Dublin City Council's Rosie Hackett Bridge: A Landmark in Decision-Making

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On 2 September, 2013, Dublin City Council voted to name the newest bridge over the River Liffey the Rosie Hackett Bridge. What makes this a landmark decision is that it seems to have been the first authoritative decision taken by a public body in Ireland – and perhaps even in Europe – to have used the voting procedure known as the Borda Count, referred to in the Council's proceedings as a Preferendum (Dublin City Council 2013a, item 24). This report summarises the process, analyses the results, and discusses some of the technical issues that arise with this method of voting. It concludes that the procedure was well suited to the task in hand.

Background

The process for naming the bridge was referred to the Commemorative Naming Committee chaired by Councillor Dermot Lacey. According to Lacey (personal communication), the committee agreed from the start that it would use an open, participatory process to find a name, and invited submissions from the public. In the course of the process, it received thousands of items of correspondence, including official applications for 85 names. This initial list was narrowed down to about thirty through a consensual process within the committee, starting by eliminating names of people who were still alive or had died less than twenty years earlier, as well as figures who had already been honoured by a public naming. The resulting list was then further reduced by discussion within the committee, leading in stages to a list of seventeen and then ten (Dublin City Council 2013b).

The list of ten was reduced within the committee to a shortlist of five, using a version of the Borda Count vote among the six members in attendance. The final shortlist was put to the full council, where all fifty-one members participated in a Borda Count vote. Details of these votes are given below.

The Borda Count

The Borda Count (hereafter BC) is a method of voting named after the eighteenth-century French mathematician who developed it, Jean-Charles de Borda. It is designed to pick a winner (or set of winners) from a group of more than two options or candidates. The basic BC method operates as follows: Each voter indicates their opinion on the options by numbering them 1, 2, 3… in order of preference. If there are n options, a voter's first preference is given n points, their second preference n-1, and so on. All of the points are added up and the option with the highest total is the winner.

The main advantage of the BC is that it takes into account voters' preferences among the complete set of options, and therefore favours policies that have wide support. By contrast, majority rule considers only first preferences, and can thereby lead to decisions that are strongly opposed by a large minority of the electorate.

There are several variants of the basic BC method. For instance, the best-known example in Europe of BC voting is the Eurovision Song Contest, where each country votes for their top ten alternatives, and the top two of these are given 12 and 10 points instead of 10 and 9.

One of the most common questions about the BC has to do with incomplete ballots. If, in a five-option context, a voter indicates only their first preference and this vote is given 5 points, it gains a 5-point lead over all the other alternatives, which seems unfair. In the Modified BC system (MBC), developed by Emerson (Emerson 2012), the solution is to give a voter's top preference m points, where m is the number of options actually voted for. So if a voter has indicated only their first two preferences, these are given 2 points and 1 point. The discussion below displays both BC and MBC results.

Use of the Borda Count by the Commemorative Naming Committee

The committee used a form of BC to reduce the shortlist from ten to five. Each member indicated their top five preferences on a secret ballot. All six voters used all five of their preferences. In the count, 5 points were given to a first preference, 4 to a second, etc. The five options with the highest scores were included in the final shortlist (Dublin City Council 2013b). Table 1 shows the complete count and its result.

Preferences voter	Abbey	Bermingham	Connolly	Duff	Hackett	Mills	Sigerson	Stoker	Walton	Yeats
1		3		5	1		4	2		
2	5	1		3		4		2		
3		2		4	3	1				5
4		2		4	5		1			3
5	1	3		2		5			4	
6			2	3	1	4			5	
Outcomes	Abbey	Bermingham	Connolly	Duff	Hackett	Mills	Sigerson	Stoker	Walton	Yeats
BC score	6	19	4	15	14	10	7	8	3	4
rank	7	1	8=	2	3	4	6	5	10	8=
1st prefs	1	1	0	0	2	1	1	0	0	0

Table 1. Committee vote. Numbers in upper section are individual preferences. Selected shortlist in red.

In Ireland, the question naturally arises of how the BC compares with Proportional Representation by Single Transferable Vote (PRSTV). This ballot shows a very clear difference. Since exactly five of the options received someone's first preference, those five would have been chosen by PRSTV.[2] They include 'Abbey' and 'Sigerson' instead of 'Duff' and 'Stoker'. Proponents of the BC argue that such a result neglects the clear evidence that 'Duff' is much more popular with the electorate as a whole than either 'Abbey' or 'Sigerson'. Since the point of *this* decision is to reflect public opinion as a whole rather than to select public representatives, it makes more sense to use a procedure that reflects overall popularity than one, like PRSTV, that privileges first preferences. (The first-past-the-post result in this case would have been the same as PRSTV, with the same disadvantage.)

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[2] A precise way of calculating the result would be to use the method of counting used in Irish Seanad elections (Government of Ireland 1947: Second Schedule), starting by giving each first vote a value of 1000, setting the quota at 1001 (6000/6 + 1), computing surplus of a 'Hackett' as 999, and distributing a value of 499 to each of 'Stoker' and 'Connolly'. As this would leave each of them more than 499 below the 1000 value attributable to 'Abbey', 'Bermingham', 'Mills' and 'Sigerson', those four would be deemed selected.

The use of the Borda Count in full Council

In the full Council meeting, all 51 councillors were invited to indicate their preferences among the five shortlisted alternatives.[3] At the meeting, the chair (Lord Mayor Oisín Quinn) was asked if it was necessary to rank all five alternatives. He replied that voters were not required to do so, but that they would be answerable to their constituents for whatever way they had completed their ballots, as these would be made public. Only twelve councillors returned incomplete ballots. 'Rosie Hackett' won the vote with 192 points. Table 2 gives the result of the ballot ('BC score') and also shows what the result would have been using the Modified Borda Count ('MBC score'). In this case, the use of MBC would not have affected the winner, but it would have led to a tie for second place.

	Bermingham	Duff	Hackett	Mills	Stoker
first preferences	15	1	27	6	2
second preferences	11	1	7	25	6
third preferences	11	8	4	13	7
fourth preferences	7	16	5	3	11
fifth preferences	1	15	7	1	15
BC score	167	80	192	176	92
MBC score	156	76	165	156	90

Table 2. Result of Council vote. For 'BC score', first preferences were given 5 points, second preferences 4 points, etc. For 'MBC score', see explanation in text.

Because 'Hackett' had an overall majority of first preferences, it would have won the vote straightaway if it had been conducted by first-past-the-post, PRSTV or multiple-round voting.[4]

Analysis by party

Because the ballots were public, it is possible to observe differences in voting patterns between and within political parties. Table 3 shows the basic BC result for the eight categories of councillors.

	Number of councillors	BC scores				
		Bermingham	Duff	Hackett	Mills	Stoker
Eirígí	1	3	1	5	4	2
Fianna Fáil	6	24	11	14	28	7
Fine Gael	12	51	24	24	41	39
Independent	8	31	14	34	25	15
Labour	17	37	25	80	60	23
People Before Profit	1	4	0	5	0	0
Sinn Féin	5	17	5	25	18	6
United Left	1	0	0	5	0	0

Table 3. Breakdown by party / group. Numbers are total BC scores. Top choice for each group shown in red.

The only party group that unanimously ranked one option first (namely 'Hackett') was Sinn Féin; even in this group, second and third preferences were split between 'Bermingham' and 'Mills'. The

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[3] One council seat was vacant.

[4] In multiple-round voting, voters choose one option in each round; the option with the lowest total is eliminated and another round takes place. Voting continues until one option has a majority of votes. This procedure is logically equivalent to PRSTV, provided voters do not change their preferences from one round to the next. I mention this procedure since it might have been employed if the Council had not used BC (Lacey, personal communication).

Labour Party was nearly unanimous in its first preferences for 'Hackett' (15 of 17 voters); its vote became more fragmented at lower preferences. The majority of Fine Gael's first preferences went to 'Bermingham' and the majority of Fianna Fáil's to 'Mills', but neither of these parties showed any evidence of coordination at lower preferences, and in neither of them was 'Hackett' consistently last. Overall, then, the data support a reading of the vote as reflecting a left-right polarity, since nearly all of the members of parties defining themselves as leftist[5] gave 'Hackett' their first preference, while no member of Fine Gael or Fianna Fáil did – they, on average, ranked 'Hackett' a bit better than fourth. It is important to emphasise, however, that the success of 'Hackett' depended on its being ranked *higher* than fifth by even these voters. We should not, therefore, read the result as a left-wing 'victory' but as indicating the centre of gravity in a field where preferences were certainly clustered, but still widely dispersed.

Some technical issues

All voting systems have theoretical anomalies, in the sense that their results can depend on factors that seem arbitrary according to democratic principles (Dummett 1984). One of the technical issues with the BC is that the result of a BC count can be affected by whether or not certain *losing* options are on the agenda at all, even when the voters' preferences among the other options are unchanged.[6] (Both PRSTV and first-past-the post carry the same risk.) Was the final BC result dependent on a shortlist of five alternatives, rather than, say, four or six? A close analysis of the results (not shown here) indicates that eliminating any of the four losing alternatives would not have affected the outcome.[7] However, it is theoretically possible that if the shortlist had contained a sixth option, there could have been a tie for first place between 'Hackett' and 'Mills' using the basic BC method, and a victory for 'Mills' using MBC. This result is shown in Table 4.[8]

	Bermingham	Duff	Hackett	Mills	Stoker	AN Other
first preferences	15	1	27	6	2	0
second preferences	11	1	5	25	6	2
third preferences	10	8	2	13	6	5
fourth preferences	6	13	4	3	11	5
fifth preferences	3	12	5	1	12	7
sixth preferences	0	6	7	0	4	32
BC score	209	112	224	224	127	91
MBC score	198	108	197	204	125	61

Table 4. Possible result in six-option contest. See text for details.

Since the BC is known to be theoretically vulnerable to this kind of result, we should not be too surprised by this example. What is reassuring in the present case is that a problematic result can be constructed only by means of very strict and unrealistic assumptions (see note 8 for an explanation).

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[5] I.e. Eirígí, Labour, People Before Profit, Sinn Féin, United Left.
[6] This is referred to in the academic literature with the unfortunate name of the principle of 'independence of irrelevant alternatives'.
[7] This was tested by computing the result of every four-option case that included Hackett.
[8] Table 4 is based on stipulating that everyone who preferred 'Mills' to 'Hackett' also preferred the sixth option to 'Hackett', but that everyone who preferred 'Hackett' to 'Mills' ranked the sixth option last. Note that no changes have been made to voters' preferences among the original five options. It is an accident of the set of preferences that the basic BC method generates a tie. If 'Hackett' had won the original contest by a slightly lower margin, 'Mills' would have won the six-option contest under both methods.

A related issue is that *all* voting systems are theoretically open to manipulation by 'strategic voting', i.e. voting differently from one's true preferences for the sake of achieving a more favoured outcome (Dummett 1984). For example, in first-past-the-post systems it makes strategic sense to vote for one of the two leading candidates, even if you would prefer someone else. In a BC system, the apparently obvious strategy is to place the alternative you think of as your biggest threat at the bottom of your list, so as to maximise the gap between your preferred option and that alternative. In the current example, proponents of 'Mills' might have done so by ranking 'Hackett' fifth, regardless of their actual preferences, while proponents of 'Hackett' might have done the opposite.

It is hard to know whether any councillors attempted to vote strategically, but the distribution of preferences does not suggest that this was at all widespread. For example, there was no consistent pattern in the lower preferences of voters with the same first preference.

We can, however, see what would have happened if everyone who ranked 'Mills' above 'Hackett' had bumped 'Hackett' down to fifth place, and vice versa. Table 5 shows the result.

	Bermingham	Duff	Hackett	Mills	Stoker
first preferences	15	1	27	6	2
second preferences	22	3	5	9	8
third preferences	5	19	0	4	14
fourth preferences	3	20	0	1	18
fifth preferences	0	0	18	24	0
BC score	184	114	173	104	120
MBC score	175	111	145	98	120

Table 5. Result of simple strategic voting by 'Mills' and 'Hackett' supporters.

What is striking in this result is that the strategy would have given victory to 'Bermingham', an alternative that many voters considered worse than either 'Hackett' *or* 'Mills'. In fact, the outcome of this kind of strategic voting in BC systems is very unpredictable, because when you drop the rank of one rival, you raise the scores of others. Supporters of BC argue that this unpredictability discourages strategic voting altogether.

In a basic BC vote, another simple form of strategic voting is to refuse to vote for any option you would not like to win, since this maximises the difference between the points assigned to one's favourite option(s) and those others. It is possible that some of the councillors who returned incomplete ballots were acting strategically in this way, but they might simply have been indifferent among the remaining options. The fact that 'Hackett' would have won under the MBC indicates that this strategy, if that is what it was, was not decisive in the present case. The effect of this strategy is also highly unpredictable: at its limit (where every voter ranks only one candidate), it is equivalent to first-past-the-post and defeats the purpose of a BC procedure. One of the advantages of the MBC is that it eliminates this form of strategic voting.

Conclusion

Dublin City Council's use of the Borda Count to name its new bridge was an important milestone in decision-making. A detailed analysis of its results in both the short-listing process and the final decision shows that it performed its purpose effectively. Although there were significant party-political differences in how councillors voted, the BC system exhibited one of its central virtues, namely its choice of an option that had at least some support even among its opponents.

The technical analysis of the process given above indicates some of the ways that the outcomes of the BC, like those of other systems, can be affected by seemingly insignificant issues, such as whether or not a losing alternative is on the ballot and how incomplete ballots are treated. However, it seems clear that these issues did not affect the outcome on this occasion. Although, like all voting procedures, BC systems are in principle open to strategic voting, there is no solid evidence in the present case of people voting strategically, and the case illustrates the unpredictable effects of attempting to do so.

At the end of the day, what matters is that a voting procedure reflects, as far as possible, what it is trying to measure. Borda Count procedures attempt to find the alternative (or set of alternatives) that has the most support from the electorate, taking their entire set of preferences into account. Choosing a commemorative name for a new bridge in the centre of Dublin should surely be based on that kind of information. It is therefore both appropriate and admirable that Dublin City Council used the Borda Count to make its decision.

References

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