possible, action would also be taken to send an application to re-enrol to the new address for the voter.
- Electors could lodge enrolment forms to enrol or re-enrol at an address.

Under the existing Commonwealth rules, no voter could be enrolled or re-enrolled without filling in the paper form, gathering any necessary witness signatures and proof of identity and address, and forwarding it to the relevant electoral authority.

In essence, the process of removing electors from the roll has been automated, but action to enrol or re-enrol continues to rely on manual action by an elector. The consequence has been that the electoral roll has not grown at the same rate as the number of people eligible to vote.

In the last two years, New South Wales has dramatically changed its relationship with the joint roll by taking on maintenance of the state roll. This has been required because New South Wales has chosen to automate the process of enrolment and re-enrolment. Instead of waiting for voters to initiate an enrolment transaction, New South Wales now automatically begins an enrolment transaction and sends a notification of to the enrolled elector informing them that they have been enrolled or re-enrolled.

New South Wales has had to take on maintenance of its own roll because automatic enrolment is not permitted under the Commonwealth Electoral Act. Victoria has also started to enrol eligible 18 year-olds automatically, and in the future will follow the New South Wales lead and automatically re-enrol voters. Queensland is examining options to adopt the same procedures.

New South Wales is using school and TAFE records to automatically enrol the vast majority of young people as they turn 18. Where possible they are contacted at once via e-mail or SMS and informed they will be enrolled. A confirmation letter is also sent after 21 days informing that the transaction has proceeded. At both stage, the elector is permitted to object to their enrolment going ahead.

Re-enrolment takes place when the NSW Electoral Commission become aware that a voter has changed address. Most of these transactions are generated through changes in drivers licence or motor vehicle registration, but utility and lands records can also be used.

The New South Wales Electoral Commission estimates that it will have undertaken 40,000 automatic transactions by the state election on 26 March. Around half of these transactions will be new enrolments, the rest re-enrolments.

In addition, the NSW has effectively abolished the close of enrolment date. The close of roll date now only applies for the purposes of printing the certified lists. Voters who present approved photo ID can now enrol as late as polling day, though a declaration vote will be required for any voter enrolling on polling day.

After the election, the NSW Electoral Commission estimates that it will undertake 30-40,000 automatic transaction a month for the next few years. Most of these will deal with re-enrolments, but others will be new enrolments as the Commission locates unenrolled voters.

This creates a massive problem for the Commonwealth roll maintained by the Australian Electoral Commission. None of the enrolment transactions generated by the NSW Electoral Commission can be accepted until the person automatically enrolled at an address fills in and returns one of the Commonwealth's enrolment forms. The additional identity checks for first time voters will also require 18 year-olds whose identity has been automatically accepted by the NSW Electoral Commission, to jump through hoops to prove their identity to the Commonwealth.

The Joint Roll agreement stays in place, but will create the farce that around a month after the state has contacted a voter and stated they are now enrolled to vote at state and local government elections, the Australian Electoral Commission will send them a personalised enrolment form and ask them to complete and return the form to be allowed to vote at Commonwealth elections.

It will seem strange to a voter that one level of government knows who they are, where they live, and enrolls them automatically, while another level writes to them and asks them to prove who they are and where they live and sign a declaration stating so.

Between now and the next federal election, hundreds of thousands of people who have been verified by the state authorities as living at an address and eligible to vote, could disappear from the Commonwealth electoral roll because they have not returned the necessary form.

It must be stated that entitlement to appear on the electoral roll remains the same for both State and Commonwealth elections. All that has changed is that New South Wales has removed the requirement that an enrolment transaction can only be initiated by an elector. Electors can still initiate a change of enrolment, but if they do not, the NSW Electoral Commission is now permitted to initiate an enrolment transaction where the Commission becomes aware that one is required.

I make the following recommendation to ensure that the Commonwealth electoral roll does not become out of date compared to rolls maintained by the state.

Recommendation 1: The Commonwealth Electoral Act be amended to lift the requirement that a voter must returned a signed enrolment in a situation where a relevant state authority has initiated action to automatically initiate the transaction.

Timing of Redistributions

In 2010 the Australian Electoral Commission was forced by the provisions of Section 59 of the Commonwealth Electoral Act to begin a redistribution of electoral boundaries. Section 59 states a redistribution begins automatically seven years after the boundaries were gazetted, unless the seven year date falls within twelve months of the expiry of the House of Representatives.

The seven year period for Victoria was 29 January 2010. The date when the House of Representatives was due to expire was 11 February 2011. This meant the boundaries expired two week before the provision that allowed a redistribution to be deferred could be used.

This was despite the timetable for the redistribution making clear that the new boundaries could not be in place before December 2010, after the likely date of any federal election.

Writs for the election were eventually issued in July 2010, but this did not stop the redistribution process. Draft boundaries were released on 30 July, the same day as nominations were released for the election. The next day, full page advertising was placed in papers publicising the new boundaries and calling for comments by 10 September, three weeks after the election.

The publication of draft boundaries could only have confused voters about the electorate in which they were to vote in on 21 August. The request for comments could only have been a nightmare for candidates and officials already busy working on the federal election campaign.

The boundaries were finalised by the end of the year, creating the odd situation where newly elected members knew they needed to concentrate on the new boundaries rather than their existing constituents if they wanted to win at the next election.

The rigid rules in the Commonwealth Electoral Act that initiated the Victorian redistribution at such a ridiculous time should be varied to give the Electoral Commissioner greater authority to defer a redistribution.

Recommendation 2: The strict redistribution timetable in Section 59 of the Commonwealth Electoral Act be removed and replaced by a provision that gives the Electoral Commissioner the flexibility to determine whether a redistribution is too close to the date of the next election

Lowering the Informal Vote

After a decline at the 2007 House of Representatives election, informal voting again rose at the 2010 election. Informal voting rose to the highest level seen since the confusion induced by the design of the new Senate ballot paper in 1984.

Informal Votes – House of Representatives Elections 1983-2007

Election	% Informal	Election	% Informal
1983	2.1	1998	3.8
1984	6.3	2001	4.8
1987	4.9	2004	5.2
1990	3.2	2007	4.0
1993	3.0	2010	5.6
1996	3.2		

Source: Australian Electoral Commission publications

A total of 729,304 informal votes were cast in the House of Representatives at the 2007 election, and past research has shown that between a third and a half of these votes would have been informal because insufficient preferences were provided.

The following table summarises past research on the types of informal votes cast.

House of Representatives Informal Vote Research: National

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	33.72	32.83
Non Sequential	n.a.	n.a.	n.a.	17.31	15.35
Langer Style	n.a.	n.a.	n.a.	2.86	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	4.39
Total numbering errors	44.6	48.0	41.7	53.89	52.57
Blanks	16.8	15.9	23.0	21.22	21.15
Marks / Writing	7.5	10.2	10.1	6.39	14.27
Ticks and Crosses	30.7	25.3	23.3	12.92	9.34

Source: Australian Electoral Commission publications.

In my submission to the JSCEM's inquiry into the 2004 election, I provided detail of informal voting at all Federal, State and Territory elections over the last two decades. In analysing this data, it became clear that one of the main reasons for the increase in informal voting was the high rate of House ballot papers cast using only a single '1' with no further preferences. This rate of '1' only voting is higher in both New South Wales and Queensland, where optional preferential voting is used for state elections.

While the interaction with state laws on optional preferential voting plays a part in varying the incidence of '1' only voting by state, what we also know from research is that the use of the Senate ballot paper, and its instruction that voters place a '1' above the line on the ballot paper plays a part in inducing '1' only voting in the House.

Research at by-elections has shown that without the distraction of the senate ballot paper, the incidence of '1' only voting declines, as is shown by the following data.

AEC By-election Informal Voting Research

Electorate/election	No. of Cands.	Percent Informal	Blank	Writing/ Scribble	Ticks/ Cross	Defective Numbering
Adelaide						
1987 Election	6	7.6	21.0	14.1	25.9	45.7
1988 By-election	9	3.9	18.3	31.5	32.5	17.5
Oxley						
1987 Election	4	3.2	13.4	10.2	29.0	48.5
1988 By-election	5	2.6	12.5	32.7	41.3	13.4
Wills						
1990 Election	8	6.4	n.a.	n.a.	n.a.	n.a.
1992 By-election	22	6.4	14.1	18.9	34.1	32.8
Werriwa						
2001 Election	8	8.5	17.6	19.0	14.3	49.0
2004 Election	7	8.0	20.9	11.1	14.6	68.0
2005 By-election	16	13.2	18.4	25.6	4.8	45.3

Sources: AEC Informal Vote Research 1987, AEC 1994 Electoral Pocket Book, Research report No. 8, Analysis of Informal Voting at Werriwa By-election

The following points can be made about this research.

- At both the Adelaide and Oxley by-elections, there was a decline in the informal vote and this appears to be entirely as a result of the decline in '1' only voting. This supports the view that it is

the Senate ballot paper that encourages the use of '1' only voting at House of Representatives elections.

- Informal voting for Wills at the 1990 election is not available. However, despite there being 22 by-election candidates, the informal voting did not increase, and the rate of informal votes with defective numbering was still lower than at other elections.
- The data for Werriwa has been accumulated by the author to match the categories used in previous research. The overall informal vote increased at the by-election, but this was in part due to no Liberal candidate being nominated for the by-election.
- While the rate of Defective Numbering ballots fell to 45.3% at the Werriwa by-election, three-quarters of these were ballots classified by the AEC as 'Non-sequential'.
- In Werriwa, the proportion of '1' only ballot papers fell from 36.9% to 9.1%, in raw numbers from 2482 to 927.
- The number of votes marked with ticks and crosses fell from 14.6% to 4.8%, overall from 983 to 489 ballots.
- The evidence in the above table suggests that the rate of informal voting is lower at by-elections because there is no Senate ballot paper to confuse voters, the the absence of a major party candidate may increase the level of informal voting.

In its report on informal voting at the 1987 election, the AEC noted that strict tests on formality were retained to prevent compulsory preferential voting from becoming de-facto optional preferential. However, the AEC noted that the strict formality rules resulted in around 285,000 ballot papers that could have counted on the valid first preference, being excluded from the count because formality rules were designed to exclude the total of 13,000 incomplete ballots where preferences did need to be examined.

So 95% of ballot papers with a valid first preference were excluded from the count to protect compulsory preferential voting from the 5% of ballots with a valid first preference where preferences were required to be counted.

As a practical example of how this works, at the 2009 Bradfield by-election, voters were faced with a ballot containing 22 candidates, including nine candidates representing the Christian Democratic party. On election night the rate of informal voting was reported as around 6.5%, but after the full scrutiny of ballot papers, the rate rose to 9.0%. As the full sequence from 1 to 22 on each ballot paper was checked, more and more informal votes were located.

At the by-election, the Liberal candidate polled 56.4%, the Green candidate 25.2%. Together, the vote for the remaining 20 candidates added to 18.4%. There are two points to make:

- The Liberal candidate had more than half of the first preference votes, so counting of the preferences of any candidate was not required.
- The Liberal candidate plus the Green candidate had more first preference votes than the other 20 candidates put together, so even if preferences had to be distributed, no first preference vote cast for either the Liberal candidate or the Green candidate would ever need to be examined for preferences.

So more than four in five votes cast at the Bradfield by-election ran the hurdle of having the order of preferences 2 to 22 examined when none would ever need to be considered as part of the distribution of preferences.

Which raises the question, if these votes had a valid first preferences, and the other preferences on the ballot paper would never need to be counted, why exactly were votes with a valid first preference excluded from the count as informal?

The rate of informal voting has reached unacceptable levels. Many of these have identifiable preferences for candidates, but they are excluded from the count because they do not have preferences for all candidates. I believe a way must be found to allow these votes to count.

Below I set out three options. Before outlining those options I will summarise my recommendations.

Recommendation 3: That procedures be adopted to allow votes with a valid first preference vote to be included in the count, giving expression to the intent of more voters.

Recommendation 4a: I would recommend optional preferential voting as the preferred method of dealing with informal voting. (See Option 1 below)

Recommendation 4b: If the retention of compulsory preferential voting is preferred, I recommend progressive informality rules (Option 2 below) rather than the South Australian system of registered preference tickets (Option 3), as progressive informality avoids the need for the AEC to engage in the validation and registration of preference tickets.

Option 1 – Optional Preferential voting.

Optional preferential voting is the most obvious solution to high informal voting caused by defective numbering. However, it requires the abandonment of compulsory preferential voting and the acceptance that candidates can be elected with a simple rather than an absolute majority of the vote in an electorate.

The philosophical justification for optional preferential voting was put most eloquently by the Queensland Electoral and Administrative Review Commission's Report on the Queensland Legislative Assembly Electoral System (Volume 1 paragraph 6.24.)

"Nevertheless the Commission is concerned that electors are currently required to record views they may not have, by ranking in order of preference all candidates offering in their electoral district. If they do not have a complete set of preferences they have either to invent preferences, or arbitrarily assign rankings to candidates about whom they now nothing and care less or accept that their ballot-paper will be excluded from the scrutiny. The Commission believes that it is not unreasonable or oppressive to require every adult citizen to play a meaningful part in the choices of their government, and has set out its views on compulsory voting in Chapter Five. But having required that duty be discharged, it is inappropriate for the electoral system to corall voters on behalf of candidates or parties who electors do not wish to support but merely consider less objectionable than the other on the ballot-paper."

I would summarise the advantages of disadvantaged of Optional Preferential Voting as follows:

Advantages

- By far the simplest system. It eliminates almost all accidental informal votes.
- Preferential voting systems are rare elsewhere in the world, resulting in high rates of informal voting in electorates with high migrant populations. Optional preferential voting would keep valid all votes cast with a single '1', tick or cross.

- Does not force voters to express preferences they do not have.

Disadvantages

- Candidates can be elected with less than 50% of the total formal vote.
- Competing candidates of parties in coalition can be disadvantaged compared to the same situation under compulsory preferential voting.

Option 2: Progressive Informality

My second option retains compulsory preferential voting, but relaxes the strict formality criteria currently applied before a vote is admitted to the count. Progressive Formality would admit to the count any vote with a valid first preference, and only exclude ballot papers with incomplete preferences at the point where those preferences were required to be counted.

My procedures for counting would be

- (1) Initial count admits any vote with a valid first preference
- (2) If one candidate has a majority of first preference votes, no further checks for formality are required on ballot papers admitted to the count under Step (1)
- (3) If preferences require to be counted to determine a winning candidate, the ballot papers of a candidates are re-examined for formality before they are distributed. Any ballot papers that do not have a valid next preference are excluded from the count.
- (4) Having excluded some first preferences as informal, a check is made to determine that the leading candidate has not now reached 50% of the new formal total. If preferences are still required to determine the winner, proceed to step (5)
- (5) Distribute preferences. Return to step (3) and determine if further distributions need to be undertaken.

I summarise the advantages and disadvantages as follows

Advantages

- Does not undermine compulsory preferential voting, as advocating a vote with incomplete preferences is still advocating a vote that would be informal, if the vote was for a candidate who would be excluded as some point to distribute preferences.
- Gives effect to the intent of more voters than the current rules

Disadvantages

- Candidates who finish first or second in a count are less likely to have their votes declared informal. This disadvantages minor parties and independents compared to the major parties.
- Votes would be admitted to the count on election night that may be excluded later in the count. In close elections, this may make the result less clear on election night. In particular, indicative preference counts may be less reliable.
- The counts currently conducted for information purposes would have to take account of these rules, resulting in complete 2-candidate and 2-party preferred counts for some electorates finishing with a different total of formal votes to the initial count of first preferences.

Option 3: South Australian Registered Preference Tickets

South Australia uses a system of registered ticket votes as a savings provision to allow House of Assembly votes with insufficient preferences to remain in the count. A '1' only vote can stay formal by reverting to the ticket of preferences lodged by the party before the election.

It should be noted that this is not a version for Senate ticket voting, but rather a savings provision designed to 'save' votes that would otherwise be declared informal.

The South Australian State Electoral Office publishes a large amount of detail on the ballot papers saved by the ticket votes. A full breakdown by candidate and electorate is provided on page 217 of the SA SEO's election statistics on the 2006 state election. *(Note: I will provide an update based on the 2010 South Australian results before my appearance before the committee.)*

In summary, at the 2006 South Australian election, a total of 35,029 informal votes were recorded, a rate of 3.6%, compared to 5.2% in the Legislative Council. Compared to Victoria, Western Australia, and Commonwealth elections in every state, South Australia is the only state using compulsory preferential voting where the rate of lower house informal voting is less than upper house informal voting.

In total, 43,553 votes were admitted to the count after being 'saved' by the use of registered preference tickets. All of these votes would have been informal under the Commonwealth Electoral Act. The South Australian lower house informal vote rate was 3.6%, where it would have been 8.1% under Commonwealth rules.

I personally have reservations with the use of South Australian ticket votes. I do not believe a vote should be saved by having its preferences 'captured' by a candidate or political party. Any institution of this system should include a provision preventing the advocacy of a '1' only vote.

I would summarize the advantages and disadvantages as follows

Advantages

- Same as for progressive informality, except that the ability of any candidate to lodge preference tickets means minor parties and independents are not disadvantaged compared to major parties.

Disadvantages

- There is a greater load created for the Electoral Commission in validating and registering preference tickets
- As with progressive informality, votes are admitted to the count on election night that may be subsequently excluded.
- Indicative preference counts are less reliable on election night as polling place staff are not in a position to use registered preference tickets to determine the eventual preference destination of a ballot paper with incomplete preferences

Nomination Problems in the Senate

The number of candidates nominating to contest the Senate continues to grow. In New South Wales at the 2010 Senate election, there were 84 candidates distributed across 33 columns of the ballot paper. There were Groups A to Z, then AA to AF, then an ungrouped column.

For voters reading left to right across the ballot paper, none of the groups in the first half of the ballot paper had a hope of election. On the results, left to right you had to reach the Shooters Party in Group R with 2.3% of the vote before you found a group with more than 1% of the vote.

Ballot papers of such size are distorting the choice of voters. A ballot paper one metre wide is difficult to manipulate in a polling place.

The point of an election is to elect representatives to the parliament. The current rules for Senate nomination allow people with no hope of election to nominate, whether for the vain desire of having their name appear, or to take part in the obscene auction of preferences allowed under the group ticket voting system.

To stop this, I recommend a substantial lift on Senate deposits, especially for access to a group ticket voting square.

Recommendation 5: That deposits for Senate nomination be increased, and that a substantial deposit be required before a group is permitted to lodge a group ticket vote.

Simplifying Senate below the Line Voting.

Senate voters are currently presented with two options, to place a single '1' above the line in a group voting square, or to number preferences for every candidate below the line. Given that in NSW this choice was between a single '1' vote above-the-line or 84 preferences below-the-line, it is not surprising that only 2.24% of NSW Senate votes counted as below the line votes.

When Victoria adopted the Senate-style ballot paper in 2006, it provided for an easier below-the-line voting option. A voter only needed to fill in as many preferences as there were vacancies to fill. In Victoria this is five preferences, in the Senate this would be six, or 12 for a double dissolution.

With concern at the way group ticket voting can be manipulated to engineer election results, I would recommend that an easier below the line voting option be made available.

Recommendation 6: That Senate formality rules for below the line votes be amended so that the number of required preferences be set at the number of vacancies to be filled at the election.

Changing the Senate Transfer value Formula

If Recommendation 6 is adopted, there will be an increase in the number of ballot papers that exhaust their preferences. If a vote for a candidate is excluded from the count, these votes exhaust their preferences. The vote is simply set aside as exhausted, and this should not change.

However, if a candidate achieves a quota and their votes are re-examined for distribution, the current formula for Transfer Value results in ballot papers with exhausted preferences being part left with the elected candidate, and part distributed as an exhausted preferences.

In elections conducted under a similar counting method in NSW and the ACT, the exhausted preferences of a candidate that has reached a quota are set aside with the elected candidate before the transfer value is calculated.

This results in all exhausted preferences remaining with the candidate where the ballot paper had its last effective preference, while only ballot papers with continuing preference would be distributed to candidates remaining in the count. This decreases the likelihood that at the end of a close count there will be large numbers of exhausted preferences determining the outcome.

Recommendation 7: That in the calculation of Transfer Value, all exhausted preferences of the elected candidate are set aside with the candidate and excluded from the calculation of Transfer Value. The calculation should also be capped so that no transfer value can ever exceed the value 1.0000.

Options for Senate Preferential Above the Line Ticket Voting

NSW has abolished Senate-style group ticket voting for elections to the NSW Legislative Council. The ballot paper is still divided into 'above' and 'below' the line options, but a single '1' above the line will only apply for the chosen party in NSW, and the only preferences that count are those filled in by the voter themselves. There are no party controlled between-party preferences.

NSW voters are permitted to number the above the line squares '1', '2', '3' etc, and these preferences are given effect to in the count as preferences for individual candidates in each party group.

This option has caused a huge increase in exhausted preferences. As NSW elects 21 Legislative Councillors at large, exhausted preferences have not distorted the proportionality of the electoral system.

However, a high exhausted rate would be a problem at Senate elections where only six members are elected. Any move down the path of above the line preferential voting therefore needs careful consideration and design.

Recommendation 8: That the NSW option of above the line voting be considered, but research on its operation in NSW be undertaken. Any move to above the line preferential voting should take further evidence on its implications.

The Weighting of Senate Votes

The following is an extract from a blog on the Senate count I published in September 2010m, concerning the distribution of Green preferences in Queensland following the election of Larissa Waters. (See <http://blogs.abc.net.au/antonygreen/2010/09/distortions-in-the-queensland-senate-count.html>)

The issue raised was the method used to distribute the preferences of candidates with in excess of a quota of votes. The post explained how the existing formula could distort the distribution of a party's preferences.

Most of the Senate count is conducted based on the value of votes each candidate holds at any stage, where a vote is defined as a number of ballot papers multiplied by their transfer value.

However, there is one point in the count when suddenly the count reverts to using ballot papers rather than votes. If a candidate has in excess of a quota of votes, their surplus of votes is distributed at a reduced value by applying a new transfer value.

But having elected the candidate based on votes, the Senate formula at this point reverts to using ballot papers in determining which ballot papers are in the surplus. So for a candidate who has received preferences from the lead candidate of a party elected with multiple quotas of ballot papers, suddenly all the ballot papers can re-emerge into the count at full value rather than the reduced value at which they were received.

This emerged at a point in the count in Queensland. It did not change the result, but one day the operation of the formula will change the result. For that reason the Committee should take a position on whether it agrees that the current formula is the one it wishes to see used at elections. Before proceeding to the example, let me make my recommendations.

Recommendation 9: That the Committee states whether it agrees with the operation of the current formula, known as the Inclusive Gregory Method, as the correct way to calculate transfer value and determine surplus to quota votes.

Recommendation 10: That the Committee should instead adopt the Weighted Inclusive Gregory method, already implemented for Western Australian Legislative Council, as it removes the distortion of preferences produced by the existing formula.

Blog Post: Distortions in the Queensland senate Count

Tomorrow I'll do a full summary of the final election results, but for the moment I thought I would draw attention to how preferences can be distorted by the Senate's counting system.

After a bit of explanation of the electoral system, I'll explain how the preferences of the Greens have been distorted in Queensland. On the election of Larissa Waters as the first Green Senator for Queensland, a surplus to quota total of 6,506 votes was distributed.

At this point, the make-up of the preferences in the Green surplus was distorted. Water's total on election consisted of 81.6% Green votes, and also included Labor preferences representing 5.1% of Waters' total vote. However, when Water's surplus was distributed, it consisted of 67% Labor votes and only 27% Green preferences.

To explain why, I need to first try and explain differences in counting systems between the various Australian elections that use proportional representation.

Several Australian parliamentary chambers are elected using variants of what is known in international political literature as the 'Single Transferable Vote'. In the 1970s I remember it sometimes being referred to as 'Quota Preferential' voting, and I think this is still a useful

name, highlighting the two key features of the electoral system, the use of a quota to win election, and the use of preferences to fill quotas. This highlights the difference from most other forms of proportional representation that use neither quotas nor preferences.

The Australian forms can be sub-categorised on two different basis.

One is on the basis of the form of the ballot paper. The Hare-Clark system that applies in Tasmania and the ACT, groups candidates in columns on the ballot paper, but the order candidates appear in each column is randomised from ballot paper to ballot paper. Voting must be for candidates, and candidates are forced to compete with candidates from their own party as well as with candidates from other parties.

The second ballot paper form is the Senate system, also used for mainland Legislative Council elections. Candidates are grouped in columns, but candidates appear in the order nominated by the party. The ballot paper is divided by a thick black line, with electors give the option of voting for a party 'above the line' or for candidates 'below the line'. (Left or right of the line in WA.) Except for the NSW Legislative Council election, votes filled in above the line have their preferences distributed according to a lodged party ticket.

A second distinction between systems can be drawn on how votes are counted, and in particular, which votes are examined at the point where a candidate is declared elected and their surplus to quota votes are distributed as preferences.

Tasmania, the ACT and NSW use a method called the 'Gregory' or the 'last bundle' method to allocate preferences of surplus to quota votes. Only the last votes received putting a candidate over a quota are examined to distribute preferences. The ACT and NSW exclude exhausted preferences before doing this distribution, while Tasmania includes exhausted preferences in the distribution. Tasmania and the ACT distribute votes at fractional transfer value, NSW uses the transfer value to randomly sample ballot papers and distributes the sample at full value.

The Senate system uses a method called 'Inclusive Gregory', where every ballot paper that a candidate has on election is used to determine preferences for the surplus to quota votes. This system is used in the Senate, in Victoria and South Australia. At the last election in Western Australia, the system was changed so that rather than use the ballot papers to calculate the surplus, the calculation is done on the basis of the votes held by a candidate. This method is called the 'Weighted Inclusive Gregory' method.

What's the difference? This is complex, but you need to understand the difference between a 'ballot paper' and a 'vote'. In lower house elections one ballot paper equals one vote. In the Senate, when a candidate has more than a quota of votes, a transfer value is calculated representing the number of surplus to quota votes. A vote is equal to a ballot paper multiplied by its transfer value.

In the new WA weighted method, the transfer value is equal to the number of surplus votes divided by the number of votes held by a candidate. In the Senate system, the transfer value is the number of surplus votes divided by the number of ballot papers.

How this difference in calculation distorts is easily shown by looking at the total of votes held by the Green's Larissa Waters on her election to the Queensland Senate. The number of votes and ballot papers involved is set out in the table below.

Queensland Senate 2010 - Composition of Larissa Waters (GRN) Vote

Vote source	Ballot Papers	Transfer Value	Votes
Green Ticket Votes	291,043	1	291,043
Waters First Preferences	20,036	1	20,036
Labor Ticket Votes	710,366	0.025593	18,180
Australian Democrat Ticket Votes	17,334	1	17,334
Socialist Alliance Ticket Votes	3,325	1	3,325
Group C Ticket Votes	1,015	1	1,015
Group F Ticket Votes	641	1	641
Various below the line votes	???	???	5,006
Total Votes on election			356,580

(Without more detailed reports, I don't have full access to the number of ballots and transfer values represented by the 5,0006 below the line votes.)

What this table shows is that of the votes held by Waters on election, 81.6% were Green Ticket Votes. 5.1% were Labor Ticket votes, but this Labor total represented 710,366 ballot papers at a transfer value of 0.025593.

You would think that the 6,506 vote surplus of Waters should include preferences in proportion to the votes held by Waters on election. This is the principle used by the Weighted Inclusive Gregory method introduced in WA in 2008. As 81.6% of Waters' votes were Green ticket votes, in WA 81.6% of her surplus would also be Green ticket votes.

But the Senate's Gregory Inclusive method does its transfer calculation based on ballot papers, not votes. Labor's votes may make up only 5.1% of Waters' votes, but Labor's ballot papers make up 67% of Waters' total ballot papers.

When Waters' surplus was distributed, 67% were distributed as Labor preferences to the Fishing and Lifestyle Party, and only 28% as Green preferences to the Sex party.

In short, the Senate's counting method has completely distorted the composition of the Green surplus. In terms of votes, the 291,043 votes are reduced to 1,797 Green preferences,, while the 18,180 Labor votes become 4,387 preferences. The Green votes were massively devalued in relation to the Labor votes.

In the end this had no effect on the final outcome, the Liberals' Brett Mason winning the final Senate seat on Sex Party preferences.

However, one of these days, this distortion of preferences is going to change the result of a Senate contest. The old method based on ballot papers was defensible in the days when votes were counted by hand. But that is long gone and computers now do the complex distribution of preferences.

Western Australia made this shift after the 2001 state election produced an even more perverse outcome with some votes increasing in transfer value during the distribution of preferences.

All that needs to be changed is a computer formula to calculate the surplus to quota preferences, to switch from using ballot papers as the divisor to using votes. It's not a complex change and it is about time the method was changed.