The Matrix Vote: Electing an all-party coalition cabinet

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Abstract

One method of electing the cabinet of a coalition government is the matrix vote, the outcome of which is (almost) bound to be proportional to party support, with, potentially, each minister serving in that position for which those voting think he/she is most suited. This article discusses the concept of the matrix vote, describes an experiment that was conducted to see how it might work, and assesses its practical implications.

Keywords: Borda, consensus, matrix vote, power-sharing

1 Introduction

The matrix vote is a form of proportional representation that uses voters' ranked preferences not only to determine a set of winning candidates but also to assign them to specified positions. Unlike other forms of proportional representation, therefore, the matrix vote ballot requires that voters report their choices in two dimensions. In the first dimension, every voter may rank as many candidates as there are positions; in the second dimension the voter specifies his/her choice of a position for each ranked candidate. The votes are then used in two election counts: the first to determine who has been elected, the second to assign each successful candidate to a position. The matrix vote could be used for the election of:

1. A government of national unity (GNU), by a parliament, when cabinet appointments are restricted to members of the parliament;
2. The members of a constitutionally imposed power-sharing executive by elected legislators, as in Northern Ireland or any other post-conflict zone, assuming again that only the legislators may serve in the executive;
3. A majority-coalition cabinet by the parliamentary parties concerned;
4. A shadow cabinet by a party in opposition;
5. The chairs of various committees and sub-committees in parliament or local councils, again by all concerned;
6. A company board and/or a trades union executive by its members;
7. An executive committee by an association at its annual general meeting; or
8. An executive committee by a political party at its annual conference.

Those elected by the matrix vote would have a common rank as member of the cabinet, executive or committee, but each would undertake a different function—the minister of finance or of foreign affairs in government, for example, or the chair-person or treasurer on an executive committee.

If a matrix vote were to be used in the Irish Parliament, *Dáil Éireann*, for the election of a cabinet of 15 ministers (the number in government in Oct. 2009), the ballot paper would be as shown in Table 1. Because the matrix vote is a form of proportional representation, the outcome of such an election would probably if not inevitably be a proportional, all-party, power-sharing coalition cabinet, that is, a government of national unity. The methodology is particularly appropriate for post-conflict societies, not least because it

Table 1. The ballot paper**.** A valid full ballot would contain the names of 15 different TDs (Members of Parliament), one name in each column and one in each row.

	Preferences														
Department of:	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th
Taoiseach, or Prime Minister															
Enterprise, Trade and Employment															
Finance															
Health and Children															
Transport															
Justice, Equality and Law Reform															
Foreign Affairs															
Arts, Sport and Tourism															
Community, Rural & *Gaeltacht* Aff.															
Social and Family Affairs															
Defence															
Environment, Heritage, Local Gov,															
Communications, Energy, Nat. Res.															
Education and Science															
Agriculture, Fisheries and Food															

works without party labels let alone ethno-religious designations.[1]

2 The Matrix Vote—A Short History

The matrix vote was invented by the author. As noted above, it consists of two election counts of one set of ballots. The first election count could be based on any of a number of voting systems for proportional representation, but I consider the most appropriate to be a version of the 'quota Borda system' (QBS) devised by Michael Dummett [3, pp. 283–94; 4, pp. 151–57]. For the second election count, to appoint each of the newly elected to a particular post, I recommend the 'modified Borda count' (MBC—see Section 3.1 below).

The matrix vote was first demonstrated at a cross-community public meeting of over 200 persons, held in Belfast in 1986 under the auspices of the New Ireland Group (NIG).[2] A description of this voting mechanism was published [5, pp. 59–63] to coincide with *The Other Talks*, another NIG cross-party conference on consensus decision-making held in October 1991. The de Borda Institute ran a seminar on electing a power-sharing executive by this methodology in Belfast in 1998, to coincide with the Peace Process. And most recently, an experiment using the matrix vote, a role-playing experiment for electing a GNU, was conducted in Dublin in 2009.

The matrix vote has been adopted by both the NIG and the Northern Ireland Green Party and has often been used for the election of incoming executives at their respective AGMs.

[1] In Northern Ireland, members of the Assembly must 'designate' themselves as 'unionist', 'nationalist' or 'other', and these designations are used in any consociational votes. In Lebanon, certain governmental appointments are allocated by confessional beliefs, and in Bosnia, some posts are shared according to ethno-religious demarcations.

[2] Despite being some eight years before the ceasefire, this 'experiment in consensus' attracted over 200 persons, including senior figures from both Sinn Féin and the UUP, then known as the Official (now Ulster) Unionist Party. It was successful and a consensus was found. They concluded: 'Northern Ireland to have devolution and power-sharing under a Belfast-Dublin-London tripartite agreement'. It was, as it were, a mini-Belfast Agreement, twelve years ahead of its time.

In addition, it has been used by Mediation Northern Ireland to help solve an industrial dispute, and it has also been demonstrated abroad, for example in seminars in Bulgaria and Germany.

3 The Two Election Counts

The matrix vote is used to elect a fixed number of individuals, *n*, each of whom is to undertake one of *n* different functions. In choosing such an executive of *n* members, each voter in the electorate is permitted to nominate, in his/her order of preference, up to *n* different individuals, and to propose one of *n* different posts for each of these nominees. In effect, the voter gives a 1 to his/her 1st preference candidate to be in one particular post, and may give a 2 to his/her 2nd preference candidate to be in another particular post, and so on. As in STV, a vote need contain only a 1st preference in order to be valid.

3.1 The First Election Count

Dummett's QBS (quota Borda system), a variation of which is used for the first election count, is built on two ideas:

1. Representation is given to any sufficiently large set of voters who are 'solidly committed' to a particular set of candidates. The set of voters *S* is solidly committed to the set of candidates *C* if every voter in *S* ranks every candidate in *C* ahead of every candidate that is not in *C* [3, p. 282]. The quota, *q*, that specifies the size that a coalition must be, in order to deserve one representative under QBS is $V/(n + 1)$, rounded up to an integer, where *V* is the number of voters and *n* is the number of candidates to be elected [3, p. 284]. The number of representatives that any solid coalition deserves is the smaller of a) the number of voters in the coalition divided by *q*, rounded down to an integer, and b) the number of candidates in the set to whom the voters are solidly committed.[3]

2. Positions not filled on the basis of solid coalitions are filled by the candidates who have the highest 'modified Borda counts', (MBCs). In a Borda Count (BC), where *n* is the number of candidates, points are awarded to (first, second … last) preferences according to the rule of either (n, $n - 1$, …, 1) or ($n - 1$, $n - 2$, …, 0). In an MBC with the same number *n* of candidates, points awarded are (m, $m - 1$, …, 1), where *m* is the number of candidates that the voter has ranked. In those instances where the voter has cast a full ballot, there is no difference between the two; where the voter has cast a partial ballot, however, the difference can be considerable.[4] The reason I recommend MBC rather than BC is that MBC generates a very strong incentive for voters to rank as many candidates as there are positions to be filled.

In addition to this difference between BC and MBC, there is one other important difference between current rules for the first count of the matrix vote and the QBS rules proposed by Dummett: Instead of providing representation for coalitions that are solidly committed to candidate sets of all sizes, as Dummett proposes, representation based on solid coalitions is provided, in the case of elected bodies of three or four members, only for single candidates and pairs of candidates gaining one or more quotas of 1st and 1st/2nd preferences respectively, while for elected bodies of five or more members, representation based on solid coalitions is provided for single candidates and pairs and triplets of candidates with sufficient top preferences (more details below).

QBS, which is used for the first election count, proceeds by stages, with each stage after the first undertaken only if seats are still unfilled. The limit on consideration of top preference in the Dublin experiment was the simpler one (as if the executive were of only three or four members). Such a count is conducted as follows. In stage i) any candidates receiving a quota of 1st preferences are elected. In stage ii), if a pair of candidates gains 2 quotas of 1st/2nd preferences, then both candidates in that pair are elected.[5] Only

[3] If all voters were in coalitions whose sizes were exact multiples of *q*, then one too many representatives would be selected, and it would be necessary to choose one at random to be excluded.

[4] In fact, this (m, $m - 1$, …, 1) rule is similar to that which was originally proposed by J-C de Borda [2; 9, p. 197].

[5] A 'pair with 2 quotas' is defined as follows: if *x* people cast 1st/2nd preferences for Messrs. F and H; if *y* people cast 1st/2nd preferences for Messrs. H and F; and if $x + y \geq 2$ quotas, then the F/H pair has 2 quotas [6, pp. 41 et seq.].

candidates still unelected are included in any subsequent calculations. In the next stage, iii), seats are awarded to those pairs of candidates gaining 1 quota of $1^{st}/2^{nd}$ preferences, the actual seat going to the candidate of the pair with the higher MBC score. Finally, in stage iv), any remaining seats are awarded on the basis of MBC scores only. So, while success in stages i) and ii) can be achieved just by achieving the required quantity of top preferences, success in the later stages depends on the candidates' MBC scores, which tend to be highly dependent on cross-party support.

3.2 The Second Election Count

The second election count, conducted by MBC, is concerned with the allocation of successful candidates to positions. For this count, the tellers create a table showing how many MBC points each winning candidate received for each position.

An example is shown in Table 2. The first step in the second count is taken on the basis of the largest cell total. The position represented by the row of this cell is assigned to the person represented by the column of the cell. Next, the second-largest cell total is considered. If this is for the same candidate who received the first position, or if it is for the same position as was assigned to that candidate, then it is skipped, and the third largest total is considered. The count continues, examining the cells in order of decreasing total, and each time a cell is encountered that is for a position that has not been assigned to a candidate and for a candidate who has not been assigned a position, the position is assigned to that candidate. If all the cells with positive points have been considered and not all positions have been filled, the remaining positions are filled by successively awarding the remaining *position* that received the most total points to the remaining *candidate* who received the most total points, until all positions have been allocated.

4 The Dublin Experiment

Because of the parlous state of the Irish economy in 2009, there was much talk about the desirability of a government of national unity (GNU). At the time, however, there was little or no discussion of how such a coalition could or should be chosen. Because negotiations for majority coalition governments, let alone a GNU, tend to be both protracted and problematic, the de Borda Institute decided to conduct a trial to see if, in theory, a parliament could elect a GNU, a proportional, all-party, power-sharing, coalition cabinet, by means of a matrix vote.

If the *Dáil* were to elect such a GNU by this methodology, every TD (*Teachtai Dála*—member of *Dáil Éireann,* the Irish Parliament) would be a candidate for all 15 departments in the cabinet (although, if he/she so wished, any TD could state in advance that he/she did not want to stand for any one, or more, or even all of the ministerial posts). Furthermore, every TD would be able to vote for a cabinet among TDs from all parties in his/her order of preference.

In a QBS election of 15 cabinet members, if all 165 of the TDs (all, that is, except the Speaker) submitted votes, the quota would be 11. A party with more than 7 per cent of the seats in the *Dáil* could expect to win about the same percentage of the executive, so a party with 40 per cent of the seats could realistically hope for 6 of the 15 ministerial positions. Therefore a TD from this party would be well advised, having cast the first 6 or maybe 7 preferences for his/her party colleagues, to cast any lower preferences for those TDs of other parties whom he/she considered suitable likely contenders.

To make the experiment simpler, the Dáil was assumed to contain just 48 TDs, namely, those listed in the appendix, all of whom have achieved a certain degree of prominence in Irish society. The numbers of TDs from the parties were proportional to the strengths of the parties, but the smaller number did mean that independent TDs were excluded. It would have been easier if the experiment had been to elect a government of as few as just 6 ministers, but this would have made it more difficult to demonstrate the proportionality that is so important for a procedure for electing a GNU.

The participants in the experiment were thirty members of the public. They were not asked their party affiliations. In a rotation determined by the sequence in which they

Table 2. The results of the QBS and MBC elections**.**

	Successful TDs															Total points
	MM	*RQ*	*RB*	*JG*	*SC*	*CO*	*BL*	*ND*	*AS*	*DA*	*BC*	*LV*	*EG*	*BS*	*OM*	
Department of:	FF	Lab	FG	GP	FG	SF	FF	FF	FG	FF	FF	FG	Lab	FF	FG	
Taoiseach, or Prime Minister	292		258													550
Enterprise, Trade and Employment		7			181											271
Finance		151					272						16			439
Health and Children									212				4			303
Transport								1				55				266
Justice, Equality and Law Reform			13					236								403
Foreign Affairs			103												176	294
Arts, Sport and Tourism																344
Community, Rural and *Gaeltacht* Aff.				2												209
Social and Family Affairs											5		122			215
Defence										11	197					334
Environment, Heritage, Local Gov.				130						201						375
Communications, Energy, Nat. Res.						89						138				308
Education and Science													36	178		260
Agriculture, Fisheries and Food												7	2			129
QBS success	1st	2nd	3rd	4th	5th	6th	7th	8th	9th tie	9th tie	11th	12th	13th	14th	15th	
Singletons, 1st prefs, totals	17	7	5	5	3	3										
Singletons, quotas of 1st prefs	5+	2+	1+	1+	1	1										
Pairs, double quotas of 1st/2nd prefs	(6)						6									
Pairs, single quotas of 1st/2nd prefs								-	-	-	-	-	-	-	-	
MBC point totals	292	158	374	132	181	89	272	237	212	212	202	200	180	178	176	

The 15 most successful TDs with their party affiliations are shown along the top. Their QBS results and MBC totals are shown at the bottom, in orange, while their MBC cell totals for the various ministerial posts are in the matrix. The column on the right shows the total number of points cast in connection with each portfolio. If the numbers add up horizontally, as they do in the *Taoiseach* row, then no other candidates got any points for this post. If they do not add up, as in the Enterprise, Trade and Employment row, then one or more of the unsuccessful candidates also received some points for this Ministr.

arrived, each of the thirty persons was allocated to a particular party group—*Fianna Fáil* (FF), *Fine Gael* (FG), Labour (Lab), Progressive Democrats (PD), Green Party (GP), or *Sinn Féin* (SF). The first part of the evening was a PowerPoint presentation on the matrix vote and an explanation of the experiment. Each group then split into its own workshop, there to deliberate, with questions on the methodology to the organisers as required, as to how to cast their ballots. The party groups of 3–4 individuals were then given 20, 14, 5, 2, 2 and 1 ballot paper(s) respectively, in direct proportion to current party strengths in the *Dáil*, a total of 44 ballots. (The conduct of the experiment was not affected, therefore, by the actual number of participants.) The second half hour allowed for inter-party talks; this was a

fascinating exchange, as groups large and small sought to advance their own interests.

With 44 votes electing a cabinet of 15 ministers, the quota was 3. Thus Labour, with 5 votes, was guaranteed to get 1 person elected. That is, if just 3 of the Labour votes gave a 1st preference for one particular TD, the latter would be successful, albeit in an as-yet-unknown portfolio. FF, meanwhile, with 20 votes, had 6 quotas of 1st preferences, so if the FF group split their 18 votes appropriately, they could get 6 ministers elected; furthermore, if they cooperated with another party, they could use their 2 other votes to get a seventh minister. Alternatively, they could give all 20 of their 1st preferences to one particular TD for the post of *Taoiseach*, (Prime Minister), and thereby all but ensure that this individual would indeed become *Taoiseach*.

There were many possible tactical choices. Each party group could choose whom they wanted to be in the cabinet and who in which department, knowing that if they were the biggest party, they could pretty well guarantee for themselves the most important ministerial post but not necessarily the next most important, but maybe again the third portfolio, and so on. At the same time, they could use any other votes and many lower preferences in negotiations with other party groups.

The intra-group conversations were animated, while the subsequent inter-party negotiations witnessed much hard bargaining. Most groups chose to act in a fairly united way, and many of the FF and FG ballots, for example, followed their own distinct pattern. Because the experiment was conducted in Ireland, where all participants are quite used to the concept of preference voting in elections, the groups were well able to work out how best to use their 1st preferences. How to make the most of their subsequent preferences, however, proved to be more difficult, especially in the limited time available. Furthermore, it was relatively easy for the SF group, which had only one ballot, to decide on its tactics; it was much more difficult for the FF group, with its 20 ballot papers.

FF, the biggest group, decided that they wanted the post of *Taoiseach*, and that Micheál Martin was their candidate. Of the FF votes, 17 had preferences of Martin 1st, Lenihan 2nd, and 1 vote had preferences of Lenihan 1st, Martin 2nd. With their 2 other votes, the FF group came to a deal with SF so that the latter's Caoimhghín O'Caoláin also got a quota of 1st preferences. Most of the FF votes went on to give their 3rd-4th-5th-6th preferences to Noel Dempsey-Dermot Ahern-Brendan Smith-Brian Cowen, so all of these TDs got MBC scores sufficient for ministerial office.

With 14 votes, the FG group had 4 quotas of guaranteed seats and 2 'spare' votes. Five of their 1st preferences were for Richard Bruton; 3 for Simon Coveney; 3 for Ruairí Quinn of Labour; and 3 for John Gormley of the Greens. So Bruton and Coveney were elected in stage i), along with Alan Shatter, Leo Varadkar and Olivia Mitchell in stage iv), on the basis of their MBC scores. Labour's Quinn and the Greens' Gormley got lots of lower-preference support from the other FG votes.

Of their 5 votes, Labour gave 4 of their 1st preferences to Quinn. Quinn thus got 4 Labour plus the above 3 FG 1st preferences and was second in the QBS election. Labour's 2nd, 3rd and 4th preferences went to Bruton, Joan Burton, and Michael D. Higgins.

The PD group used their 2 votes in an attempt to get Mary Harney elected. They tried to do a deal with the FG group, but the latter, it later transpired, reneged. Both of the PD 2nd preferences went to Labour's Quinn and their 3rd preferences to the Greens' Gormley.

The 2 GP votes gave their 1st preferences to Gormley, their 2nd preferences to O'Caoláin (while SF gave Gormley only a 14th preference), their 3rd preferences to the PD's Mary Harney, and most of their lower preferences to FG and Lab.

Finally, the SF group, with only a single ballot, gave its 1st preference to O'Caoláin, most of its other high preferences to FF, and just the odd lower preference to Labour's Eamon Gilmore (12th) and, as already noted, the Greens' Gormley (14th).

5. The Outcome of the Vote

In the QBS election, as shown in Table 2, Martin, Quinn, Bruton, Gormley, Coveney and O'Caoláin all gained a quota of 1st preferences, so they were elected in stage i). In stage ii), the Lenihan/ Martin pair got more than 2 quotas of 1st/2nd preferences, so Lenihan was the seventh

person elected. There were no pairs of unelected candidates gaining a single quota of 1st/2nd preferences in stage iii); so all the other elected candidates were chosen in stage iv) on the basis of their MBC scores: Dempsey, Shatter, Ahern, Cowen, Varadkar, Gilmore, Smith and Mitchell.

The second election of the matrix vote—the allocation of the successful TDs to the portfolios shown in Table 3—was determined by portfolio-specific MBC cell totals in the matrix. The highest cell total was 292, for the selection of Martin as *Taoiseach*, and he was appointed to this position. The second highest matrix entry, 272, put Lenihan into Finance. The third gave Justice, Equality and Law Reform to Dempsey. And so on. In this way, 12 TDs were allocated, as shown in grey tint. This left 3 TDs still awaiting appointment and 3 posts unfilled, all shown in pink, but none of these 3 candidates had scored any points for any of these 3 departments. Accordingly, the remaining appointments were made on the basis of the most popular TD (as shown in the orange QBS popularity row at the bottom) gaining that portfolio for which most points had been cast (as shown in the right hand column). The corresponding appointments are indicated

Table 3. The appointments**.**

	Successful TDs															Total points
	MM	*RQ*	*RB*	*JG*	*SC*	*CO*	*BL*	*ND*	*AS*	*DA*	*BC*	*LV*	*EG*	*BS*	*OM*	
Department of:	FF	Lab	FG	GP	FG	SF	FF	FF	FG	FF	FF	FG	Lab	FF	FG	
Taoiseach, or Prime Minister	292		258													550
Enterprise, Trade and Employment		7			181											271
Finance		151					272						16			439
Health and Children									212				4			303
Transport								1				55				266
Justice, Equality and Law Reform			13					236								403
Foreign Affairs			103												176	294
Arts, Sport and Tourism																344
Community, Rural and *Gaeltacht* Aff.				2												209
Social and Family Affairs											5		122			215
Defence										11	197					334
Environment, Heritage, Local Gov.				130						201						375
Communications, Energy, Nat. Res.						89						138				308
Education and Science													36	178		260
Agriculture, Fisheries and Food												7	2			129
MBC point totals	292	158	374	132	181	89	272	237	212	212	202	200	180	178	176	

The MBC scores in the matrix are taken in descending order: 292 is the highest; 272 is 2nd; 236 is 3rd, and each of the top cell totals are ranked in this way, as described in the text, and as shown in tints of grey. A high cell total is not ranked if it has been superseded by another higher cell total. Thus while *RB* gets 258 points for the post of *Taoiseach*, that post is no longer vacant; such superseded cell totals are shown in yellow. The grey squares thus indicate which TDs have been allocated to which posts. The pink indicates those TDs, and those posts, which cannot be allocated on the basis of cell entries. And turquoise portrays those appointments for which these (3 pink) TDs received scores of 0.

in Table 3 in turquoise, while Table 4 shows the outcome.

6 Analysis

The overall outcome was as one might have expected from a reliable PR electoral system: FF, 6 seats; FG, 5; Lab, 2; PD, 0; GP, 1; and SF, 1.

There were some tactical disappointments. For example, FG tried to get Richard Bruton appointed as *Taoiseach* but his 258 points were trumped by the 292 points of Micheál Martin from FF. As a second option, the FG group hoped that Bruton would become Minister of Foreign Affairs, for which he got 103 points, but here too he lost, this time to his own party colleague, Olivia Mitchell, with 176 points. In like manner, the GP group lost the Environment, Heritage and Local Government Department, for while John Gormley got 130 points for this portfolio, Dermot Ahern of FF received 201 points. As it was, Gormley was appointed to Community Rural and *Gaeltacht* Affairs with only 2 points, hardly a ringing endorsement.

Perhaps the biggest weakness of the matrix vote relates to those ministers who were appointed with scores of 0: Ruairí Quinn, Richard Bruton and Caoimhghín O'Caoláin all became ministers in departments for which they had received no points at all. O'Caoláin, with only 89 points in total, could hardly object; but supporters of Quinn and Bruton, 2nd and 3rd in the QBS election, with total MBC scores of 158 and 374 respectively, had cause to be critical.

Table 4. The Outcome.

	Successful TDs															Total points
	MM	*RQ*	*RB*	*JG*	*SC*	*CO*	*BL*	*ND*	*AS*	*DA*	*BC*	*LV*	*EG*	*BS*	*OM*	
Department of:	FF	Lab	FG	GP	FG	SF	FF	FF	FG	FF	FF	FG	Lab	FF	FG	
Taoiseach, or Prime Minister	292 1st															550
Enterprise, Trade and Employment					181 7th											271
Finance							272 2nd									439
Health and Children									212 4th							303
Transport			0 14th													266
Justice, Equality and Law Reform								236 3rd								403
Foreign Affairs															176 9th	294
Arts, Sport and Tourism		0 13th														344
Community, Rural and *Gaeltacht* Aff.				2 12th												209
Social and Family Affairs													122 11th			215
Defence											197 6th					334
Environment, Heritage, Local Gov.										201 5th						375
Communications, Energy, Nat. Res.												138 10th				308
Education and Science														178 8th		260
Agriculture, Fisheries and Food						0 15th										129
MBC point totals	292	158	374	132	181	89	272	237	212	212	202	200	180	178	176	

This table shows the final cabinet, with each appointment shown in grey, with both the candidate's MBC cell total and his/her ranking in these appointments. Only information pertaining to the final cabinet is shown.

One of the unfilled appointments was the Department of Arts, Sport and Tourism, for which 344 points had been cast. Of these, the highest individual cell total of 165 points was for Pat Carey to take on this portfolio. But in the QBS election, Carey lost, albeit by a narrow margin: he was sixteenth. But why appoint someone with a score of 0, when the consensus of those voting appeared to support another?

Meanwhile, in the Department of Transport, a total of 266 points had been cast. Of these, Phil Hogan got a cell total of 146 and was eighteenth in the QBS election; the other candidate with a reasonable score for this Department was Leo Varadkar with 55 points, but his total MBC was 200 and he was already in the cabinet in the post of Communications, Energy and Natural Resources. So should Hogan have got the Transport job?

In a nutshell, was it right for Quinn and Bruton to get these two departments, with 0 points, when, in the consensus of those voting, others were more suitable? Should the rules be changed to allow for the appointment of ministers without portfolio, so that these two departments would be given to Carey and Hogan and the cabinet would be expended to 17 members? If this same logic were to be applied to the post of Agriculture and Rural Development, then Eamon Ryan would have been similarly rewarded, but he had a mere 69 points for that Department, and in the QBS election he was twenty-third in order of popularity. So would this mean a cabinet of 23 members, with a total of 8 without portfolio?

As explained below, if there were a real *Dáil* election with 165 voters, an outcome with such zero-point appointments would be unlikely. Furthermore, in any electoral system, there will always be winners and losers, and some of the latter might feel they have been 'pipped at the post'. Nevertheless, any feelings of disappointment with the outcome will usually apply not to the most popular figures, but to the less popular TDs, those who came 16th and lower in the QBS election and to those ministerial posts receiving smaller totals of points per portfolio.

7 The Potential Role of the Matrix Vote

The chances of the matrix vote being adopted by society at large, in business, trade unions and community associations, is probably fairly small, at least until such time as programs for electronic voting are more readily available. In political circles, however, prospects are better because the matrix vote allows all participants (e.g., every member of parliament) to seek selection (e.g., for the cabinet) by appealing to their fellow participants, and it allows all to have equal influence on the outcome, without resort to party labels, let alone sectarian or other designations. One disadvantage, in the view of some politicians, might be that it is quite difficult to predict the outcome, but such a property should really be regarded in a positive light. The more unpredictable an electoral system, the more difficult it is to dominate and control.

Another disadvantage, many will argue, is that it will allow extremists to exercise power: the likes of the Freedom Parties in Austria and the Netherlands. This criticism is somewhat off-target, however, for both of these parties have already exercised more than their fair share of power; the former joined the People's Party in a majority coalition in 2000, and the latter is currently supporting the Dutch administration [8]. With a matrix vote, any small party (and any big party, for that matter) would exercise influence and power only according to its proportional due.

In a majoritarian system, a small party—or even a single 'king-maker' independent—can occasionally wield excessive power. With all-party power-sharing, however, a small party should exercise only its fair share of power. It is interesting to note in this regard that some people oppose the introduction of PR electoral systems because, they say, it might allow extremists into parliament. The danger, however, lies more in the particular form of PR that is chosen. In Austria and the Netherlands, where extremists have indeed managed to achieve exaggerated prominence, party-list forms of PR are used. A preferential form of PR, such as STV or QBS, would provide a more accurate reflection of their support. Elections in Northern Ireland show that persons who vote for extreme parties often fail to cast any lower preferences for other parties, unlike those who support one or other of the more moderate parties, who often give lower preferences to candidates of 'neighbouring' parties, [7, p. 207]. This would tend to reduce the number of extremists elected. In the 2011

Assembly and local elections in Northern Ireland, for example, the Alliance Party, which is arguably the opposite of extremist, has done rather well.

Despite its benefits, the chances of the matrix vote being introduced in any democracy are probably minimal, not least because reform of the present structures depends, in large measure, on the cooperation of those who benefit from the current rules. The chances of persuading any government in general, or the *Dáil* in particular, to adopt the matrix vote are therefore slim. Before the February 2011 general election, FG was unlikely to agree to such a procedure for they knew FF was unpopular and over-represented. And now that FG has had such a successful election, it is even less likely to favour the idea of a GNU. Admittedly, it failed to gain an overall majority, so despite having a number of differences, not least on economic policies, it has formed a majority coalition with the Labour Party. At some future date, therefore, it could be open to using the matrix vote as a means by which the two parties might reshuffle a coalition cabinet.

Many Members of the Legislative Assembly of Northern Ireland are committed to power-sharing but opposed to sectarian or other designations. Since the matrix vote procedure is proportional and works without any labels, it might be favoured if those concerned were more aware of its existence and/or if the matrix vote were already in widespread use in society at large, for such situations as associations' AGMs.

Among the advantages of the matrix vote are: it allows a relatively large number of individuals to be eligible for election while allowing those who wish to opt out to do so; it provides a strong incentive for voters to cast full ballots of their preferences; it encourages cooperation rather than division; it is transparently inclusive; and it ensures a proportional result.

8 Possible Alternatives

Since the matrix vote could lead to the appointment of persons who, though popular overall, have no particular talents for the departments to which they have been appointed, there is at least one possible variation that might be attractive: parliament could elect the members of its all-party cabinet by PR (and the method I would recommend would indeed be QBS or at least STV). Then parliament could conduct a second vote to appoint each of these elected candidates to a department. In the Irish case, this would mean a QBS election with up to 165 candidates—all the TDs other than the Speaker—for the 15-member cabinet; and then a 'second count' MBC matrix vote with just these 15 to see who would be appointed to each ministry. Such a procedure would have the additional advantage that all votes in the second count would be for candidates who would actually be assigned to a particular portfolio.

The disadvantage of such a two-round procedure is that a lot of information would thereby be lost. When the matrix vote is conducted as it was in the above experiment, the levels of support received by various candidates, even by those not elected to the cabinet, were nevertheless apparent.

It is always possible of course, that those concerned will not use the matrix vote to its full potential, that certain persons will cast preferences only for colleagues from their own party, that in post-conflict scenarios, some persons may not vote for an individual because of the latter's ethno-religious identity, or simply because of their gender. That said, it is nevertheless true that most would probably be tempted to make full use of the power that a matrix vote would give them. Just as any member of a football club might rejoice if given the opportunity to help select a full team, and doubtless he/she would choose a full eleven players in all, each most suited (in that fan's opinion) to the position allocated, so too most members of parliament would probably be more than keen to vote for a full cabinet, if allowed to do so.

9 Conclusion

There are, indeed, possible weaknesses to the matrix vote. Given i) the task for which it is designed; ii) the fact that it is based on two electoral processings of the preferences cast; and iii) that Arrow's 'impossibility theorem' applies to every voting system [1]; some weaknesses are only to be expected. The main one encountered in the trial—the appointment

of ministers to departments for which they had received no support—is less likely if the number of those voting is larger. Thus, in real life, when all parties in the *Dáil* would have a fair understanding of the workings of the matrix vote, and if (nearly) all 165 non-Speaker members cast full ballots of 15 preferences, the chances of any TD being appointed to a department for which he/she had no support would be minimal. This is all the more true since, under such a form of governance, the bigger parties would be highly likely to engage in talks, just as they did in Germany in 2005, prior to forming a grand coalition. Even in the divided society of Northern Ireland with its d'Hondt system, 'departmental allocations were agreed in advance' [10, p. 186]. With a matrix vote, not least because, as explained above, the voting system itself encourages full ballots and cross-party voting, the prospects of such inter-party cooperation would be even greater. So the chances of a popular TD or MP finding him/herself appointed to a department with a score of 0 would be tiny.

In a majoritarian milieu, parties might not talk to each other. If the rules provided for cooperation, however, then the atmosphere might change. Ideally, a power-sharing executive would commit to taking its decisions by consensus. Politicians are always quick to understand the characteristics of any voting procedure. In STV, for example, because of its quota element, parties rarely nominate more candidates than they think will get elected. QBS shares this characteristic. Similarly, if the matrix vote were to be adopted, the nature of its procedures would almost certainly mean that politicians and parties would work in a more inclusive way

10 Acknowledgements

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About the Author

As director of the de Borda Institute, Peter Emerson has worked in many conflict zones—in Northern Ireland, the Balkans, the Caucasus, and East Africa—promoting consensus voting, including the matrix vote, in power-sharing structures of governance. His latest works include *Designing an All-Inclusive Democracy*, Springer-Verlag, 2007; *Party Politics in the Western Balkans* (co-ed.), Routledge, 2010; Consensus Voting and Party Funding, *European Political Science*, Vol. 9, № 1, March

2010, pp. 83–101; Proportionality without Transference, *Representation*, Vol. 46, № 2, July 2010, pp. 197–209; The Next Scottish Referendum, *Scottish Affairs*, № 73, Autumn 2010, pp. 36–54; and *Defining Democracy*, Springer-Verlag, 2011 (forthcoming).

Appendix: The 48 TDs, listed alphabetically by surname, with identifying initials for the winners.

Fianna Fáil (FF)	*Fine Gael* (FG)	Labour
Dermot Ahern (*DA*)	Richard Bruton (*RB*)	Joan Burton
Barry Andrews	Simon Coveney (*SC*)	Eamon Gilmore (*EG*)
Áine Brady	Jimmy Deenihan	Michael D. Higgins
Dara Calleary	Olywn Enright	Liz McManus
Pat Carey	Charlie Flanagan	Ruairí Quinn (*RQ*)
Mary Coughlan	Brian Hayes	Pat Rabbitte
Brian Cowen (*BC*)	Phil Hogan	Róisín Shortall
Noel Dempsey (*ND*)	Enda Kenny	7
Sean Haughey	Olivia Mitchell (*OM*)	
Tony Killeen	Denis Naughten	'Progressive Democrats' (PD)
Brian Lenihan (*BL*)	Fergus O'Dowd	Mary Harney
Conor Lenihan	James Reilly	Finian McGrath*
John Moloney	Michael Ring	2
Micheál Martin (*MM*)	Alan Shatter (*AS*)	
Éamon Ó Cuív	William Timmins	Green Party (GP)
Willie O'Dea	Leo Varadkar (*LV*)	John Gormley (*JG*)
Batt O'Keefe	16	Eamon Ryan
Peter Power		2
Dick Roche	*Sinn Féin* (SF)	
Brendan Smith (*BS*)	Caoimhghín O'Caoláin (*CO*)	
20	1	

*Finian McGrath is actually an independent TD.