Discovering Issue-Based Voting Groups within the US Senate

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The United States Senate

- Senate bills are extremely long and complex (The much-discussed health care bill was 2409 pages!)
- Voters often rely on campaign or interest group spin for information about senators
- Policymakers must synthesize content and voting records to find compromises

Interest Group Ratings

- Interest groups rate senators on a single dimension based on a few votes selected to reflect the group’s goals
- Interest Group Ratings reflect the group’s goals on a single dimension based on a few votes selected to account for votes as well as text

Political Science Analysis

- Political Scientists have created tools for multi-dimensional analysis that rely on voting records but ignore context
- Political Scientists have created tools for multi-dimensional analysis that rely on voting records but ignore context

Topic Models

- Unsupervised methods to distill document collections into interpretable topics
- Topic models can be easily extended to account for votes as well as text

Admixture Group Topic

- We propose an admixture version of the Group-Topic model
- Each document is assigned to a cluster-specific distribution over documents.

Mixtures vs. Admixtures

- Most topic models are admixture models, meaning that multiple topics are responsible for the words in each document
- Admixtures can give a more nuanced accounting of the documents in a collection if documents deal with multiple subjects

Results

- As in McCallum et al., topics are semantically coherent and groups make intuitive sense
- Intuitive Groups: For a cluster with high percentages of tobacco and regulation topics, most senators are in one group. The exceptions: anti-regulation senators (e.g., Bennett [UT], Coburn [OK]), and tobacco-staters (e.g., Graham [SC], Hagan [NC])

References


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