

SPATIAL VOTING MODELS

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TOPIC OUTLINE

Strongly recommended reading is marked with an asterisk.

1. The Euclidean Spatial Voting Model.

- (a) Preferences and utility in \mathbb{R}^k . Quadratic loss; linear loss; Gaussian loss. [Enelow and Hinich \(1984\)](#). See also Chapters 1 and 2 in [Hinich and Munger \(1997\)](#)*.
- (b) Stochastic assumptions: what is random and why? ([Poole 2005](#), Chapter 4)*.

2. Simple Statistical Analysis of Roll-Call Data

- (a) Statistical background: [Lawley and Maxwell \(1971\)](#); [Mardia, Kent and Bibby \(1979\)](#); [Venables and Ripley \(2002\)](#). R commands: `eigen`; `factanal`; `mds`. See the notes [on my web pages](#)*.
- (b) Application to roll call analysis: [Heckman and Snyder \(1997\)](#)*.

3. Bayesian Inference for Latent Variable Models.

- (a) Markov chain Monte Carlo: selected chapters from [Jackman \(2007a\)](#); see also my earlier review articles ([Jackman 2000a,b, 2004](#)). The last of these is probably the most efficient thing to read.
- (b) Bayesian inference for item-response models: [Albert \(1992\)](#); [Johnson and Albert \(1999, Chapter 6\)](#)*.

4. Fitting Euclidean Spatial Voting Models via item-response models.

- (a) Approaches based on approximations to the likelihood function: NOMINATE and variants (W-NOMINATE; DW-NOMINATE). [Poole and Rosenthal \(1997\)](#); [Poole \(2005\)](#); R package, `wnominate` ([Poole et al. 2007](#))*.

- (b) CJR quadratic-normal model (Clinton, Jackman and Rivers 2004b)*. R packages: `psc1`* (Jackman 2007b), `MCMCpack`* (Martin and Quinn 2007).
 - (c) Application to the Supreme Court (Martin and Quinn 2002)*; judicial panels (Law 2004); committees and administrative panels. Identification when the roll call matrix is sparse.
 - (d) Inferences Over Ranks. Clinton, Jackman and Rivers (2004a).
 - (e) Dynamic Ideal Point Models. Martin and Quinn (2002)*. Contrast DW-NOMINATE. Identification issues.
 - (f) Assessing goodness-of-fit. How many dimensions? Identification in higher dimensions. Jackman (2001)*; Rivers (2003).
5. **Optimal Classification.** Poole (2000); Poole (2005, Chapter 3)*; Alex Tahk counter-example (“OC” is not “O”);
6. **Extending Models of Legislative Roll Calls.**
- (a) Party Pressure:
 - i. Identification issues. The assumption that lop-sided votes are free of party pressure (Snyder and Groseclose 2000)*. See also Cox and Poole (2002) and McCarty, Poole and Rosenthal (2001)*.
 - ii. party switchers (Nokken and Poole 2003).
 - (b) Evolution of the Agenda. See Clinton and Mierowitz (2001)*.
 - (c) Proposal Power. Londregan valence model (Londregan 2000).
 - (d) Hierarchical Bayesian Models: linking constituency characteristics to legislative ideal points. Various Stanford dissertations. Contrast pre-Bayesian work by Bailey (2001).
 - (e) Recovering the Uncovered Set Bianco, Jeliaskov and Sened (2004)*.
 - (f) Software: `OpenBUGS` (Spiegelhalter et al. 2003); `JAGS`.

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