

Informal Voting by Jurisdiction

The following pages bring together data on informal voting at Australian Federal, State and Territory elections, as well as any available research on categories of informal voting.

The Chambers of the various Parliaments are elected using two broad categories of electoral system, election by preferential voting in single member electorates, and the use of preferential voting in multi-member electorates.

These can then further be categorised by how many preferences are required by a formal vote. The following two tables categorise the various electoral systems.

Single Member Electoral Systems

Compulsory preferential voting, no savings provisions

Commonwealth House of Representatives
Victorian Legislative Assembly
Victorian Legislative Council (until 2002)
Western Australia Legislative Assembly
Northern Territory Legislative Assembly

Compulsory preferential voting, no savings provisions

South Australia House of Assembly

Limited preferential voting

Tasmanian Legislative Council (3 preferences minimum)

Optional preferential voting

New South Wales Legislative Assembly
Queensland Legislative Assembly

Multi-member Electoral Systems

Group Ticket Voting, Compulsory below line preferences

Commonwealth Senate
South Australian Legislative Council
Western Australia Legislative Council

Group Ticket Voting, Limited below line preferences

Victorian Legislative Council (since 2006) (5 preferences minimum)

Optional above line voting, limited preferences below line

New South Wales Legislative Council (15 preferences minimum)

Hare-Clark, limited preferences

Tasmanian House of Assembly (As many preferences as vacancies, currently 5)

Hare-Clark, optional preferential voting

A.C.T. Legislative Assembly (ballot paper suggests as many preferences as vacancies)

Federal Elections

Informal Voting at Federal Elections 1990-2007

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	2.44	3.10	..	..	..	..	..
3	3.15	2.87	2.44	..	..	..	..
4	2.73	2.55	3.20	2.79	3.36	4.35	4.25
5	3.00	2.68	3.15	3.57	4.38	4.39	4.27
6	3.36	3.03	3.00	3.38	4.49	4.70	3.51
7	3.75	3.25	3.12	3.85	4.56	4.89	3.81
8	3.72	3.06	3.55	3.69	5.33	5.58	3.91
9	4.35	3.23	3.29	4.12	6.04	5.70	4.53
10	7.00	3.43	3.98	4.10	6.09	5.83	5.00
11	..	3.50	..	4.39	5.35	6.83	4.87
12	..	..	..	4.77	5.91	7.41	..
13	..	..	..	5.67	..	..	6.22
14	..	..	..	..	..	11.83	..
Overall Informality							
House	3.19	2.98	3.20	3.77	4.82	5.18	3.95
Senate	3.4	2.55	3.50	3.24	3.89	3.75	
Electorates	148	146	148	147	150	150	150
Candidates per seat	5.3	6.4	6.1	7.5	6.9	7.3	7.0

Source: Australian Electoral Commission published results, calculations by author.

Note: Excludes Dickson supplementary election in 1993 and Newcastle supplementary election in 1998.

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: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

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

NOTES

- 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 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 informal vote increased at the by-election, but it should be noted that the Liberal Party did not nominate a candidate.
- While the rate of Defective Numbering ballots fell to 45.3%, 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.

NEW SOUTH WALES

Informal Voting at Federal Elections in NSW 1990-2007

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	2.4	..	..	..	..	..	..
3	2.7	2.9	..	..	..	..	..
4	2.5	2.6	3.9	..	4.2	4.7	5.9
5	2.8	2.7	3.4	4.6	3.5	5.5	4.8
6	3.2	3.6	3.4	3.0	4.2	5.0	4.9
7	3.9	3.3	3.4	4.3	4.7	5.6	4.7
8	2.8	3.2	3.2	3.9	6.3	6.7	4.7
9	..	3.4	4.4	4.1	7.0	6.7	5.8
10	7.0	3.7	5.0	4.6	6.2	6.3	5.1
11	..	4.4	..	4.4	5.3	6.8	4.9
12	..	..	..	..	6.0	7.4	..
13	..	..	..	5.7	..	..	6.2
14	..	..	..	..	..	11.8	..
Overall Informality							
House	3.1	3.1	3.6	4.0	5.4	6.1	5.0
Senate	4.2	2.7	3.8	3.3	3.5	3.5	..
Electorates	51	50	50	50	50	50	49
Candidates per seat	5.6	6.2	6.4	7.8	7.9	7.6	7.0

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at State Elections 1984-2007

Candidates per electorate	% Informal Vote by Number of Candidates						
	1984	1988	1991	1995	1999	2003	2007
2	2.75	3.21	18.66	7.58	..	..	..
3	2.20	2.97	9.80	5.62	..	1.98	2.42
4	2.20	3.40	9.25	5.23	1.38	2.11	2.71
5	2.70	3.48	7.05	5.12	2.17	2.28	2.62
6	3.65	5.19	9.61	4.36	2.26	2.32	2.83
7	..	3.73	10.50	3.99	2.68	2.58	2.92
8	..	3.80	5.62	4.06	2.33	2.61	3.28
9	..	..	..	3.22	2.57	3.33	2.58
10	..	..	..	..	2.96	3.46	..
11	..	..	..	..	3.22	3.47	..
12	..	..	..	..	3.02	..	..
13	..	..	..	..	2.99	..	..
Overall Informality							
Legislative Assembly	2.41	3.28	9.32	5.15	2.51	2.62	2.77
Legislative Council	6.66	8.08	5.67	6.11	7.17	5.34	6.11
Electorates	99	109	99	99	93	93	93
Candidates per seat	3.0	3.4	4.4	4.6	7.9	7.1	5.8

House of Representatives Informal Vote Research: New South Wales

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	32.47	35.65
Non Sequential	n.a.	n.a.	n.a.	22.52	15.22
Langer Style	n.a.	n.a.	n.a.	2.37	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	5.23
Total numbering errors	36.0	42.4	47.2	57.36	56.10
Blanks	18.3	16.0	22.0	20.38	21.18
Marks / Writing	8.2	9.2	7.9	5.49	9.62
Ticks and Crosses	37.5	31.5	21.4	12.57	10.71

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

NOTES

- NSW Elections are conducted using optional preferential in single member electorates for the Legislative Assembly, and for a state-wide electorate in the Legislative Council. A minimum of 10 preferences were required in the Council in 1984, ten preferences and ticket voting in 1988 and 1991, and 15 preferences or ticket voting since 1995. Party names have appeared on the ballot paper since 1991.
- Ticks and crosses have been treated as valid first preferences under optional preferential, except at the 1991 and 1995 elections. Referendums held at both elections, with a ballot paper instructing voters to use a tick, is the reason for the high informal vote in 1991 and 1995.
- At the 1991 election, confusion over the use of ticks was particularly bad in four electorates where only two candidates nominated. The informal vote was 13.9% in Burrinjuck, 14.9% in Wagga Wagga, 22.2% in Londonderry and 23.5% in Bankstown.
- Despite sharing Optional Preferential Voting with Queensland, the level of informal voting in NSW is higher. This may be because NSW also conducts the Legislative Council election where Queensland elects only one chamber.
- High informal voting may also have been induced by the size of recent ballot papers. That famous 'tablecloth' ballot paper at the 1999 election had 264 candidates, while 284 candidates contested on a smaller ballot paper in 2003, and 333 on the 2007 ballot paper.
- NSW also has the country's highest proportion of voters from non-English speaking backgrounds, voters from countries with different methods of voting and with limited ability to understand ballot paper instructions. Both State and Federal elections show much higher rates of informal voting in Sydney electorates with large concentrations of voters from non-English speaking backgrounds.
- As in Queensland, it is clear that optional preferential voting cuts the level of informal voting. New South Wales has the second lowest level of informal voting at state elections. But New South Wales also has the highest level of informal voting at Federal elections, and the strongest tendency for informal voting to rise as the number of candidates increases.
- Optional preferential voting is embedded in the New South Wales constitution and cannot be removed without a referendum. It seems highly unlikely that such a referendum would be put, and equally unlikely that such a referendum would pass. Any move to solve the preferential confusion at Commonwealth elections will require changes to the formality rules for Commonwealth elections.

VICTORIA

Informal Voting at Federal Elections in Victoria 1990-2007

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	..	..	..	..	..	..	..
3	3.8	..	2.7	..	..	..	..
4	3.0	2.5	2.7	..	3.3	..	2.5
5	3.7	2.8	2.8	3.5	3.8	3.9	3.3
6	3.9	3.1	2.9	3.1	4.1	3.8	2.9
7	2.4	2.7	2.9	3.6	3.5	4.1	3.6
8	4.6	3.5	4.3	3.4	4.4	4.4	3.4
9	..	..	2.8	3.5	5.2	4.9	4.3
10	..	3.2	..	3.5	..	4.5	..
11	..	..	..	4.4	..	..	..
12	..	..	..	4.1	5.6	..	..
Informal Vote	3.5	2.8	2.9	3.5	4.0	4.1	3.3
Senate Informality	3.6	3.1	3.6	3.8	5.6	5.1	..
Electoraltes	38	38	37	37	37	37	37
Candidates per seat	4.9	5.6	5.8	7.8	6.1	6.9	6.5

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at State Elections 1985-2006

Candidates per electorate	% Informal Vote by Number of Candidates						
	1985	1988	1992	1996	1999	2002	2006
2	3.04	4.68	3.48	2.79	3.24	..	..
3	1.93	3.83	3.12	2.37	3.06	3.33	..
4	2.34	3.33	3.43	1.94	2.65	3.30	4.65
5	..	4.01	4.16	2.48	3.01	3.37	4.29
6	..	2.90	4.97	2.30	2.85	4.00	4.78
7	..	4.12	5.28	..	2.96	4.63	4.74
8	..	..	3.95	..	..	4.09	5.75
9	..	..	7.03	..	..	..	..
10	..	..	..	..	..	..	..
11	..	..	6.92	..	..	..	..
Overall Informality	..	..	..	..	..	..	..
Legislative Assembly	2.68	3.89	3.81	2.30	3.01	3.42	4.56
Legislative Council	3.01	4.33	4.11	2.58	3.37	3.67	4.28
Electoraltes	88	88	88	88	87	88	88
Candidates per seat	2.4	3.3	4.1	3.5	3.5	4.2	5.2

Note: 1999 totals exclude the Frankston East supplementary election., This was contested by 16 candidates and say an informal rate of 4.77%.

House of Representatives Informal Vote Research: Victoria

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	26.05	21.81
Non Sequential	n.a.	n.a.	n.a.	14.15	20.39
Larger Style	n.a.	n.a.	n.a.	3.22	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	3.05
Total numbering errors	51.8	49.3	34.8	43.42	45.25
Blanks	17.5	15.9	24.1	24.95	24.16
Marks / Writing	6.3	11.9	11.5	8.23	20.14
Ticks and Crosses	23.6	22.5	27.3	12.97	7.40

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

NOTES

- Victorian state elections take place for two chambers. The Legislative Assembly consists of 88 electorates. A Legislative Council election is conducted in conjunction with every state election. The electoral system for the Legislative Council was changed ahead of the 2006 election.
- Until 2002, the Legislative Council consisted of 22 provinces, each province consisting of four Assembly district. Each province was represented by 2 MLCs, elected at alternate elections. On rare occasions, by-elections were held for the second Council seat at the same time as the general election.
- In 2006, the state was divided into eight provinces, each covering 11 lower house electorates and electing five MLCs. This reduced the Legislative Council from 44 to 40 seats and also ended the staggered terms of MLCs, with all Legislative Councillors now elected at the same time as all members of the Legislative Assembly.
- Under the old system, electors receive two ballot papers, both for single member electorates with members elected under compulsory preferential voting. Unlike other jurisdictions using proportional representation in the upper chamber, voters do not receive a giant ballot paper that allows a single '1' to be cast as a formal vote.
- It is most likely that this consistency of electoral system and ballot paper was the reason why Victoria had the lowest level of informality under compulsory preferential voting. The Legislative Council's electoral system also made it harder for minor parties to win election, which probably explains why Victoria has also not seen dramatic increases in the number of registered parties and minor party candidates.
- At the 2006 election, Victoria introduce proportional representation for a reformed Legislative Council. In line with the levels of informal voting in every other state, informal voting rose in the Legislative Assembly, and for the first time, informal voting was higher in the Assembly as opposed to the Council.
- The Victorian Electoral Commission carried out informal vote research for nine lower house districts. (See Section 8, Report to parliament on the 2006 Victorian State Election.) The research found that 26.4% of votes were single '1' votes, 21.3% blank, 7.0% insufficient numbers, 19.8% other numbering errors, 12.3% various ticks and crosses and 11.5% informal with deliberate writing. The Commission noted that the incidence of '1' only voting had increased since the last informal vote research at the 1988 election.

QUEENSLAND

Informal Voting at Federal Elections in Queensland 1990-2004

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	..	..	..	..	..	..	..
3	2.1	..	..	..	..	..	..
4	2.2	..	3.0	..	..	..	..
5	2.1	..	2.4	2.7	5.3	4.3	..
6	2.5	2.5	2.6	3.1	4.6	5.0	3.5
7	2.1	2.4	2.4	3.4	4.5	5.4	3.4
8	..	2.7	2.9	3.3	4.0	4.8	3.2
9	..	2.6	2.4	3.3	5.6	5.5	4.0
10	..	2.7	2.6	..	..	..	..
11	..	2.7	..	..	..	..	5.1
Overall Informality							
House	2.2	2.6	2.6	3.3	4.8	5.2	3.6
Senate	2.5	2.0	3.3	3.0	3.0	2.8	
Electorates	24	25	26	27	27	28	29
Candidates per seat	4.6	8.2	6.9	7.1	6.7	7.3	7.4

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at State Elections 1986-2004

Candidates per electorate	% Informal Vote by Number of Candidates							
	1986	1989	1992	1995	1998	2001	2004	2006
2	2.74	4.44	2.63	2.06	..	4.09	2.36	2.25
3	1.95	2.93	2.20	1.64	1.31	2.16	1.98	2.05
4	1.94	2.59	2.10	1.60	1.51	1.98	1.99	2.14
5	2.59	2.96	2.51	1.83	1.43	2.01	1.93	2.00
6	4.32	3.22	2.17	1.58	1.38	1.96	2.15	1.81
7	..	4.36	..	1.48	1.50	2.03	1.51	1.83
8	2.47	..	2.41	..	1.59	1.64	..	..
9	..	..	..	..	1.74	1.88	..	..
Informal Vote	2.17	3.01	2.25	1.75	1.45	2.27	1.99	2.08
Electorates	89	89	89	89	89	89	89	89
Candidates per seat	3.3	3.8	3.9	3.3	4.9	4.1	4.0	3.7

House of Representatives Informal Vote Research: Queensland

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	46.42	44.57
Non Sequential	n.a.	n.a.	n.a.	10.49	9.79
Langer Style	n.a.	n.a.	n.a.	2.00	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	4.63
Total numbering errors	55.2	52.4	47.4	58.91	58.99
Blanks	9.5	12.0	17.7	15.67	15.24
Marks / Writing	6.5	10.3	10.7	4.91	15.65
Ticks and Crosses	29.0	24.8	21.6	11.46	7.37

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

NOTES

- Queensland elections are conducted for single chamber, as the state parliament does not have an upper house.
- Optional preferential voting was introduced before the 1992 election. For a formal vote, only a single first preference is required and single ticks and crosses qualify as a voter's clear intent.
- Even under compulsory preferential voting in 1986 and 1989, Queensland saw a lower level of informal voting than in any other jurisdiction. With only a single chamber elected, it may be voters pay more attention to ballot paper instructions, and there is no confusion with different voting systems in the second chamber.
- The lack of an upper house may also be why the number of candidates per electorate has not increased, minor parties not needing to contest every seat to increase their chances in the upper house.
- The clearest consequence of optional preferential voting is that there is no evidence of informal voting increasing as the number of candidates rises. However, there is evidence of confusion at Federal elections, with voters in Queensland having the highest incidence of casting votes with only a single preference.

WESTERN AUSTRALIA

Informal Voting at Federal Elections in Western Australia 1990-2004

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..
4	..	2.4	3.4	..	..	..	..
5	2.9	2.4	3.0	..	..	..	..
6	3.5	2.4	2.8	3.5	4.5	..	..
7	4.5	2.5	3.7	3.4	4.8	4.5	2.7
8	4.2	3.0	..	4.6	4.6	5.8	4.0
9	4.3	3.5	..	4.8	5.8	5.5	4.4
10	..	..	3.4	5.1	5.8	5.4	4.6
11	..	..	..	..	..	..	4.6
12	..	..	..	5.5	..	..	..
Overall Informality							
House	3.7	2.5	3.2	4.2	4.9	5.3	3.9
Senate	2.9	2.1	3.5	2.7	3.6	3.5	
Electorates	14	14	14	14	15	15	15
Candidates per seat	6.6	6.1	5.7	7.8	7.7	8.3	8.3

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at State Elections 1989-2005

Candidates per electorate	% Informal Vote by Number of Candidates				
	1989	1993	1996	2001	2005
2	2.64	3.07	2.53	..	..
3	7.60	3.61	5.12	..	..
4	7.15	3.67	4.45	3.93	4.73
5	7.95	4.36	4.02	4.03	4.66
6	9.78	3.83	4.38	4.69	5.10
7	..	4.61	5.07	4.53	5.20
8	..	5.32	..	4.99	6.46
9	..	4.23	..	4.50	5.86
10	..	8.11	..	..	5.69
11	..	..	..	4.62	..
Overall Informality					
Legislative Assembly	7.35	4.13	4.39	4.54	5.24
Legislative Council	2.76	3.74	3.01	2.64	3.18
Electorates	57	57	57	57	57
Candidates per seat	3.8	5.0	4.1	6.4	6.6

House of Representatives Informal Vote Research: Western Australia

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	29.87	25.25
Non Sequential	n.a.	n.a.	n.a.	21.75	19.31
Langer Style	n.a.	n.a.	n.a.	4.18	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	4.97
Total numbering errors	44.0	56.7	36.3	55.80	49.53
Blanks	15.6	14.9	24.3	23.36	22.89
Marks / Writing	7.2	7.5	13.9	7.78	15.94
Ticks and Crosses	33.1	20.5	23.3	9.93	9.18

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

Western Australian Legislative Assembly Informal Vote Research

Informal Category	1989	1993	1996	2001	2005
Blank	12.8	21.4	26.8	23.2	30.9
Scribble	8.0	20.0	16.9	12.0	11.5
Number 1 only	50.4	22.6	25.6	29.4	27.0
Single Tick or Cross	16.0	14.7	14.3	14.5	12.5
Mix of marks	11.7	3.4	n.a.	1.6	2.0
Defective sequence	n.a.	15.5	n.a.	n.a.	n.a.
No first preference	n.a.	n.a.	9.0	8.1	6.0
More than one blank box	n.a.	n.a.	2.4	5.9	4.6
Elector Identified	0.1	0.2	0.2	0.4	0.4
Incorrect District	1.0	1.7	1.0	1.2	1.3
Others		0.5	3.8	3.8	4.0

Source: Western Australian Electoral Commission, Election Reports for elections from 1989 to 2005.

NOTES

- Since 1989 Western Australia, state elections have been conducted with similar formality rules to those used at Commonwealth elections. The Legislative Assembly is elected by compulsory preferential voting in single member electorates, the Legislative Council using compulsory preferential voting in multi-member regions. The major technical difference is that groups and candidates in the Legislative Council are aligned vertically on the ballot paper rather than horizontally.
- This new Legislative Council system was introduced at the 1989 election, and as with the introduction of the new Senate system in 1984, there was a dramatic increase in informal voting in the lower house. This has since declined, as more effort has been committed to encourage formal voting. In particular, the 1989 election saw a huge increase in '1' only voting, a rate that has declined at subsequent elections.
- Western Australia has a special provision for ballot papers with only two candidate. As noted in the 1984 AEC informal voting report, and as evidence at the 1991 NSW election showed, two candidate contests tend to lead to an increase in voters using ticks and crosses. In Western Australia, single ticks and crosses are allowed on two-candidate contests, and as a result, Western Australia is the only state where informal voting is lower for two-candidate contests than for ballot papers with more than two candidates.

- Western Australia also allows non-sequential ballot papers to remain in the count as formal if the intent of the voter is clear. These votes are informal under the Commonwealth Electoral Act. 'Langer' votes are also formal under the Western Australian Electoral Act, though the number of votes cast in this way appears quite low.
- As with all states using compulsory preferential voting, the informal vote tables show evidence of the informal vote rising as the number of candidates on a ballot paper increases.
- The categories of informal voting noted in research of Legislative Assembly ballot papers is broadly similar to that noticed in research at Commonwealth elections.

SOUTH AUSTRALIA**Informal Voting at Federal Elections in South Australia 1990-2004**

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..
4	3.5	..	3.5	..	..	..	..
5	3.6	2.6	4.0	4.3	5.2	..	4.1
6	3.6	3.9	3.1	4.7	6.2	5.8	3.4
7	3.7	4.4	4.1	4.2	5.5	5.0	4.2
8	..	3.8	5.0	4.7	4.5	5.3	3.8
9	..	4.9	4.7	5.1	..	6.9	..
10	..	..	4.5	..	..	..	..
11	..	4.1	..	..	..	..	..
Overall Informality							
House	3.7	4.1	4.1	4.5	5.5	5.6	3.8
Senate	2.5	2.3	3.3	2.8	3.1	3.5	..
Electorates							
	13	12	12	12	12	11	11
Candidates per seat							
	5.3	7.5	6.2	6.5	5.9	6.9	6.7

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at State Elections 1985-2006

Candidates per electorate	% Informal Vote by Number of Candidates					
	1985	1989	1993	1997	2002	2006
2	4.58	..	..	..	..	..
3	3.13	2.79	2.87	3.92	..	..
4	3.99	2.48	2.71	3.83	1.74	3.57
5	2.84	3.03	2.71	3.91	2.61	3.47
6	..	5.25	3.41	4.37	3.14	3.49
7	3.70	..	4.89	5.18	3.21	4.15
8	..	..	4.52	..	4.01	4.51
9	..	..	..	..	3.61	..
Overall Informality						
House of Assembly	3.47	2.83	3.10	4.04	3.12	3.60
Legislative Council	3.70	3.89	3.54	4.32	5.40	5.17
Electorates						
	47	47	47	47	47	47
Candidates per seat						
	3.5	3.8	4.8	4.2	6.4	5.7

House of Representatives Informal Vote Research: South Australia

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	36.63	30.91
Non Sequential	n.a.	n.a.	n.a.	13.40	14.12
Larger Style	n.a.	n.a.	n.a.	1.05	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	3.05
Total numbering errors	41.0	48.1	37.6	51.08	48.08
Blanks	18.8	20.3	28.1	24.52	23.16
Marks / Writing	9.3	11.0	9.7	5.97	13.72
Ticks and Crosses	30.9	20.1	23.7	14.95	11.72

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

South Australian House of Assembly Informal Vote Research

Informal Category	1985	1989	1993	1997	2002	2006
Blank Ballots	41.7	44.3	46.7	45.9	42.3	50.1
Marked but no vote indicated	41.0	19.1	20.7	30.3	17.2	17.7
Total with no first preference	82.7	63.4	67.4	76.2	59.5	67.8
Defective marking	11.5	30.5	26.8	20.5	15.2	17.0
Unacceptable preferencing	n.a.	n.a.	n.a.	n.a.	21.8	13.5
Total with incorrect preferences	11.5	30.5	26.8	20.5	37.0	29.5
Other informal votes	5.8	6.0	5.8	3.3	3.5	2.7
Total informal votes	3.5	2.8	3.1	4.0	3.1	3.6
Accepted ticket votes	4.1	6.0	5.9	4.9	4.0	4.6
Average number of candidates	3.5	3.8	4.8	4.2	6.4	5.7

Source: South Australian Election Statistics from 1985 to 2006

- Like the Commonwealth and Western Australia, South Australian elections are for two chambers, the House of Assembly elected by compulsory preferential voting and the Legislative Council elected under compulsory preferential voting and with the use of group ticket voting.
- There are two provisions that make the pattern of informal voting in South Australia different from elsewhere.
- First, South Australia is the only state where the ballot papers states that the voter can leave the ballot blank. As a result, 'blank ballot' informal voting is much higher at South Australian state elections.
- Second, all lower house candidates can register is 'ticket' vote. These tickets are displayed on all voting screens in polling places, assisting voters who do not receive how-to-vote cards. The 'tickets' are also used as a savings provision. All ballot papers that would otherwise be informal, that is marked with a tick, a cross, a single '1' or with an incomplete set of preferences, can remain in the count. If the vote matches the registered ticket of the candidate for which the ballot papers first preference is cast, then the ballot papers is admitted to the count, and the preferences are deemed to flow according to the ticket.
- A consequence of these provisions is that unlike Western Australia and the Commonwealth, South Australian lower house informal voting is lower than in the upper house.

TASMANIA

Informal Voting at Federal Elections in Tasmania 1990-2004

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	..	..	..	..	..	..	..
3	3.5	..	..	..	..	..	..
4	3.4	2.8	2.3	2.8	2.9	3.6	..
5	2.4	2.7	2.4	2.5	3.3	3.5	..
6	..	2.6	..	2.4	..	3.9	2.8
7	..	..	..	..	..	..	3.2
8	..	..	..	..	4.3	..	..
Overall Informality							
House	3.3	2.7	2.4	3.1	3.4	3.6	2.9
Senate	3.1	2.6	3.2	3.1	3.3	3.4	
Electorates	5	5	5	5	5	5	5
Candidates per seat	4.0	4.6	4.6	5.4	5.4	5.0	6.2

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at State Elections 1986-2002

	% Informal Vote							
	1982	1986	1989	1992	1996	1998	2002	2006
House of Assembly	5.66	5.93	5.35	4.54	5.40	3.90	4.87	4.44
Electorates	5	5	5	5	5	5	5	5
MPs per electorate	7	7	7	7	7	5	5	5
Candidates per seat	25.4	17.2	20.6	27.0	31.6	27.6	22.4	19.0

House of Representatives Informal Vote Research: Tasmania

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	23.60	22.37
Non Sequential	n.a.	n.a.	n.a.	13.17	8.19
Langer Style	n.a.	n.a.	n.a.	6.88	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	2.75
Total numbering errors	44.6	45.2	31.4	43.65	33.31
Blanks	17.7	16.8	30.7	27.86	28.21
Marks / Writing	9.8	16.8	14.0	12.11	24.66
Ticks and Crosses	27.4	27.1	22.2	15.84	11.42

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

Informal Voting Research: Tasmanian Legislative Council

Electorate	Year	% Defective Numbering
Buckingham	1998	10.1
South Esk	1998	8.4
Nelson	2000	8.1
Rowallan	2000	9.3
Huon	2001	12.9
Montgomery	2001	8.6
Rosevears	2001	11.8
Aspley	2004	14.4
Elwick	2004	7.6
Murchison	2005	10.2
Rumney	2005	6.9
Wellington	2006	13.3

- Tasmania uses the Hare-Clark electoral system. Candidates are grouped by party on the ballot paper, but the order candidates appear in each group is randomised. How to vote cards are banned, as is canvassing outside of polling places. Tasmania uses the same five electorates for both State and Commonwealth elections, electing five member from each constituency to elect the House of Assembly. Ballot paper must have as many preferences as there are vacancies to be filled, currently five.
- The Tasmanian Legislative Council uses single member electorates and limited preferential voting. A minimum of three preferences are required for a formal vote. Legislative Council are held every year for two or three electorates. They are held in May and must be on a different day to the House of Assembly election.
- Informal voting research on Legislative Council ballot papers consistently shows lower rates of informal voting caused by defective numbering, roughly only a third of the rate seen at Federal elections.

AUSTRALIAN CAPITAL TERRITORY

Informal Voting at Federal Elections in the ACT 1990-2004

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	..	..	..	..	..	..	..
3	..	..	3.3	..	..	..	..
4	..	..	2.6	..	..	..	2.3
5	2.6	..	..	..	..	3.4	..
6	3.3	2.9	2.7	..	3.4	..	..
7	..	..	..	2.8	3.6	..	2.4
8	..	..	..	2.9	..	..	..
9	..	3.8	..	..	..	..	..
Overall Informality							
House	3.0	3.4	2.8	2.9	3.5	3.4	2.3
Senate	2.4	1.6	2.5	2.0	2.3	2.5	
Electoraltes	2	2	3	2	2	2	2
Candidates per seat	5.5	7.5	4.3	7.5	6.5	5.0	5.5

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at Territory Elections 1989-2004

	% Informal Vote					
	1989	1992	1995	1998	2001	2004
Legislative Assembly	5.7	6.5	6.2	4.3	4.0	2.7
Electoraltes	1	1	3	3	3	3
MPs per electorate	17	17	5/7	5/7	5/7	5/7

House of Representatives Informal Vote Research: Australian Capital Territory

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	28.76	35.57
Non Sequential	n.a.	n.a.	n.a.	7.66	4.88
Langer Style	n.a.	n.a.	n.a.	0.8	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	3.05
Total numbering errors	36.2	41.7	32.9	37.22	43.50
Blanks	19.3	18.4	25.7	30.84	23.58
Marks / Writing	12.2	14.8	12.4	4.20	20.21
Ticks and Crosses	30.5	21.6	26.1	8.99	8.00

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

ACT elections are conducted under the same Hare-Clark rules as Tasmania. The major difference is that the ACT has two electoraltes with five members, and one with seven. Ballot paper instructions state that this many preferences must be filled in, but the test of formality requires only that a voter's first preference be clear. All further preferences are optional.

Informal voting has fallen in recent years as the number of blank ballot papers has declined. It is believed the early high incidence of blank ballot papers may have related to the controversial granting of self-government to the ACT.

NORTHERN TERRITORY

Informal Voting at Federal Elections in Northern Territory 1990-2007

Candidates per electorate	% Informal Vote by Number of Candidates						
	1990	1993	1996	1998	2001	2004	2007
2	..	3.1	..	..	..	..	..
3	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..
5	..	..	3.4	..	..	4.9	4.9
6	..	..	..	..	4.9	..	2.9
7	3.4	..	..	4.2	4.4	4.0	..
Overall Informality							
House	3.4	3.1	3.4	4.2	4.6	4.4	3.9
Senate	2.8	2.8	2.8	2.0	2.8	3.1	
Electorates	1	1	1	1	2	2	2
Candidates per seat	7.0	2.0	5.0	7.0	6.5	6.0	5.5

Source: Australian Electoral Commission published results, calculations by author.

Informal Voting at Territory Elections 1987-2005

Candidates per electorate	% Informal Vote by Number of Candidates					
	1987	1990	1994	1997	2001	2005
2	..	3.68	4.20	5.79	4.88	4.17
3	3.73	3.33	3.40	4.33	3.51	3.41
4	5.19	2.09	3.42	4.82	4.88	3.69
5	3.28	6.25	..	..	4.04	3.73
6	..	3.32	..	..	..	..
Legislative Assembly	4.14	3.10	3.81	5.17	4.27	3.75
Electorates	25	25	25	25	25	25
Candidates per seat	3.4	3.3	2.5	2.6	3.5	3.2

House of Representatives Informal Vote Research: Northern Territory

Informal Category	1984	1987	1996	2001	2004
Number '1' only	n.a.	n.a.	n.a.	27.95	27.65
Non Sequential	n.a.	n.a.	n.a.	15.06	19.85
Langer Style	n.a.	n.a.	n.a.	14.56	n.a.
Incomplete numbering	n.a.	n.a.	n.a.	n.a.	3.71
Total numbering errors	44.3	40.4	n.a.	57.6	
Blanks	10.2	13.7	n.a.	20.74	18.77
Marks / Writing	6.8	12.7	n.a.	2.98	15.60
Ticks and Crosses	38.5	32.9	n.a.	10.62	9.00

Source: 2001 and 2004 figures from "Analysis of Informal Voting During the 2004 House of Representatives Election, Australian Electoral Commission Research Report Number 7." Earlier years taken from relevant AEC informal voting research reports.

- Until the 2005 Territory election, party names did not appear on ballot papers in the Northern Territory. Uniquely in the Territory, candidate pictures appear on the ballot paper. There is no upper house in the Northern Territory, so voters receive only a single ballot paper.
- Informal voting research was carried out for the first time after 2005 NT Election. Blank ballot were 15.3%, scribble 20.9%, Multiple ticks and crosses 9.1%, single ticks and crosses 26.2%, incomplete numbering 3.2%, non-sequential 10.5% and '1' only 8.3%. Overall, ballot papers with defective numbering was 24.9%, much lower than at Federal elections in the Territory.

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Croydon

HOW TO VOTE
AUSTRALIAN DEMOCRATS
HOUSE OF ASSEMBLY
DISTRICT OF
CROYDON

2 BELTRAME, Teresa
1 PINE, Kerrin
3 WHITEHOUSE, Briony
4 ATKINSON, Mick

OR

2 BELTRAME, Teresa
1 PINE, Kerrin
4 WHITEHOUSE, Briony
3 ATKINSON, Mick

Authorised by A. Treg, 711 South Rd Black Forest
Printed by Australian Democrats 711 South Rd Black Forest

How to vote
Australian Labor Party
HOUSE OF ASSEMBLY DISTRICT OF
Croydon

2 BELTRAME, T.
3 PINE, K.
4 WHITEHOUSE, B.
1 ATKINSON, Mick
Australian Labor Party

Authorised and printed by D. Feeney, 141 Gilles Street, Adelaide.

How to vote
AUSTRALIAN GREENS
HOUSE OF ASSEMBLY
District of CROYDON

1 BELTRAME, Teresa AUSTRALIAN GREENS
2 PINE, Kerrin AUSTRALIAN DEMOCRATS
4 WHITEHOUSE, Briony LIBERAL PARTY
3 ATKINSON, Mick AUSTRALIAN LABOR PARTY

Authorised by K. Phelan, 239 Wright St, Adelaide 5000.
Printed by Single Step Printing, Lot 1 Helps Rd, Burton 5110.

How to vote
LIBERAL
HOUSE OF ASSEMBLY
DISTRICT OF
CROYDON

3 BELTRAME, Teresa
2 Pine, Kerrin
1 WHITEHOUSE, Briony
4 ATKINSON, Mick

Printed and authorised by J. Burston, 104 Greenhill Road, Unley 5061.

Handwritten notes:
see notes
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NEW BALLOT PAPER USED FOR ASCOT ELECTION ON
19 MARCH, 1988

Western Australia Ballot Paper

Election of one member of the Legislative Assembly

Ascot

Vote only in one way

This way	OR	This way
<p>Fill in one square only. Place the number 1 in one of these squares to show the voting ticket you choose.</p>		<p>Fill in all squares. Place the numbers 1 to 5 in the squares to show the order of your preference for the candidates.</p>
LIBERAL <input type="checkbox"/>		<input type="checkbox"/> BLAXELL Peter Liberal
INDEPENDENT		<input type="checkbox"/> WARD Mike Independent
or INDEPENDENT <input type="checkbox"/>		<input type="checkbox"/> MISAMA Luke Independent
or AUSTRALIAN LABOR PARTY <input type="checkbox"/>		<input type="checkbox"/> JACOBS Cedric Independent
or <input type="checkbox"/>		<input type="checkbox"/> RIPPER Eric Australian Labor Party

Source: Scott Bennett, Affairs of State: Politics in the Australian States and Territories, Allen and Unwin, 1992

Handwritten notes:
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ANALYSIS OF SOUTH AUSTRALIAN TICKET VOTE: 2002 ELECTION

Party	Commonwealth Rules		S.A. Tickets		Admissable '1' Only		Including Tickets		Including '1' Only	
	Votes	%	Votes	%	Votes	%	Votes	%	Votes	%
Labor Party	331,575	36.4	12,984	34.3	12,164	41.5	344,559	36.3	343,739	36.6
Liberal Party	363,028	39.9	15,901	42.0	15,901	54.2	378,929	40.0	378,929	40.3
Australian Democrat	68,737	7.6	2,289	6.0	58	0.2	71,026	7.5	68,795	7.3
Family First	23,827	2.6	1,198	3.2	0	..	25,025	2.6	23,827	2.5
Greens	21,372	2.3	960	2.5	0	..	22,332	2.4	21,372	2.3
One Nation	21,405	2.4	1,428	3.8	0	..	22,833	2.4	21,405	2.3
S.A. First	15,910	1.7	992	2.6	0	..	16,902	1.8	15,910	1.7
National Party	13,307	1.5	441	1.2	332	1.1	13,748	1.5	13,639	1.5
Others	50,974	5.6	1,704	4.5	859	2.9	52,678	5.6	51,833	5.5
Formal	910,135		37,897		29,314		948,032		939,449	
Informal	68,434	7.0	0	0.0	8,583	22.6	30,537	3.1	39,120	4.0
Total	978,569		37,897		37,897		978,569		978,569	

ANALYSIS OF SOUTH AUSTRALIAN TICKET VOTE: 2006 ELECTION

Party	Commonwealth Rules		S.A. Tickets		Admissable '1' Only		Including Tickets		Including '1' Only	
	Votes	%	Votes	%	Votes	%	Votes	%	Votes	%
Labor Party	405,481	45.3	19,234	44.2	18,854	53.9	424,715	45.2	424,335	45.6
Liberal Party	304,005	33.9	15,036	34.5	14,717	42.1	319,041	34.0	318,722	34.2
Greens	58,236	6.5	2,713	6.2	0	..	60,949	6.5	58,236	6.3
Family First	52,062	5.8	3,130	7.2	0	..	55,192	5.9	52,062	5.6
Australian Democrats	26,017	2.9	1,162	2.7	0	..	27,179	2.9	26,017	2.8
National Party	18,698	2.1	938	2.2	755	2.2	19,636	2.1	19,453	2.1
Dignity 4 Disabled	3,766	0.4	208	0.5	0	..	3,974	0.4	3,766	0.4
One Nation	2,398	0.3	193	0.4	0	..	2,591	0.3	2,398	0.3
Others	24,945	2.8	939	2.2	660	1.9	25,884	2.8	25,605	2.8
Formal	895,608		43,553		34,986		939,161		930,594	
Informal	78,582	8.1	0	0.0	8,567	19.7	35,029	3.6	43,596	4.5
Total	974,190		43,553		43,553		974,190		974,190	

Informal Voting – 1984 Federal election

	Formal Votes		Identifiable Preference		New Total	
	Votes	%	Votes	%	Votes	%
Labor Party	4,120,130	47.5	217,169	55.7	4,337,299	47.9
Liberal Party	2,978,891	34.4	113,478	29.1	3,092,369	34.2
National Party	921,151	10.6	25,998	6.7	947,149	10.5
Australian Democrats	472,204	5.4	21,205	5.4	493,409	5.4
Others	172,576	2.0	12,376	3.2	184,952	2.0
Formal	8,664,952		390,226		9,055,178	
Informal	630,469	6.8	0	0.0	240,243	2.6
Total	9,295,421		390,226		9,295,421	

Informal Voting – 1987 Federal election

	Formal Votes		Identifiable Preference		New Total	
	Votes	%	Votes	%	Votes	%
Labor Party	4,238,663	45.9	148,420	49.4	4,387,083	46.0
Liberal Party	3,190,729	34.6	98,893	32.9	3,289,622	34.5
National Party	1,048,249	11.4	25,502	8.5	1,073,751	11.3
Australian Democrats	557,262	6.0	20,247	6.7	577,509	6.1
Others	200,183	2.2	7,513	2.5	207,696	2.2
Formal	9,235,086		300,575		9,535,661	
Informal	480,354	4.9	0	0.0	179,779	1.9
Total	9,715,440		300,575		9,715,440	

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Problems with the Senate Counting System

Example based on 2007 Victorian Senate Count

At the end of Count 214 in the 2007 Victorian Senate count, the following four candidates remained in the count. The quota for election was 454,625.

Votes	Quotas	Candidate (Party)
448,120	0.9857	David Feeney (Labor)
353,070	0.7766	Scott Ryan (Liberal)
423,408	0.9313	Richard Di Natale (Greens)
138,798	0.3053	Gary Plumridge (Family First)

Plumridge was the next candidate excluded. His votes included ticket votes for five groups with next preference for Scott Ryan. These were Family First (77,147 ticket votes), the D.L.P. (32,026), the Christian Democrats (6,358), Conservatives for Climate and Environment (4,003) and Non-Custodial parents Party (1,344). The only ticket votes with Family First showing preferences to Labor were One Nation (12,557). There were a further 5,363 below-the-line votes.

All votes with Plumridge at full value were distributed at the next count. This elected both Scott Ryan and David Feeney. The totals were as follows

Transfer	Votes	Quotas	Candidate (Party)
+13,856	461,976	1.0162	David Feeney (Labor)
+123,698	476,768	1.0487	Scott Ryan (Liberal)
+1,032	424,440	0.9333	Richard Di Natale (Greens)
-138,710	88	0.0002	Gary Plumridge (Family First)

One Nation had lodged a preference ticket that had Labor ahead of the Liberal Party, with the Greens last. If One Nation had put the Liberal Party ahead of Labor on the ticket, then when Family First was excluded, Labor's David Feeney would not have reached a quota and the preferences of the Liberal Party's surplus to quota votes would have been distributed.

What is even more remarkable is that if One Nation had put the Liberal Party ahead of Labor, then the Greens' Richard Di Natale would have won the final vacancy, not Labor's David Feeney.

This would have occurred due to the formula used by the AEC to weight votes when determining the preferences of surplus to quota votes. There are different methods in which preferences can be weighted. The purpose of this discussion is to look at the different ways in which votes could be weighted and the impact this can have on a Senate Count.

Re-Constructing the Liberal Vote

The following examples takes the count at the end of count 214 and makes one change to what occurred at the 2007 election. It has been assumed that the One Nation ticket flowed to the Liberal Party before Labor. All other votes are assumed to have flowed as in the actual count.

The other assumption that has had to be made is the value of the transfer value that applies to Liberal Party ticket votes transferred to Ryan from the first two Liberal candidates, Mitch Fifield and Helen Kroger. There were in total 1,249,731 Liberal ticket votes. At count 214, these all resided with Ryan, but at a reduced transfer value of 0.275739.

Using the changed One Nation ticket total, the totals at the end of Count 215 would now be:

Transfer	Votes	Quotas	Candidate (Party)
+1,299	449,419	0.9885	David Feeney (Labor)
+123,698	489,325	1.0763	Scott Ryan (Liberal)
+1,032	424,440	0.9333	Richard Di Natale (Greens)
-138,710	88	0.0002	Gary Plumridge (Family First)

On this count, Feeney remains 5,206 votes short of a quota, while Ryan has a surplus of 34,700 preferences. For the purpose of this example, I will ignore the residual of 88 Family First votes, and proceed to the next count which is to distribute Ryan's surplus.

What occurs is that the weightings applied to the ballot papers held by Ryan will determine whether Feeney or Di Natale win the final position. On my calculation based on the system used for the Senate Count, Di Natale would win the final seat on this count. Under an alternative method which could be used, Feeney would win the last position.

To understand how these different outcomes occur, we need to look at the composition of Ryan's vote. As we know the source of the ticket votes, we can re-construct the final count.

Re-Constructed Count For Scott Ryan (Liberal): Victoria 2007

Party Ticket	Ballot Papers	Transfer Value	Votes	as % of Votes	as % of Ballots	Next Pref
Liberal/National	1,249,731	0.275739	344,599	70.42	89.62	GRN
Cons Climate Env (*)	4,033	1.000000	4,003	0.82	0.29	GRN
Socialist Equality	754	1.000000	754	0.15	0.05	GRN
Family First (*)	77,147	1.000000	77,147	15.77	5.53	ALP
D.L.P. (*)	32,026	1.000000	32,026	6.54	2.30	ALP
One Nation (*)	12,557	1.000000	12,557	2.57	0.90	ALP
Christian Democrat (*)	6,358	1.000000	6,358	1.30	0.46	ALP
C.E.C.	1,584	1.000000	1,584	0.32	0.11	ALP
Non-Custodial Parents (*)	1,344	1.000000	1,344	0.27	0.10	ALP
Group T	496	1.000000	496	0.10	0.04	ALP
Below-the-line	8,252			1.72		
Total ballots/Votes	1,394,454		489,325			

(*) – transferred from Family First, the last bundle of votes received.

The problem that occurs at this point occurs because of the difference between a 'ballot paper' and a 'vote'. A ballot paper is a physical piece of paper, or these days, the stored computer version of its preferences. A vote is the ballot paper times its transfer value, or more normally the total of ballot papers multiplied by the transfer value. It is this distinction between ballot papers that is at the heart of what follows.

Quota Preferential voting is a generic term for all different versions of multi-member preferential voting used in Australia, whether it be Hare-Clark or different versions of the Senate system. Under all different forms of Quota Preferential voting, the surplus value is the same, Ryan's vote minus the quota, a surplus of 34,700.

What differs is the votes examined to determine the the votes to distribute as preferences. There are three common methods.

Gregory method

Used in Hare-Clark, the Gregory method is sometimes called the 'last bundle' method. The bundle of votes examined for preferences at this point would be those votes transferred from Family First at the last count. The surplus is 34,700, the votes transferred 123,698, the transfer value 0.2805219. Only the 4,033 ticket votes for Conservatives for Climate and Environment had preferences for the Greens, so the overwhelming proportion of preferences distributed under this method would flow to Labor and elect David Feeney.

Inclusive Gregory method

This is the current Senate system. Rather than only look at the votes distributed at the last count, all votes held by the candidate at the point where they were elected are examined to determine surplus to quota preferences. However, the Inclusive Gregory method now uses ballot papers rather than votes to determine preferences. Our surplus is 34,700, but our ballot papers to be examined is 1,394,454, a transfer value of 0.0248842.

Under this system, the last candidate elected in the Victorian example would be Richard Di Natale. How will be explained in a moment.

Weighted Inclusive Gregory Method

This method is the same as the Inclusive Gregory method, except that ballot papers retain their transfer values, so determining the distribution of preferences is done by transferring votes, not ballot papers. In the Victorian example, the surplus is 34,700, the votes 489,325, the transfer value 0.0709140.

Under this system, David Feeney would win the final vacancy.

Why do Inclusive Gregory and Weighted Inclusive Gregory Produce Different Results?

In the table on the previous page, the votes for Ryan were broken down by source. The final three columns expressed these sources as a % of Ryan's votes, as a % of Ryan's ballot papers, and the next preference for these votes. The following table accumulates the previous table by next preference

Scott Ryan (Liberal): Votes by Next preference

Next Preference	Ballot Papers	Votes	Weighted Inclusive % of Votes	Inclusive Gregory % of Ballots
Green	1,254,488	349,356	71.40	89.96
Labor	131,512	131,512	26.88	9.43
Below-the-line	8,252		1.72	
Total ballots/Votes	1,394,454		489,325	

Under the Inclusive Gregory method, all of Ryan's ticket votes received from the Liberal Party suddenly come into the equation at their original ballot paper value. This means that in the 34,700 ballot paper surplus of Ryan, we suddenly are over-sampling the Liberal vote. Where only 71.40% of the votes held by Ryan were Liberal ticket votes that helped elect him, when we look at his preferences, the Liberal preferences now makes up 89.96% of his ballot papers.

Under the Inclusive Gregory method, only 9.43% of the 34,700 votes flow to Labor. That is a total of only 3,272 votes flowing to Labor, where Labor need 5,206 to elect Feeney. The use of the Inclusive Gregory Method has resulted in Liberal ticket votes making up 89.62% of preferences, as opposed to 70.42% which was the number of Liberal ticket votes that were part of Ryan's total of votes.

The Weighted Inclusive Gregory method would sample votes for preferences at their present transfer value, which is their value as votes rather than ballot papers. In the above table, that means 26.88% of votes have next preference for Labor, and with a surplus of 34,700, that would mean 9,327 preferences for Labor, enough to elect Feeney.

Conclusion

With electoral systems, the question is not always a matter of being right or wrong. As outlined above, there are several different ways in which votes could have been counted at the point where Scott Ryan was elected. The purpose of this exercise has been to try and illustrate that there are different methods of doing the calculations, and consideration should be given to whether the most appropriate method is currently being used.

The Senate's voting system can always produce perverse results, even more so with the use of ticket voting which can guarantee the delivery of preferences. As shown in the previous example, just switching One Nation preferences to flow to the Liberal Party ahead of Labor resulted in Labor falling just short of a third quota and resulted in Liberal preferences being distributed.

If this was just a result of One Nation preferences, I would not consider this a problem. Whenever a party's votes flow through another party, there is always the chance their value will be discounted by them becoming part of a candidate's surplus to quota votes.

But as this example has shown, the preferences of all parties are not always treated the same. In this example, the Liberal Party's preferences are given greater weight than other parties at the point where Ryan was elected and his preferences were distributed.

The current Inclusive Gregory method, by using ballot papers rather than votes, gives greater weight to the preferences of any party that has already exceeded a full quota of votes. In the example used here, instead of all votes used to elect Ryan being used to determine preferences, all ballot papers are used. The Inclusive Gregory method effectively determines preferences in this case by looking at the surplus as a proportion beyond the third quota.

It is my argument that it would be better to use the Weighted Inclusive Gregory method as outlined above. This would mean that the proportion of votes distributed from Ryan as surplus to preferences would be in the same proportion as the votes that elected Ryan. Instead of the earlier quotas of the major party coming into play in determining preferences, only the votes at present value of the elected candidate would be considered.

The problem of using the Inclusive Gregory Method had been outlined before in JSCEM submissions, though I believe the explanation I have given here provides a better illustration of the problem.

The Western Australian Electoral Act has been recently amended to introduce the Weighted Inclusive Gregory Method. It is the first jurisdiction to move in this way. I believe it is important that the JSCEM should consider recommending that the Commonwealth Electoral Act be amended in the same manner.