

From: Peter Coughlin

To: The participants in the Reconnect Satellite Conference 2005 at Montclair State University (on “The Mathematics of Elections and Decisions”)

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The material below is an annotated bibliography for my presentation about some models of committees and elections. References for the various topics are discussed in the order in which I covered the topics.

I. Here is the classic reference in which Condorcet established that there exist preference orderings for voters where each alternative can be beaten:

Condorcet, M. de (1785), “Essai sur l’ Application de l’ Analyse a la Probabilite des Decisions Rendues a la Pluralite de Voix”, Paris.

[For an English translation of the relevant part of Condorcet’s essay, see item 4 in Part I of McLean, I. and Hewitt, F. (1994), Condorcet ( Edward Elgar Publishing , Aldershot UK ).]

II. Here are the classic references for the pioneering work on the committee model (and the median voter theorem for the model):

Black, D. (1948), “On the Rationale for Group Decision Making”, Journal of Political Economy 56: 23-34.

Black, D. (1958), The Theory of Committees and Elections (Cambridge University Press, Cambridge UK).

Here are some books with the version of the committee model (and the median voter theorem for the model) that I discussed:

Enelow, J. and Hinich, M. (1984), The Spatial Theory of Voting: An Introduction (Cambridge University Press, Cambridge UK) [Sections 2.1 & 2.2].

Mueller, D. (2003), Public Choice III (Cambridge University Press, Cambridge UK) [The last paragraph in Section 5.2 & all of Section 5.3].

Shepsle, K. and Bonchek, M. (1997), Analyzing Politics (W.W. Norton & Company, New York) [pp. 83-90 in the section “The Simple Geometry of Majority Rule”].

III. Here are the classic references for the pioneering work on models of electoral competition (and the median voter theorem for those models):

Hotelling, H. (1929), “Stability in Competition”, Economic Journal, 39: 41-57.

Downs, A. (1957), An Economic Theory of Democracy (Harper & Row, New York).

One difference between (1) the original Hotelling-Downs model and (2) the model of electoral competition that I discussed is: The original Hotelling-Downs model assumed there is a *continuous uniform* distribution of most-preferred alternatives, but I assumed there is a finite set of voters (where, of course, there will be a *discrete* distribution of most-preferred alternatives).

A median voter theorem holds under each of these assumptions. So I think I should explain why I used a finite set of voters. The reason is: The committee model has a finite set of voters *and* (in my opinion) the comparison of the median voter theorem for a committee with a median voter theorem for an electoral competition is more striking when one uses the same assumption about the cardinality of the set of voters. Among other things, it makes it clear that the importance of a median voter in both settings doesn't depend on one making different cardinality assumptions in the two settings.

Here are some books which have the version of this work that I discussed (i.e., which have a median voter theorem for electoral competition models with a finite set of voters):

Ordeshook, P. (1986), *Game Theory and Political Theory* (Cambridge University Press, Cambridge UK) [Theorem 4.3 on p. 162].

Bierman, S. and Fernandez, L. (1998), *Game Theory with Economic Applications*, 2<sup>nd</sup> edition (Addison-Wesley, Reading) [Section 5.3].

COMAP (2003), *For All Practical Purposes*, 6<sup>th</sup> Edition (W.H. Freeman and Company, New York) [pp. 598-602].

[Note: Analyses of models of electoral competition with a *continuous uniform* distribution of most-preferred alternatives are in: (1) Aliprantis, C. and Chakrabarti, S. (2000), *Games and Decision Making* (Oxford University Press, Oxford) [Example 2.11 on pp. 56-58], (2) Shepsle, K. and Bonchek, M. (1997), *Analyzing Politics* (W.W. Norton & Company, New York) [pp. 104-109 in the section "Spatial Elections"] (3) Osborne, M. (2004), *An Introduction to Game Theory* (Oxford University Press, Oxford UK) [Section 3.3]

IV. The income distribution example is in:

Coughlin, P. (1986), "Probabilistic Voting Models" in *Encyclopedia of Statistical Sciences*, Volume 7 (Wiley, New York), pp. 204-210.

Here is the classic reference for the pioneering work on the underlying model of probabilistic choice: Luce, R. D. (1959), *Individual Choice Behavior* (Wiley, New York); Reprinted by Dover Publications in 2005.

The theorem about models of electoral competition with probabilistic voting is in:

Coughlin, P. and Nitzan, S. (1981), "Electoral Outcomes with Probabilistic Voting and Nash Social Welfare Maxima", *Journal of Public Economics* 15: 113-121; Reprinted in: *The Economics of Politics*, The International Library of Critical Writing in Economics 131 (Edward Elgar Publishing, Aldershot UK) in 2001.

This theorem has been discussed (in the context of other work) in:

Coughlin, P. (1990), "Candidate Uncertainty and Electoral Equilibrium" in *Advances in the Spatial Theory of Voting* (Cambridge University Press, Cambridge UK), pp. 145-166.

Coughlin, P. (1992), *Probabilistic Voting Theory* (Cambridge University Press, Cambridge UK).