DESIGNATIONS
and
THE APPOINTMENT OF THE 'JOINT FIRST MINISTERS'

Submission from the de Borda Institute

References: (a) *Democratic Decision-making, Consensus Voting for Civic Society and Parliaments,* 2020, (Springer, Heidelberg).

(b) your letter of 17th May.

INTRODUCTION

'Colour-blind' voting procedures exist. In this computer age, it is perfectly possible, both in decision-making and in electing the Ministers and the Executive, to deploy those voting procedures which do not resort to designations and/or party labels but which nevertheless are inclusive, robust and, most importantly, accurate. Furthermore, if in any such preferential ballot, any one outcome passes a certain threshold, these procedures can guarantee that the said outcome therefore has cross-party and cross-community support.

Accordingly, this paper will offer:

1 a critique of binary voting;

2 a debate on how best to identify a 'democratic majority opinion';

3 a determination of weighted majorities; and

4 a voting procedure for the appointment of "The Joint First Ministers" and the Executive.

1 BINARY VOTING

In most multi-party elected chambers, any debate on a controversial topic will doubtless see more than two options 'on the table'. If (in an undivided society) there is a cross-party majority in favour of something, the subject is perhaps not too contentious, and with binary voting, that option can easily be confirmed. On most occasions, however, binary voting is more likely to be problematic because, "when there is no majority *in favour* of any one option, there's a majority *against* every option." This truism was known to the Greeks, 2,500 years ago, and it was they who introduced rules for debate which still govern our decision-making today: choose first the preferred amendment, next the substantive, and then take the final decision. Everything is binary and therefore, it is argued, inadequate.

It works like this. Take a simple debate on three options – *A, B* and *C* – which are supported by factions of 40, 35 and 25% respectively. If the MLAs vote 'for' only their 1st preference, then *A* loses by 60%, *B* by 65% *C* by 75%... and there is indeed a majority against everything.

Something more sophisticated is required. So let it be assumed that their preferences are 40: *A-B-C;* 35: *B-C-A;* and 25: *C-A-B*. If the matter is still to be resolved by majority vote, two ballots will be required: a first round and a play-off. If they start with *A* v *B* for a final against *C, A* beats *B* by 65% whereupon *C* beats *A* by 60%. If the first round is *A* v *C, C* wins by 60% but loses to *B* in the final by 75%. And starting with *B* v *C, B* on 75% goes into the final, where it loses to *A* by 65%. In all, the option which has a bye into the final will always be the winner (which explains why in any multi-option debate where binary voting is to be used, the role of the chair can be decisive).

1.1   Conclusion

In binary voting, the answer often depends upon the question, (little wonder, then, that dictators such as Napoléon and Hitler liked this methodology: they chose the question and sure enough, that question was then the answer).[1] For a modern pluralist democracy, as has often been noted, a multi-option or even preferential procedure could be a more accurate and reliable measure. One of the first to make this suggestion was Ramón Llull, a Spanish Catalan, in 1199, and there have been many others since.

2   DEMOCRATIC MAJORITY OPINION

There are quite a few ways of identifying a democratic majority opinion. These include:
- plurality voting (as used in the Danish Parliament);
- two-round voting (as in Westminster's referendum in Newfoundland in 1948);
- the alternative vote AV (STV in its non-PR mode);
- a modified Borda count MBC, a points system (a form of which is used in part of Slovenian elections); and
- the Condorcet rule, which compares all the options in pairs (a more embellished version of the Swedish Parliament's serial voting).

Plurality voting might identify not the majority opinion but only the largest minority opinion. All of the other methodologies mentioned, however, can identify a democratic majority opinion… but maybe not the correct one. Consider, then, a hypothetical four-option debate, with options *A, B, C* and *D*, and a committee of 15 persons whose preferences on these options are as shown in Table I.

Table I   A Voters' Profile

Preferences	Voters			
	6	4	3	2
1st	*A*	*B*	*C*	*D*
2nd	*D*	*C*	*D*	*C*
3rd	*C*	*D*	*B*	*B*
4th	*B*	*A*	*A*	*A*

The subject is obviously controversial. 6 persons have preferences *A-D-C-B;* 4 have the exact opposite, *B-C-D-A*; while the other 5 don't want either *A* or *B*, and they have their own ideas.

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[1]   Only one dictator 'could not dictate properly' and Augusto Pinochet lost his third referendum in 1988.

Option *A* is obviously very divisive: six think it is the best but nine regard it as the worst! Opinions on option *B* are also polarised, albeit a little less so. So maybe options *C* or *D* best represent the consensus of the committee. The analyses of these preferences according to the various procedures mentioned are shown in Table II, and the 'democratic majority opinion' is either *B*, or *C*, or *D*.

Table II   The Analyses

Voting Procedure	Social Choice	Social Rankings			
plurality voting	*A*	*A*-6	*B*-4	*C*-3	*D*-2
two-round system	*B*	*B*-9	*A*-6		
AV	*C*	*C*-9	*A*-6		
MBC	*D*	*D*-43	*C*-42	*A*-33	*B*-32
Condorcet	*D*	*D*-3	*C*-2	*B*-1	*A*-0

2.1   A Second Conclusion

With some voters' profiles, there may well be more than one 'democratic majority opinion'. So not all of the above methodologies are accurate.

And nothing's perfect. But the MBC and Condorcet are the only voting procedures which count *all* the preferences cast by *all* those voting, *always*; little wonder, then, they are the more accurate – and therefore the most democratic – voting procedures.

The two can be compared to a football competition. With four (teams or) options, a knock-out system of binary (matches) ballots, (as in a tennis tournament), would obviously be inadequate; you cannot seed options. A league system in which every team plays every other team could be more accurate. So, the MLAs cast their preferences; then, in the analyses, the Condorcet winner is the option which wins the most (matches or) pairings;[2] while with the MBC, having turned the preferences into points, the social choice is the option which wins the most (goals or) points. As in politics (so too in sport): the Condorcet winner is often the same as the MBC social choice, (and Manchester City, the current league champion, also has the best goal difference).

The MBC identifies the option with the highest average preference. Assuming (for the moment) that all MLAs cast all their preferences, then the MBC winner will be, not the more popular of only two options, but the most popular of all, the superlative, giving "the greatest good for the greatest number." The MBC, therefore, is recommended as the decision-making methodology best suited to the Assembly.

2.2   A Postscript

If the MBC were to be applied to the voters' profile described in para 1 – 40: *A-B-C*; 35: *B-C-A;* and 25: *C-A-B;* – the social ranking would be *B*-210, *A*-205 and *C*-185.

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[2]   Options are considered in pairs: is *A* more popular than *B*? than *C*? than *D*? is *B* more popular than *C?*… etc. With four options, there are six pairings.

3 WEIGHTED MAJORITIES

In binary voting, victory may sometimes be claimed by the side which musters just 50% + 1; while with weighted majorities, the threshold may go up to 2/3rds + 1, or whatever.

In consensus voting, such narrow margins are insufficient. In say a ballot of five options – *A, B, C, D* and *E* – the maximum average preference score would be 1.00, the minimum 5.00, and the mean 3.00. Now a 'five-horse' dead-heat, with all five options getting an average preference score of 3.00, would be highly unlikely… and if such a result did occur, then obviously there would be no consensus and the debate would need to be resumed. If however the winning average preference score were greater than, let us say, 3.50, then there would indeed be a measure of agreement: at this level of 3.50, the option concerned could be called the best possible compromise; and if 4.00 is surpassed, such a result might be termed a consensus.

Consider for the moment the most divisive scenario, an Assembly polarised, 60% of one hue and 40% their opposites. In any debate and subsequent vote on five options, the mean average preference score would be, yes, 3.00. Well, if all 60% were to cast preferences *A-B-C-D-E*, and all 40 the exact opposite, *E-D-C-B-A*, the average preference scores for options *A* and *E* would be 3.40 and 2.60 respectively. Therefore, if the threshold were placed at 3.50, any result of, say, 3.60 would be bound to have, albeit small, cross-community support. In such an Assembly, maybe standing orders should best stipulate a threshold of 4.00.

Given the fact that the Assembly is not 60:40, that there are not only various Unionists and various Nationalists but also various Others, the MLAs may have total confidence that, in just such a five-option ballot, any outcome which did surpass this 4.00 threshold would indeed have support from across the board.[3]

3.1 Partial Ballots

In some debates, for reasons of conscience or whatever, some MLAs may not cast a full slate of preferences. For this reason, results of ballots are measured in 'consensus coefficients'.[4] Suffice to say that the rules of an MBC encourage (but do not force) the voters to cast all their preferences. As explained in reference (a), pp 37-8, it is always beneficial for every voter to participate and to the full in the democratic process: supporters of the eventual winner will increase their margin of success by submitting full ballots; likewise those likely to loose will also be advantaged by full participation.

In a debate on *n* options, a voter may cast *m* preferences, where

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[3]   In ballots of more or less than five options, the actual figures may vary a little; details in reference (a), pp 83-4.

[4]   The consensus coefficient CC_A of option *A* is a measure, not only of the said electorate's support for option *A*, but also of the degree to which the voters concerned have participated in the vote. It is defined as the total number of points received by option *A*, divided by the maximum number it could have received. In a five-option ballot in which all concerned cast all five preferences, an option's CC may vary from 0.20 to 1.00; if some MLAs cast only partial ballots, it may range from 0.00 to 1.00.

$$n \geq m \geq 1,$$
points are awarded to (1st, 2nd ... n^{th}) preferences cast according to the rule:
$$(m, m\text{-}1 \ ... \ 1) \text{ points.}$$
Accordingly:
+ he who casts only one preference gives his favourite just 1 point;
+ she who cast two preferences gives her favourite 2 points (and her 2nd choice 1 point);
and so on; while
+ those who cast all *n* preferences give their favourite *n* points, (their 2nd choice *n-1*, etc.).[5]

3.2   The Third Conclusion

A weighted majority is best defined in terms of a minimum consensus coefficient.

3.3   A Consensus Debate

Binary debates, including those which are to be resolved in consociational votes, tend to be adversarial. Consensus debates create a more inclusive milieu.

In an Assembly of, let us say, five parties, a controversial debate might involve up to five options 'on the table' and computer screen, (if not also a dedicated web-page). If any Party is not too keen on an original motion – option *A* – then, as in a German vote of confidence, it may propose an alternative – option *B*. Other parties may have their ideas as well – options *C, D* and *E* – but, as in peace negotiations, "everything is on the table." In the debate which follows, options may be tweaked, amended, composited or even deleted, but only if the original proposing Party agrees to such a change.

Accordingly, as the debate proceeds, the options may vary, both in substance and in number. If it all boils down to a singleton, this may be assumed to be the verbal consensus. If (as may often be more likely) disagreements still exist, the Speaker shall draw up a list of up to about five options and the MLAs shall cast their preferences. First, then, they talk *with* each other; next, they vote, again *with* each other; and no-one votes 'no' against anyone; then, if the outcome passes the threshold of a minimum consensus coefficient, the Executive shall execute.

4   ELECTING THE TWO FIRST MINISTERS

It is difficult to find two names or titles for the two First Ministers which do not imply an inequality between the two. For this reason, I settle for "The Joint First Ministers," or maybe "The Two Senior Ministers" (in contrast to the two Junior Ministers). When referring to just one of them, MLAs and others may use the phrase, "One of the Joint Ministers…" or "The Senior Minister…" "Mr X, Ms Y."

According to the original Belfast Agreement, fairness in the appointment of the two First Ministers was guaranteed by giving one to one side, in those days the UUP, and one to the other, the SDLP. At the same time, fairness in the appointment of the Executive was again supposedly guaranteed, with allocations under the d'Hondt scheme, (even though this divisor tends to favour

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[5]   The MBC should not be but often is confused with the Borda count, BC, which uses the rule (*n, n-1 ... 1*) or (*n-1, n-2 ... 0*).

the larger parties).[6] Overall, this meant that both the UUP and the SDLP had an unfairly large percentage of the full team of 12 Ministers. This paper therefore suggests the appointment of all twelve should be done in just the one election. The appropriate methodology, the matrix vote, is based on the MBC and is also, therefore, colour-blind.

It is of course quite difficult for the members of an elected chamber to negotiate a majority coalition government, let alone a Government of National Unity. After the last election in Belgium for example, the Parties concerned took 494 days to decide which Parties were to be involved and who of these Parties were to be appointed to which Ministries. The task is indeed complex, which explains why some countries have devised various formulas: Switzerland, the only non-conflict zone to enjoy all-party power-sharing, uses 'a magic formula'.[7] The Belfast Agreement , of course, stipulates a form of 'cherry picking' based on a d'Hondt interpretation of the election results; the Taif Accords in Lebanon base their distribution of seats on confessional beliefs; and the Dayton Agreement for Bosnia also perpetuates the very sectarian divisions the Peace Process was supposed to obviate.

As noted, however, a colour-blind procedure is possible. This matrix vote[8] is a tabular ballot, based on the MBC. It would allow every MLA to choose, in order of preference, both whom they want to be in Cabinet and in which portfolio. The appropriate ballot paper would be similar to that which is shown in Table III.

In the shaded part of the ballot paper, every MLA may choose, in order of preference, the 12 MLAs whom he/she wishes to be in the Executive. Then, in the matrix itself, (unshaded), opposite each of his/her nominees, the MLA may write "P1" (first priority) in the appropriate column.   A full ballot will have a single 'P1' in each column, and a single 'P1' in each row. The voting MLA may add a 'P2' and a 'P3' if he/she so wishes, just in case the said candidate is defeated in the 'P1' column's portfolio, in which case the relevant quantity of points shall be transferred to that candidate's sum in his/her 'P2' column.

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[6]   The St.Laguë divisor is rather more equitable, while of the two best known quotas, Hare is fairer than Droop.

[7]   *Zauberformel* or *formule magique*. Originally the seven members of the Federal Council were awarded to the top four Parties in the Parliament, according to the ration 2:2:2:1. With fluctuating electoral fortunes, this was changed to 2:2:1:1:1.

[8]   Invented in Belfast, the matrix vote was first put to the test at the New Ireland Group's People's Convention in 1986, and many times since. In collaboration with *The Irish Times*, DCU and CiviQ, a more modern version with electronic voting was demonstrated in Dublin in 2016, just after Ireland's 'inconclusive' general election.
http://www.deborda.org/home/2016/4/25/2016-5-ireland-let-the-dail-elect-a-govt.html
A full description of the matrix vote is given in reference (a), pp 46-51.

The matrix vote is PR, and with 90 MLAs electing 12 Ministers, the quota is 7.   In the count, the data in the shaded column is first analysed to see which twelve MLAs are the most popular;[9] next, in the matrix, ministries are allocated to these twelve in descending order of points received for the individual portfolios.

Table III   A Matrix Vote Ballot

Preferences	Names	The Executive		Justice	Health	Finance	Education	Agriculture	Economy	Infrastructure	Communities
		The Joint Ministers	The Two Junior Ministers								
1st											
2nd											
3rd											
4th											
5th											
6th											
7th											
8th											
9th											
10th											
11th											
12th											

Now if Party X has, say, 20 seats – i.e., two and very nearly three quotas – it can probably expect to get three members of Cabinet: one of The Joint Ministers perhaps plus two other ministerial posts; accordingly, a Party X MLA might wish to cast her top three or four preferences for her Party X colleagues. As noted earlier, the MBC encourages the voter to cast a full ballot. So she might as well use her remaining preferences for those MLAs of other parties with whom she thinks her Party can best cooperate. If Party Y, in contrast, has only, say, four Stormont seats, its MLAs might wish to act independently, though there is probably more to be gained by teaming up with either another small Party or perhaps a big Party willing to bargain with a fraction of a quota.

Like the MBC, the matrix vote encourages the MLA to submit a full ballot. In effect, therefore, a matrix vote incentivises the voting MLA to cross the gender gap, the party divide and even the sectarian chasm. Such a quality should surely be regarded as a prerequisite of any power-sharing polity's voting procedures.

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[9]   This could be done by PR-STV, which *allows* the voter to cross the party divide; the quota Borda system, QBS, which is actually much easier to understand than the rather convoluted PR-STV, would actually *encourage* the MLAs to do so.

Certainly, the choice is large[10] – a fact which most MLAs should surely relish. And the possibilities for cooperation are numerous, as also befits any power-sharing polity. What is likely, however, is an outcome which is at least as gender-balanced as is the Assembly itself; and guaranteed is the fact that the Cabinet will be an all-Party, power-sharing Executive in which not only shall the Ministers concerned represent their various Parties in proportional due, but (at least in the consensus of the Assembly) every one of them shall be well suited to his/her appointed Portfolio.

4.1   The Overall Conclusion

Majority voting has been (not *the* but) *a* cause of bitterness and division in many parts of the world; in the Balkans, for example, where "all the wars in the Former Yugoslavia started with a referendum," {*Oslobodjenje*, 7.2.1999, (author's translation)}; in Rwanda, where majority rule was imposed by the colonial powers and where, as a direct consequence, the *Interahamwe* launched their 1994 genocide with the slogan "*Rubanda nyamwinshi*," *'we are the majority'*; in Russia, where the very word 'majoritarianism' translates into 'bolshevism'; while in the Middle East, where even a two- let alone a one-state solution under majority rule would be fraught with fault lines; and so it goes on.

Sadly, the world over, politicians tend to avoid any study of voting theory, the science of social choice. Covid and Climate Change, however, are telling us all that, not only as nations, we must cooperate; but we must also work together, within nations. So every democracy – not just the Swiss variant and others in conflict zones – should have a form of all-party power-sharing. A minimal benefit would be to make conflicts less likely. The biggest gain could be to make the survival of our species more likely.

Power-sharing, however, cannot best be done by talking and then voting ('for' or) 'against' each other. It can be done though by talking and then casting preferences *with* each other, i.e., by using the MBC in decision-making, and the matrix vote in governance.

It should be noted that while the above is specifically proposed for the NI Assembly, such a polity could also be of benefit elsewhere:[11] certainly in other conflict zones, but likewise too in those nations which are sometimes beset by a binary and therefore a dysfunctional Congress/Parliament. Therefore, by adopting the above more modern inclusive structures, Northern Ireland could lead the world in using electronic preferential voting to establish a more consensual polity.

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[10]   In choosing 12 of 90 MLAs, in order of preference, each to one of 10 portfolios, every MLA has a choice of over 4.3×10^{26} different ways of voting; it's called pluralism.

[11]   Suffice here to say that the author has demonstrated the use of these consensus voting procedures in many jurisdictions, including conflict zones as in the Balkans and the Caucasus.