Modeling State Legislator Networks

Ishita Gopal (iug96@psu.edu),
Taegyoon Kim, Nitheesha Nakka and Bruce Desmarais
Department of Political Science
Pennsylvania State University

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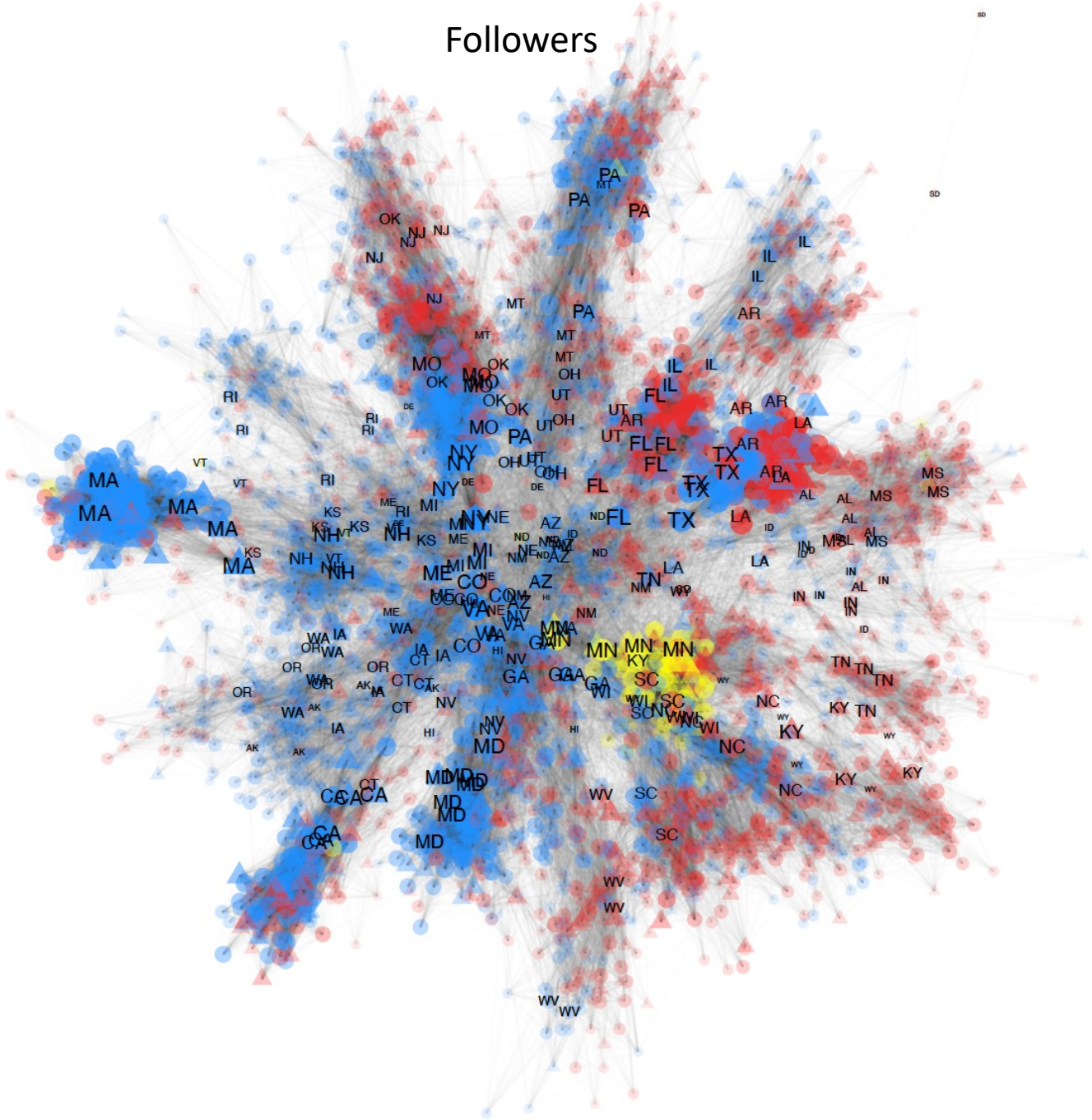
Goal

- This study collects a novel dataset on 4000+ US state legislators and models their followers, retweets and mentions networks
- The goal is to decipher the variables which help explain ties in these networks and their relative importance
- We test the impact of party, state, chamber, policy focus, gender & distance of legislators

Theoretical Interest

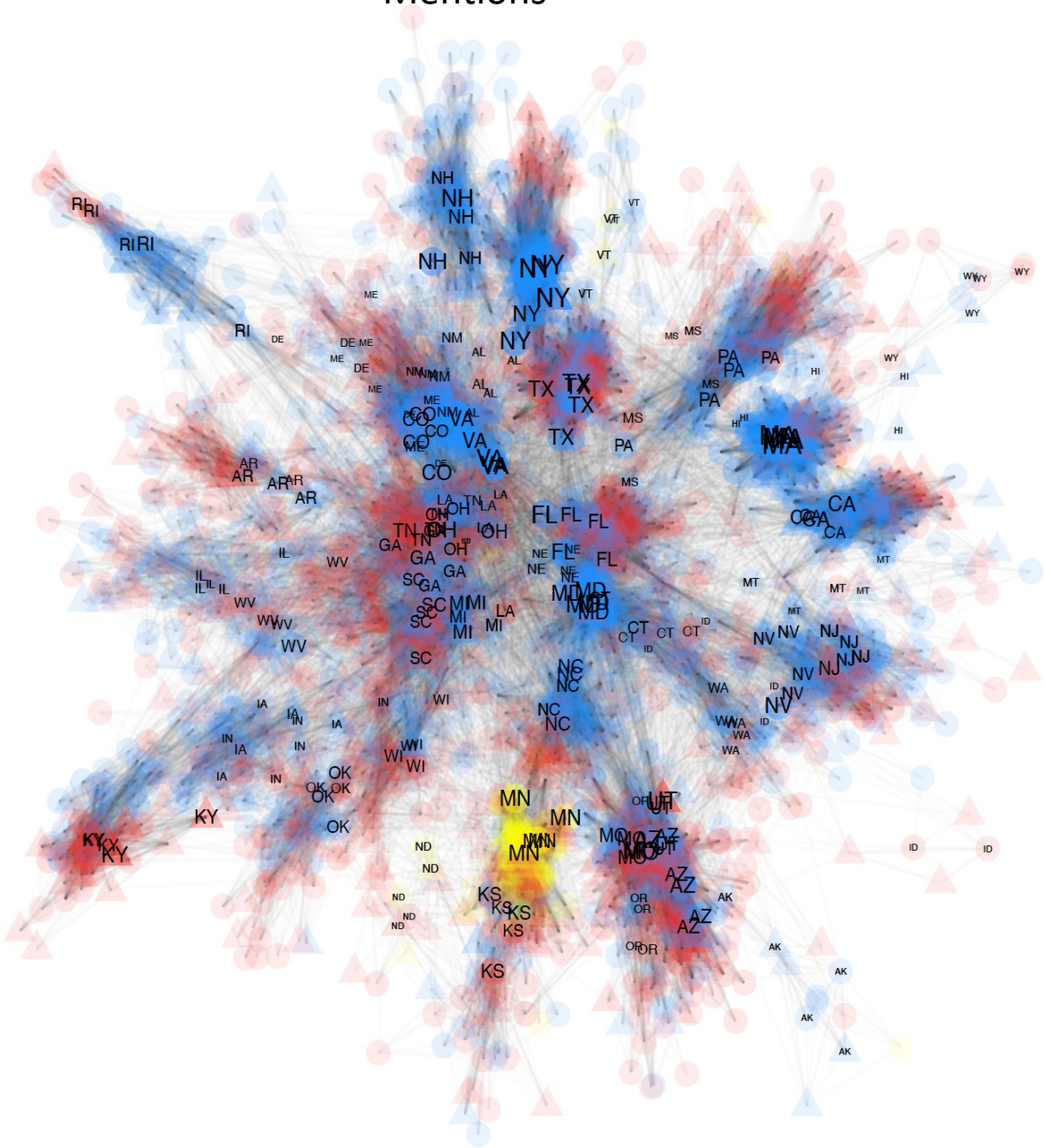
- Literature on cross state diffusion uses state as the unit → with Twiiter data we can observe individual level cross state interactions
- This data is much more fine grained & timely → allows us to observe micro level dynamics
- Content tagged interactions → allow us to explore new questions

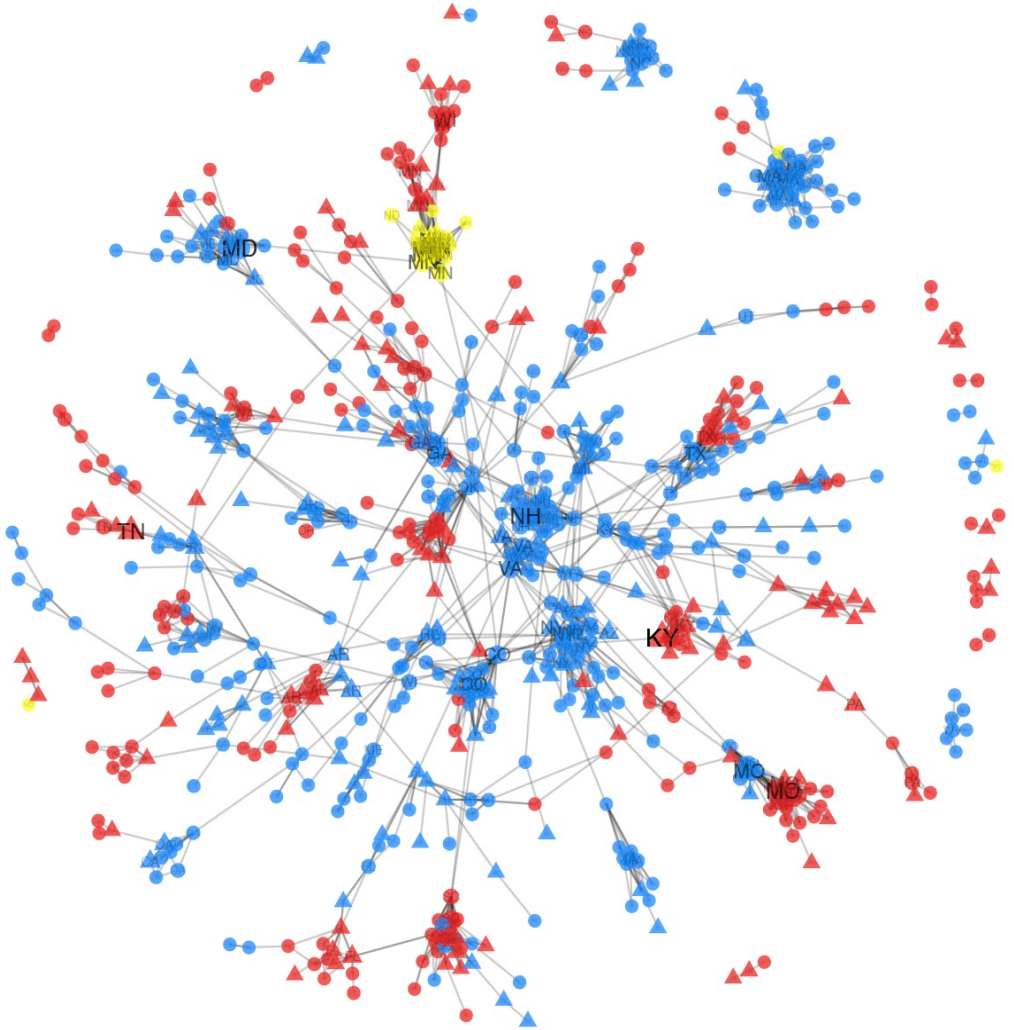


- Clusters of same states
- Mixing across party, chamber and state boundaries
- No usual partisan hairballs

Mentions

Retweets





Quadratic Assignment Procedure

- **Homophily**
  State>Party; Chamber > Gender
- **Sender/Receiver**
  Non D/R and Senators are more open to tying to others
- **Interactions**
  Partisan, chamber & identity effects are stronger within states than across states

  Does policy similarity explain cross state ties?

Logit Network Model for the Followers Network

	Variables	Estimate	P.value
1	Intercept	0.007	0
2	Same Party	0.001	0
3	Same State	0.123	0
4	Same Chamber	0.001	0
5	Same Gender	0.0003	0
6	Dem Sender Effect	-0.003	0
7	Rep Sender Effect	-0.004	0
8	House Sender Effect	-0.001	0
9	Female Sender Effect	-0.0001	0.720
10	Dem Receiver Effect	-0.002	0
11	Rep Receiver Effect	-0.003	0
12	House Receiver Effect	-0.003	0
13	Female Receiver Effect	0.0003	0.070
14	Same Party * Same State	0.299	0
15	Same Chamber * Same State	0.081	0
16	Same Gender * Same State	0.024	0
17	Contiguous State	0.001	0

Constructing Policy Similarity

Bills Sponsored by Legislators

Lasso Logistic Regression

Words/Phrases which Predict the State

Remove Boiler Plate

Calculate Cosine Similarity

Constructing Policy Similarity

Bills Sponsored by Legislators

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Lasso Logistic Regression

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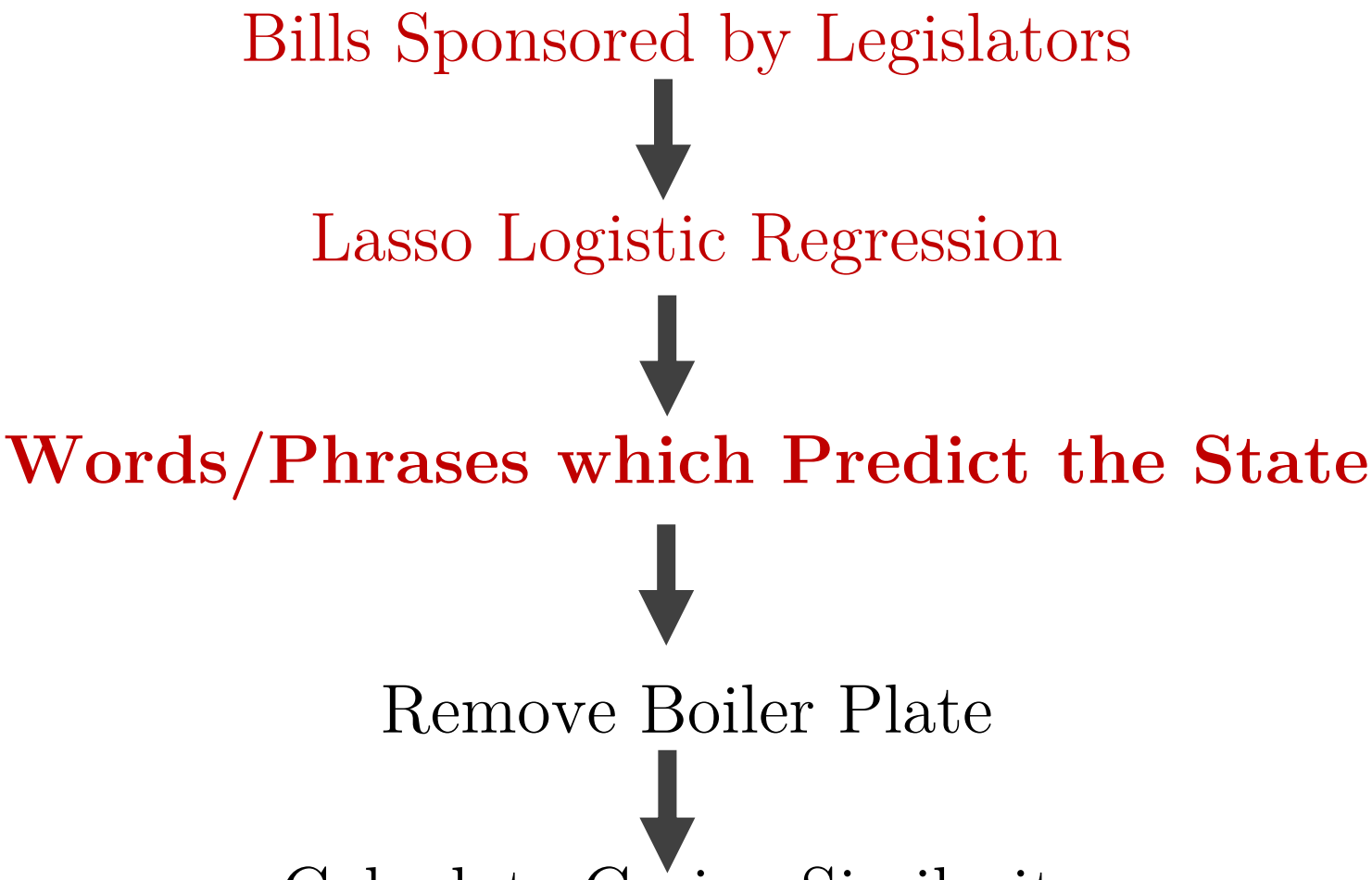
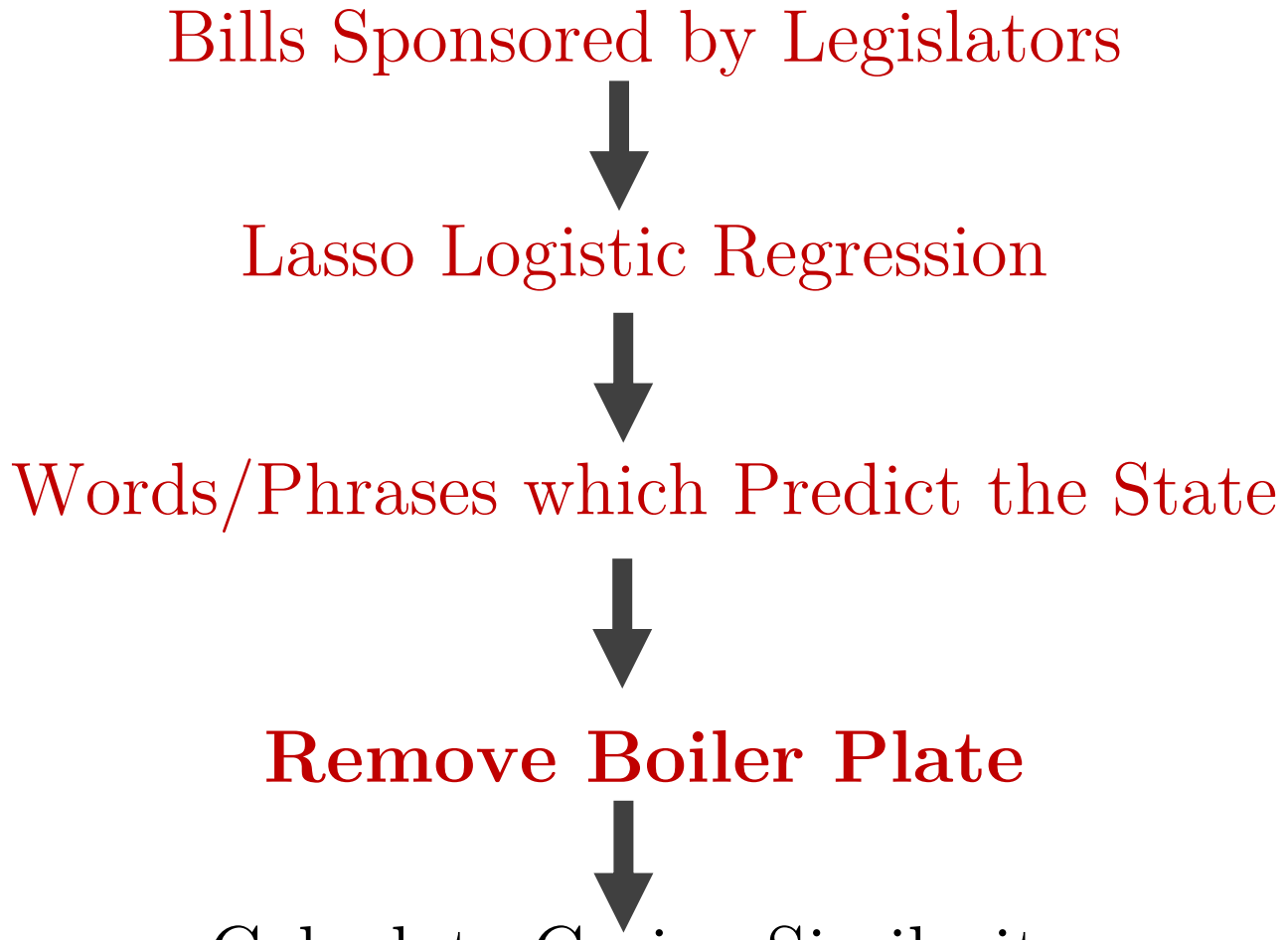
Constructing Policy Similarity



Constructing Policy Similarity



Constructing Policy Similarity

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Lasso Logistic Regression

Words/Phrases which Predict the States

Remove Boiler Plate

Calculate Cosine Similarity

- 703 total words & phrases predictive of all states

- California Example:
  * *Construction Manager/General Contractor Procurement Method: Department of Water Resources*

  * *Cigarette and Tobacco Products Licensing Act of 2003*

- Words which most predict the state of California

refugee	week
wildfire	pupil
preschool	roxie
medical	bond act
water resources	day relative
food assistance	information social
fire prevention	relative american

QAP including Policy Similarity

- Policy similarity is not significant
- **Interaction**
  The effect of policy similarity on the outcome is higher for those in the same state.

Logit Network Model for the Followers Network

	Variables	Estimate	P.value
1	Intercept	0.009	0
2	Same Party	0.001	0
3	Same State	0.100	0
4	Same Chamber	0.002	0
5	Same Gender	0.0004	0
6	Dem Sender Effect	-0.003	0
7	Rep Sender Effect	-0.005	0
8	House Sender Effect	-0.001	0
9	Female Sender Effect	-0.0001	0.780
10	Dem Receiver Effect	-0.002	0
11	Rep Receiver Effect	-0.004	0
12	House Receiver Effect	-0.003	0
13	Female Receiver Effect	0.0003	0.270
14	Same Party * Same State	0.295	0
15	Same Chamber * Same State	0.066	0
16	Same Gender * Same State	0.019	0
17	Contiguous State	0.001	0
18	Policy Similarity	-0.002	0.330
19	Policy Similarity * Same State	0.189	0

Future Work

- Add variables which cross states but make sense within states as well
- Further investigate what drive cross state ties?
- Analyze the cross state network