

Review Article

The rights and wrongs of roll-calls

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Keith Poole's new book *Spatial Models of Parliamentary Voting*¹ introduces readers to the remarkable progress that studies of parliamentary voting have made in the United States, compared to their much more modest progress elsewhere. Poole's book is an advanced manual, which may lose many readers of this journal by pp 11-12, when he states without explanation that voters' utility functions in political issue space are probably Gaussian exponential response functions. However, we would encourage readers to persevere, because this book is important both for what it says and for what it does not say: and both for its successful claims and for its unsuccessful claims. We begin by introducing the history of roll-call analysis before Poole.

The origins of roll-call analysis in Iowa and Rochester

Roll call analysis is simply the analysis of recorded votes in a legislature ('roll-calls' in US terminology). As explained below, this science is far advanced in (and in relation to) the USA. In particular, every roll call vote ever taken in the 200+ years' history of the House of Representatives is now available on-line, together with software written by Poole and his collaborators to interpret and classify the data. This is a truly monumental achievement.

Roll call analysis has been applied a little bit to other legislatures, including the Parliament of the French Fourth Republic and the European Parliament. Apart from a few brave forays, it has been little used to study roll calls in either house of the British Parliament. This is partly a data problem; partly an attitude problem; and partly a

deeper intellectual problem. The data problem is that machine-readable roll-calls for the House of Commons exist only for the Parliaments of 1841-7 and 1992 to date. For the House of Lords they are only now being developed in conjunction with the House authorities. That said, David Firth, with one of the present authors, has written a program in the statistical language and environment *R* which, in theory, would allow the conversion of paper copies of Hansard to electronic voting records via a high resolution document scanner. The attitude problem is that many historians and political scientists are unskilled in statistics and afraid of numbers and/or of computing. These problems are tractable. But there is a deeper problem, as we aim to show in this review article.

Poole's book says little about the early history of roll-call analysis and almost nothing about its founder, W. O. Aydelotte (1910-96). After a degree in classics at Harvard and a history Ph.D in Cambridge under the intimidating Herbert Butterfield, Aydelotte worked in the University of Iowa from 1947 for the rest of his life. He 'transformed a department of modest reputation into an exciting intellectual environment, while at the same time pioneering new modes of research and analysis in his field of history'.² Aydelotte was to quantitative history as, in the next generation, William Riker was to be to analytical political science. Both were great institution builders, at Iowa and Rochester respectively; both spread their disciples around an entire discipline.

Aydelotte was a great Anglophile. His choice of the UK Parliament of 1841-7 for his life's work was inspired. The repeal of the Corn Laws in 1846 was one of the cataclysmic events in British parliamentary history. Prime Minister Sir Robert Peel

had been elected in 1841 with a secure partisan Tory majority. His support base lay in agriculture and the Church of England. Both of them had a material interest in protection – against grain imports and other religions, respectively. Peel defied both. In 1846 he repealed the protectionist Corn Laws with the support of almost all the Opposition and only a third of his own party. Peel's contemporaries (including not only Richard Cobden but also Karl Marx and Friedrich Engels) recognised this as a revolutionary move, which ushered in the era of free-trade imperialism. It also destroyed the Tory Party until 1874. Every succeeding Conservative leader at times of crisis has announced that he will not do what Peel did (just as every Labour leader in crisis announces that he will not do as Ramsay MacDonald did).

Aydelotte coded all the principal roll-calls in the House of Commons of 1841-7 – 186 divisions in all. For each of 815 MPs who served in that parliament, he coded his vote on all 186 divisions, and added contextual information about the MP's party, constituency, education, career, and wealth. The result is an 815 x 300 cell data matrix which until recently was little used.³ To impose order on this mass of data, Aydelotte used Guttman scaling, which he learnt from his social scientist colleagues at Iowa in the mid 1950s.⁴ He produced no fewer than 21 scales, one of which ('the Big Scale') successfully scaled both most MPs and most of their votes, revealing a predominantly single-dimensional spatial world in which attitudes to Ireland, the established church, and the corn laws grouped together. There were some subsidiary dimensions orthogonal to the Big Scale – factory regulation was one – and one set of motions which Aydelotte could scale but not interpret – the Miles's motions scale. We return to Miles's motions below.

Keith Poole was a graduate student under the other great institution-builder, Bill Riker, and in all his work including this book (p. xv) he pays homage to his mentor. Riker's Rochester School has many classrooms. Riker himself was most interested in *multi-dimensional* politics and the possibilities of chaos (in the social choice sense). Where there is chaos, any outcome is possible, and there is no stable equilibrium in majority rule. However Poole and his long-time collaborator Howard Rosenthal have focussed rather on the *low* – mostly single – dimensionality of voting in the US Congress. In their highly influential book *Congress: a political-economic history of roll-call voting* they argue that on only 'two occasions – both before the Civil War – stable voting patterns break down entirely, and "chaos" results'⁵. In the rest of Congressional history since 1789, Poole and Rosenthal find a stable pattern of voting along the main issue dimensions of the day. Their dataset covers all rollcalls in the history of the House of Representatives. Their programs include OC (for 'Optimal Classification') and the NOMINATE family. These data and programs are freely available, and Poole and Rosenthal are well known for their generosity in helping scholars of other times and places to run their OC or (W/D)NOMINATE programs on data from rollcalls in legislatures other than Congress.

Parametric and non-parametric scaling methods

Guttman scaling has its origins in psychology, where it is used to solicit the extent to which a particular trait (like spatial awareness or narcissism) is present in experimental subjects. In a parliamentary context, the idea is to treat each bill that comes up for voting as a statement with which MPs could agree (and vote "aye") or disagree (and vote "no") and from the responses work out where the MPs lie on some underlying dimension. For a running example, suppose the dimension is how "socialist" or "conservative" MPs are, and that there are 10 bills in our study. A strict

interpretation of Guttman scaling would have the researcher *a priori* rank order the bills, from “most extreme” (which we label as 10) to “least extreme” (which we label as 1) in terms of what an “aye” vote implies for the conservatism of the person that votes “aye”. So, a bill like “this House believes immigration should be more strictly monitored and regulated” is “less extreme” than “this House believes all non-white, non-British born citizens should be immediately repatriated to their country of birth” because only the *most* conservative MPs will vote “aye” to the latter. We say a Guttman scale is ‘perfect’ if a person who agrees with a particular bill, also voted “aye” on every bill that was less extreme. So, an MP who votes “aye” on bill number 6 also voted “aye” on all the bills 1 through 5.

In practice, Guttman scaling doesn’t proceed quite like this. First, the scale is almost never perfect: MPs make mistakes when they vote, or factors other than their own preferences play into their decisions. We call this “error”. Second, rather than identifying to what extent particular bills are indicators of conservatism, researchers can simply ‘let the data speak’ by ordering the MPs according to how much they agree with *each other*, in terms of how they voted, regardless of the assumed extremism of the underlying propositions. So, if MP A agrees with---i.e. votes the same way as---MP B on 3 out of 10 bills, and MP C agrees with A on 6 out of 10 bills, we see MP A and MP C as being more similar ideologically than MP A and MP B. It transpires that, when we know where the MPs lie relative to each other, we can work out how extreme the bills that separate them (i.e. on which they disagree) are. And from knowing the extremity of the bills, we can improve how we classify the MPs. Shuffling between these two stages can be automated, and this is almost exactly what Poole’s Optimal Classification (OC) algorithm does. As many bills and as many

MPs are “correctly classified” as is possible, such that we cannot move a single MP left or right (relative to the other MPs) without predicting that they would vote “aye” on a bill that we *know* they actually voted “no” upon.

The only assumptions we need are that MPs vote sincerely for the option (aye or no) that they like best and that their preferences are symmetric. This last fact broadly means that MPs can place themselves on the socialist-conservative dimension at an “ideal point” and that a bill that moves policy, say, 3 units to the left of that position is as palatable to them as one that moves policy 3 units to the right. Technically, we say that OC is a “non-parametric” technique, which means that we are making *deterministic* statements about how MPs will vote: once we have run the algorithm, and have identified the MPs’ location (and how the bills stack up), we act as if we know *for certain* how the MPs stand relative to each other. For various technical reasons, we sometimes want to make *probabilistic* statements, for which we need contrasting “parametric” techniques. However, Poole’s colleagues have used OC rather than a parametric method to analyse roll-calls in the Parliament of the French Fourth Republic, which was more comparable to the House of Commons than is the US Congress⁶.

Why spatial modelling works for the US Congress but not for the House of Commons

The book under review introduces both non-parametric and parametric methods. Chapter 3 deals with OC, and Chapter 4 with the NOMINATE family. The succeeding chapters give the reader practical hints and tips and suggest methods conducting natural experiments – mostly using parametric methods, although a

development of OC is described on pp. 192-5. It is all supported by problem and data sets on Poole's website, so that instructors wishing to use his material for an advanced course in scaling may freely do so. This may be regarded as great generosity, or cultural imperialism, or both. But before readers of *Government and Opposition* rush to help themselves to these free goods, they may worry how exportable Poole's methods are.

Poole's book is about 'parliamentary voting', but it says remarkably little about any parliament.⁷ Almost all his examples relate to the US Congress, where party discipline is notoriously weak, and Congress members are as likely to vote for their district as for their party. His only reference to the UK Parliament reports Schonhardt-Bailey's application of his programs to the Aydelotte data on the Parliament of 1841, and the spatial map thus generated (pp. 83-5).

In their earlier book, Poole and Rosenthal wrote

When ... local concerns give way to a disciplined two-party system, day-to-day roll call voting is devoid of interest. A stylized description of Great Britain, for example, would indicate that national elections create a parliamentary majority.... [L]egislation is routinely approved by all members of the majority and opposed by all members of the minority.⁸

However, in a non-stylized description, roll call analysis comes into its own just in the cases where this does *not* happen – as with Repeal of the Corn Laws, and with the increasingly rebellious Commons of the 1990s and 2000s.

Poole says of his multiple methods for estimating spatial models: ‘They have one thing going for them, however: They all work’⁹ Unfortunately, when applied to the UK House of Commons, they do not. The problem is not just that most votes are whipped. Nor is it that voting is multidimensional. Nor yet is it that parametric models work better for the Commons than non-parametric, nor vice versa. It is that *neither OC nor the NOMINATE family can cope with strategic voting.*

We ran the OC program on the MPs and votes in the House of Commons for the Parliament of 1997-2001. Although the incidence of rebellions was lower than in the previous (1992-7) or following (2001-5 and 2005-) Parliaments, there were enough to make the 1997 Parliament interesting¹⁰. An extract from the resulting rank-ordering of MPs from left to right is in Table 1. (The full list is available on application to us).

[Table 1 about here].

Table 1 shows that OC works very well to classify MPs *between* parties. It ranks all (bar one) Labour MPs to the left of the Liberal Democrats, puts all Scots, Welsh, Irish nationalist and Liberal Democrat members next, then all Conservatives to their right and the Ulster Unionists of all varieties furthest to the right. That corresponds to expert survey results – except that some experts score the Liberals and Scottish and Welsh nationalists to the left of Labour on some issues. However the problem in OC is not its *between*-party rankings but its *within*-party ranking of rebels in the governing party. It reports that the leftmost Labour members in the 1997 Commons were Giles Radice, Sam Galbraith, and Ron Davies; and that the rightmost Labour members were Tony Benn, Jeremy Corbyn, and Bernie Grant. The late Bernie Grant

was apparently so right-wing that he was the only Labour MP, apart from the floor-crossing Shaun Woodward, to have some non-Labour members to his left.

This is of course the reverse of the truth. The MPs appearing at the rightmost extreme of Labour are in fact every Labour Whip's list of the usual suspects – the habitual *left-wing* rebels. How can the Poole-Rosenthal programs deliver this result? They assume 'that legislators have Euclidean preferences defined over some ideological/policy space and that they vote sincerely for the alternative closest to their ideal point.'¹¹

The problem occurs not with the Euclidean preferences, but with the supposition that all MPs vote sincerely and proximally. They do not: in particular, the official opposition will reject a government bill in favour of the status quo, even when the status quo is *further* from their ideal point than the proposed policy. Alternatively, rebels on the government side, who can signal their rebellion only by abstaining or by voting against the government bill, will sometimes vote strategically for an option that is further from their ideal point than is the government proposal. You don't have to be an experienced parliamentarian to know this. But experienced parliamentarians are good at devising motions that will achieve just that – namely, to defeat a government proposal by creating a strategic majority against it. Such a parliamentarian could be called a 'heresthetician' in Riker's terminology.¹² Two examples are Philip Miles, a West Indian sugar magnate who sat for Bristol, and Benjamin Disraeli. They were both Tory MPs in the Parliament of 1841, who opposed Peel's moves towards free trade. Miles's first motion was

an artful motion ... to reduce the imperial duty to 20s and retain 34s for foreign refined sugar.... It attracted support from both free traders and protectionists and was carried against the government by twenty votes¹³.

Disraeli brought about the fall of Peel by opposing the government's proposals for Irish coercion in the summer of 1846. In Euclidean space, we know that the Tory protectionists led by Disraeli actually *favoured* Irish coercion – the more the better. But Disraeli crafted a heresthetic majority with the Whigs, Liberals, and Irish members to defeat the government, and force Peel to resign, in June 1846 a month after the votes on Repeal of the Corn Law. That is why Aydelotte could not interpret the Miles's motion scale. Neither Guttman scaling, nor any of its successor techniques, can interpret strategic voting correctly.

For future research, we suggest that political scientists abandon traditional spatial models and more recent ideological classification techniques for the case of the United Kingdom or, in fact, any Westminster parliament where strategic voting is suspected. It is simply *not* the case that the results of an OC analysis can be interpreted as ideological continua in such circumstances. More general - non-model based - techniques, such as cluster analysis, may prove more fruitful, and will be explored in future work with colleagues. But we do not wish to end on a chiding note. There are many legislatures for which the Poole family of models work well. They include the US Congress and the European Parliament. For parliaments in which there is little or no strategic voting, they mark the future for roll-call research. But if used incautiously, they can yoke Bernie Grant and Shaun Woodward together in an uncivil partnership.

Table 1. MPs from ‘left’ to ‘right’ 1997-2001

Case	Name		Party
1	Radice,	Giles	Lab
2	Galbraith,	Sam	Lab
3	Davies,	Ron	Lab
4	Turner,	Neil	Lab
5	Gibson,	Ian	Lab
81	Blair,	Tony	Lab
211	Prescott,	John	Lab
409	Dalyell,	Tam	Lab
411	Marshall-Andrews,	Robert	Lab
412	Skinner,	Dennis	Lab
415	Abbott,	Diane	Lab
417	Benn,	Tony	Lab
420	Corbyn,	Jeremy	Lab
422	Livingstone,	Ken	Independent
425	Hume,	John	SDLP
426	Grant,	Bernie	Lab
431	Jones,	Ieuan Wyn	Plaid Cymru
432	Bell,	Martin	Independent
435	Salmond,	Alex	SNP
458	Ashdown,	Paddy	LD
459	Kennedy,	Charles	LD
490	Woodward,	Shaun	Lab
492	Trimble,	David	UUP
509	Heath,	Edward	Con
606	Hague,	William	Con
634	Widdecombe,	Ann	Con
666	McCartney,	Robert	UKUP
667	Ross,	William	UUP
668	Paisley,	Ian	DUP

Source: *Hansard* divisions classified using OC. See text.

NOTES

¹ Keith T. Poole, *Spatial Models of Parliamentary Voting*, New York, Cambridge: Cambridge University Press, 2005. In series *Analytical Methods for Social Research*.

² Allan G. Bogue and Gilbert White, 'William Osgood Aydelotte, September 1, 1910—January 17, 1996', in National Academy of Science, *Biographical Memoirs 73* (Washington, DC: National Academy Press 1998), pp. 40-63. All facts about Aydelotte are either from this source or from personal acquaintance.

³ But see C. Schonhardt-Bailey and I. McLean in F. McGillivray et al., *International Trade and Political Institutions: instituting trade in the long nineteenth century* (Cheltenham: Edward Elgar 2001), pp. 99-212; I. McLean, *Rational Choice and British Politics* (Oxford: Oxford University Press), ch. 2; N. Schofield, *Architects of Political Change* (New York: Cambridge University Press, 2006). A version with new variables added by McLean and Schonhardt-Bailey is freely downloadable from <http://www.nuff.ox.ac.uk/Users/McLean/index.htm>.

⁴ Bogue and White, 'Aydelotte', p. 52.

⁵ K. T. Poole and H. Rosenthal, *Congress: a political-economic history of roll call voting* (New York: Oxford University Press, 1997), p. viii. The two occasions are the 'Era of Good Feelings' in the 1820s, associated with the collapse of the Federalist Party; and the 1850s, when an alignment based on slavery overtook the earlier economic interest-based alignments in the years leading up to the Civil War.

⁶ Howard Rosenthal and Erik Voeten, 'Analyzing Roll Calls with Perfect Spatial Voting: France 1946-1958.' *American Journal of Political Science* 48(3) (2004):620-32.

⁷ The confusion is partly linguistic. In US English the word 'parliamentary' has a broader meaning than in British English. Ever since Jefferson, Americans have used the word to mean 'pertaining to the procedural rules of any deliberative body' – not merely to Parliament narrowly defined.

⁸ Poole and Rosenthal, *Congress*, p. 3.

⁹ Poole, *Spatial Models*, p. 16.

¹⁰ Philip Cowley, *Revolts and Rebellions: Parliamentary Voting Under Blair*. London: Politico's Publishing, 2002.

¹¹ K. T. Poole, 'Non-parametric unfolding of binary choice data', *Political Analysis* 8 (2000), 211-37, quoted at p. 212.

¹² W. H. Riker, *Liberalism against Populism* (San Francisco: W. H. Freeman 1982) and his *The Art of Political Manipulation* (New Haven: Yale University Press 1986); I. McLean, 'William H Riker and the invention of Heresthetic(s)', *British Journal of Political Science* 32 (2002), pp. 535-58.

¹³ N. Gash, *Sir Robert Peel* (London: Longman 1972), p. 447.