Abstract
- Analysis of how campaign contributions influence voting in Congress.
- High accuracies achievable for predicting Congress members votes by their received donations.
- However, party line is even better predictor.
- Party is a variable that influences both voting behavior and donations sources.

Background
- Political campaign contributions for Congress members are heavily disputed.
- Nearly limitless corporate funding permitted through the Citizens United Supreme Court decision.
- Nearly $6 billion spent on the 2012 US federal election, over $2.5 billion on the Congressional races alone.

Data
- Source: MapLight, a nonprofit that collects information about corporations and special interest groups that contribute to campaigns.
- Datasets:
  - Votes on 1262 measures from Congress between 2006 and 2012.
  - Positions held by various interest groups on those bills.
  - Individual and corporate contributions to campaigns from FEC filings.
  - A list of politicians, their district and party.

Classification Methods
- Classify how a politician votes based on campaign contributions.
- Baselines: coin toss and an empirically biased coin toss.
- Methods used:
  - k-Nearest neighbors (kNN).
  - linear support vector machine (SVM), and
  - L1-regularized SVM.
- Party line classifier to assess significance of political party.
- Classifiers were run for each bill for three different donation matrices:
  1. All subsectors
  2. Subsectors which expressed and opinion on a measure.
  3. Similar to 2, but with the addition of related subsectors.

Results
- All methods used significantly outperform the randomized baseline.
- Most accurate: party line
- Given the PCA results, political party likely a significant latent variable in the analysis.
- Experiment conditioned on political party:
  - Tested only one party on bills with high disagreement within party.
  - 62% accuracy for kNN method.
  - 52% for a biased coin.

Conclusions and Outlook
- The kNN method was found to have the highest accuracy and lowest variance of all classification schemes tested.
- But the party line is a better predictor.
- Conclusion that money influences votes to first order is not strongly supported by evidence.
- Money is usually funneled through lobbyists, political parties, and political action committees.
- This is usually not transparent. In particular: no link between donations and individual bills.
- Complexities cannot be captured in a simple model containing only information about direct campaign contributions.

References