

Comments to Kim and Kunisky

Mapping Political Communities

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Outline

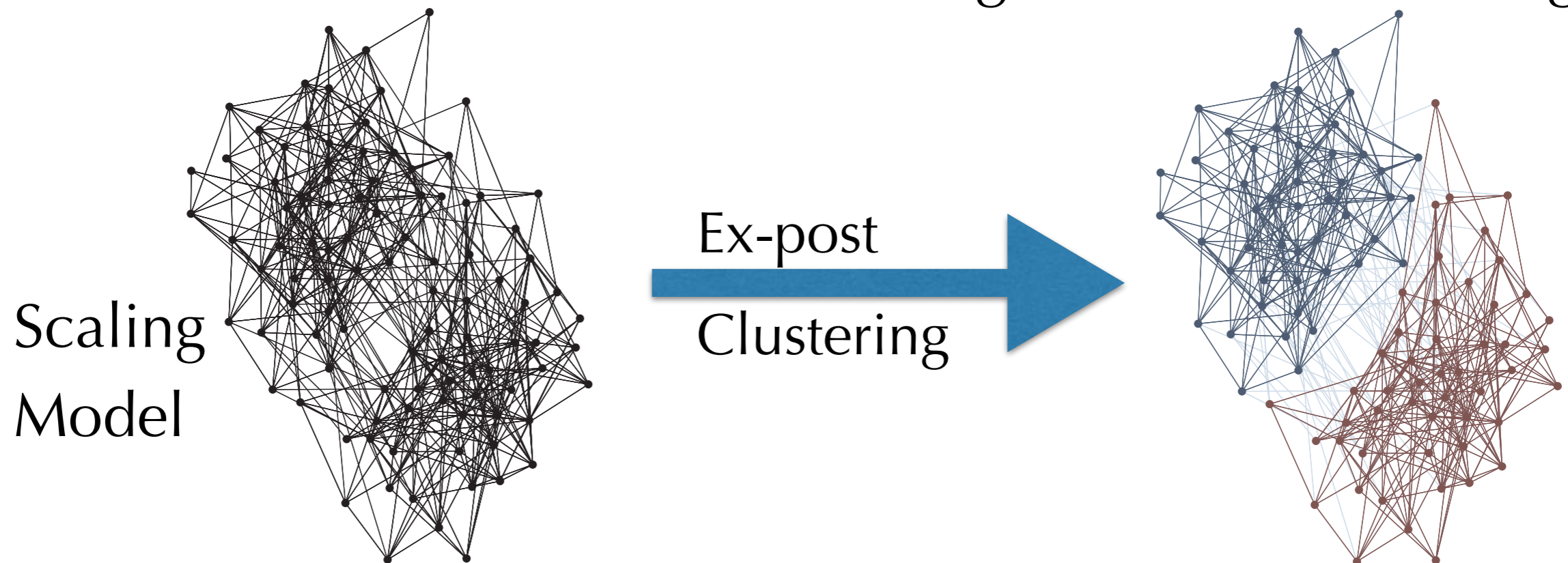
- ▶ Overview
- ▶ Equivalence between scaling models & clustering models
- ▶ Why discrepancy?
- ▶ Which should be in the *Main Body*?: Model selection
- ▶ Suggestions for analysis and theoretical development

Contributions and Findings

- ▶ Unique Dataset: Sponsor \leftrightarrow Bill \leftrightarrow Interest group
- ▶ Inferential Strategy: 3 different latent variable models
 - ▶ Latent space network model: L1 dist. w additive effects
 - ▶ Degree corrected bipartite Stochastic BlockModel
 - ▶ Bipartite Link Community Model
- ▶ Findings: First depiction of Global patterns of lobbying in US
 - ▶ Principal axes do not align w party label (\neq donation)
 - ▶ Special interest driven clustering
- ▶ supports issue monopoly by committees, iron dyad

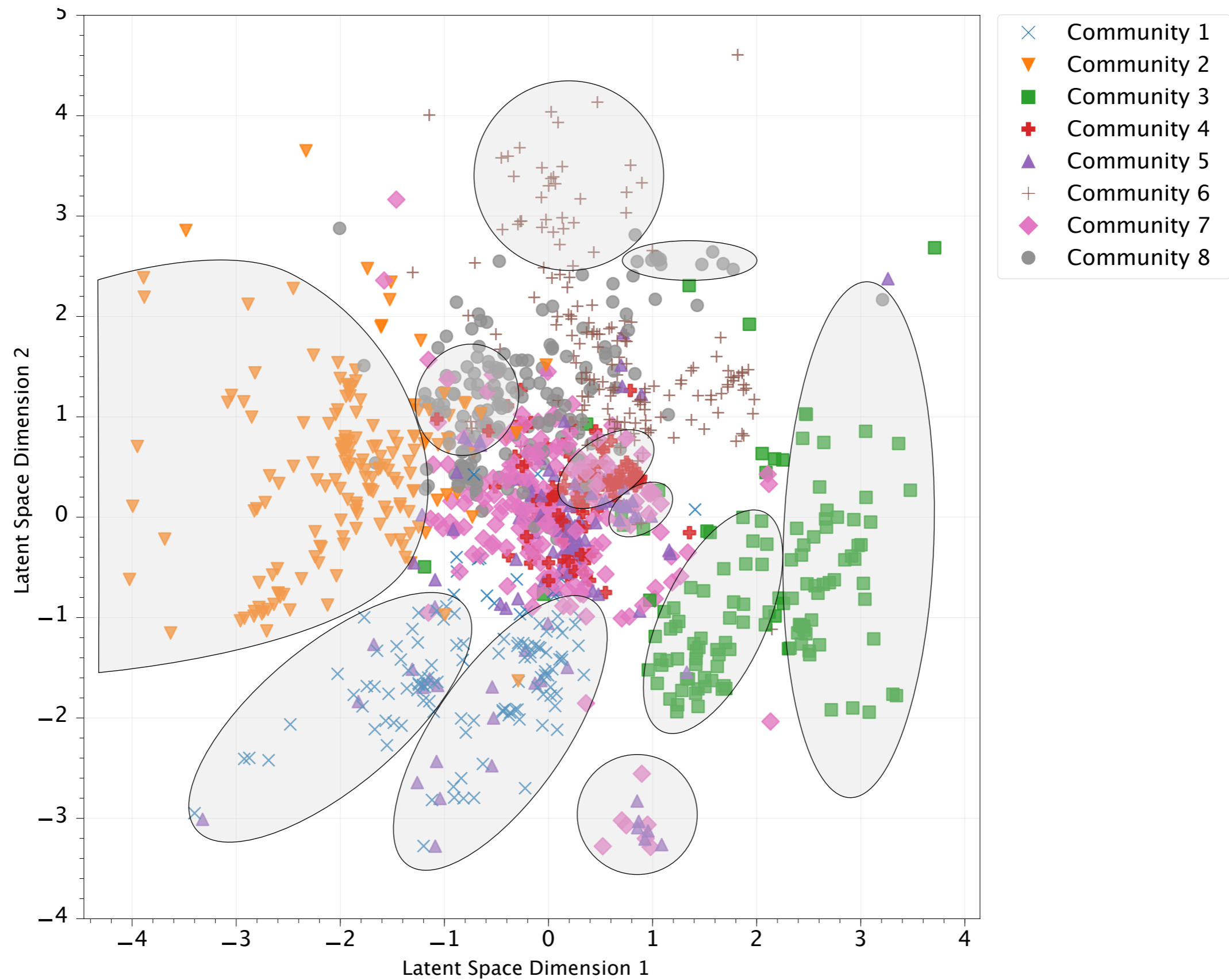
Equivalence between scaling models & clustering models

- ▶ Generic goal: $f[\text{low dim latent variables}] \approx \mathbf{A}$ (observation)
- ▶ Scaling models (e.g. **LSNM**, IRT)
- ▶ Clustering models (e.g. **biSBM**, **biLCM**, LDA)
- ▶ K-cluster models \approx K-1 dim scaling models + clustering



- ▶ e.g. Rohe, Chatterjee and Yu (2011): SBM = eig + k-means
- ▶ e.g. DCSBM \approx modularity \approx Laplacian (Newman [2016])

Why discrepancy?

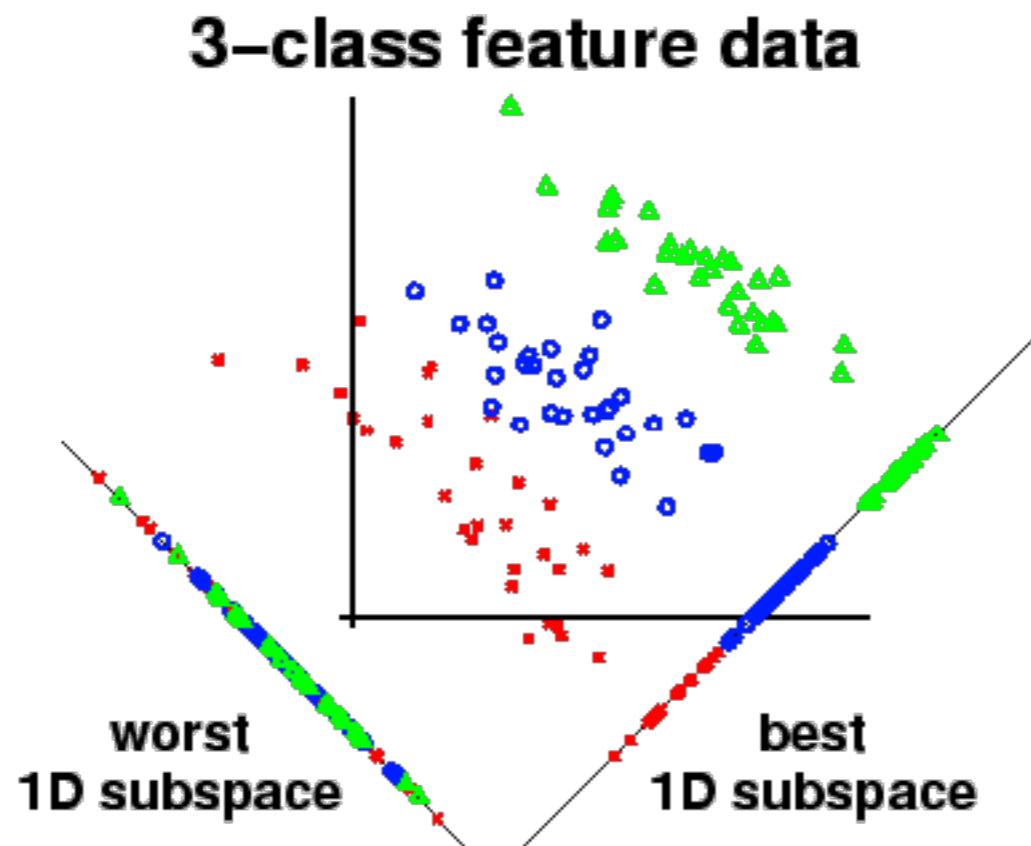


Which Should be in the Main Body?: Model selection

- ▶ Specification of f and latent var. lead to **different** outcomes
 - ▶ Myriad of l_k and cost fn. for networks: e.g. {SBM}, degree correct., modularity, Laplacian, normalized Laplacian...
 - ▶ This paper: distance function, additive/factorized specification for popularity parameters
 - ▶ Each unfolds best explanatory values | model, #param.
- ▶ Very difficult to tell which is a better model
 - ▶ 0) Agnostic on *ground truth* latent variables
 - ▶ 1) Explanatory power: predictive accuracy
 - ▶ 2) Rigorous theory and assumptions
 - ▶ e.g. **biLCM**: Each lobby dyad represents distinct issue

Comparative Analysis Ideas

- ▶ Comparative Analysis
 - ▶ Basis dimensions for LSM vs Clusters in other models
 - ▶ Linear discriminant analysis of clusters
 - ▶ Best explanatory directions for certain pair of clusters



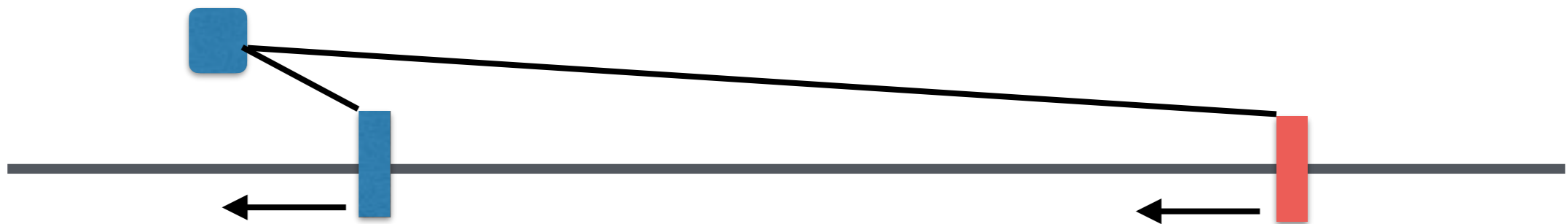
- ▶ Comparing clusters: mutual information-based metrics

Theoretical Development Suggestion

- ▶ Different nature of e.g. donation and lobbying
- ▶ Spatial theory of campaign contribution
 - ▶ Donation amount prop. chance of *being elected*



- ▶ Spatial theory of lobbying (winning over)
 - ▶ *Elected* members of a decision body (e.g. committee)
 - ▶ Pulling toward one's side (similar effect both for D & R)



- ▶ Toward *generalized theory* of partisan behavior

Thank you.