

A Social Networks Analysis of Internal Party Cleavages in Presidential Nominations, 1972-2008*

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Abstract

Presidential nomination politics has often revealed schisms within the party coalitions. But are these divisions long-standing or temporary? Do they reflect a chaotic party or a coordinating one? I use a dataset of more than 8000 presidential nomination endorsements from 1972 to 2008 to identify the network of support in the nominating party, as well as the key players in that dynamic. I then apply social networks analysis techniques, including exponential random graph models, to explain those networks. Analysis gives insight into who is important, what groups are stable, and what characteristics lead them to act together.

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1 Introduction

A growing literature has begun to conceptualize political parties as networks of actors. This approach allows for a central role for informal actors, and weighs formal office holders in the party and in government just so far as they participate in the network. Under this approach, a party is the organized team that competes for office.

This approach has been both theoretic and empirical. Some work adapts the network as a theoretical lever (e.g., Schwartz 1990; Bernstein 1999; Monroe 2001; Dominguez 2005; Cohen et al. 2008; Masket 2009). But much of this work has used networks as a metaphor without tapping the power of networks analytic methods. For example, Cohen et al. argue that “the party” chooses its nominee through informal coordination — facilitated by a network of contacts. But the measure of the elite party used in that work ignores any features of the network structure.

Other work has applied formal social networks analysis to political parties (e.g., Skinner 2005; Doherty 2006; Heaney and Rojas 2007; Koger, Masket and Noel 2009, forthcoming). But often this work is forced to consider relationships that are theoretically one step away from the main micro-processes that generate the network. For example, Koger et al. use the trade in donor names to make links among various informal party organizations and interest groups, but theoretically we are interested in kinds of cooperation that are much more central to the missions of these organizations than their fundraising strategies.

There is nothing inherently wrong with these approaches. Analysis gets leverage where it can, and not all work can address all questions. But it is important for our conception of a party as a network to analyze data that is directly related to the concepts in theory. This paper attempts to do so. Focusing on the theoretical claims in Cohen et al., I apply networks analysis

methods to their data to test implications of those claims.

Using their data on who endorsed which candidate from 1972 to 2008, I assemble and analyze the social network of elite actors in both parties. The paper proceeds as follows. In section 2, I outline a theory of parties as a network of diverse actors and three empirical implications of this theory. Section 3 describes the data and methods to be used. Section 4 summarizes the networks of the Democratic and Republican parties. Section 5 turns to specific tests of the hypotheses raised in section 2. Section 6 concludes with observations about the implications of these findings and on future work on this still-in-progress project.

2 Theory: Parties as Networks

Cohen et al. 2008 is part of a movement (e.g., Bawn et al. 2006; Bawn and Noel 2007; Masket 2009) to rethink political parties. Rather than view parties as institutions created to serve the needs of office holders (Aldrich, 1995), this perspective claims that parties are created by actors who wish to influence policy through the democratic process. One key strategy for such a party made up of policy-demanders is to nominate and install like-minded politicians into office, particularly in the United States into the office of the presidency.

Claiming that informal actors can coordinate in a party requires a number of other claims. How do they coordinate without a formal institution? What sort of candidate should they be seeking to coordinate on, and how would we know if they did? According to Cohen et al., the party network exerts its power by throwing support behind its favorite candidate. I will not address here all the mechanisms that party elites use. Cohen et al. show that the candidates who are endorsed by the majority of party leaders in the pre-primary stage also tend to win the nomination. Network analysis can be useful in exploring how

they come to coordinate on a particular candidate.

Cohen et al. argue that parties seek to nominate the most ideologically ideal candidate who can also win. This is of course a tradeoff, as the probability of winning may decrease as the ideological desirability of the candidate to the party faithful increases. And valence factors can offset that tradeoff.

Moreover, ideological purity within the party can be multidimensional. A social conservative may be willing to gamble more on a socially conservative candidate (say Mike Huckabee), where an economic conservative would be more suspect. This means there is potential for internal conflict over which candidate best represents “the most ideologically appealing who can also win.” However, a party that is attempting to coordinate will try to overcome these internal conflicts. Thus the expectation is that the ideal candidate will be someone who can unite the party by being broadly appealing to all within the party.

This effort to coordinate in the face of incentives to faction has implications for patterns in endorsements. This paper will focus on three of them. I will first sketch them out theoretically. The way in which these hypotheses are operationalized will follow in a later section.

2.1 Factions

First, there is the question of how factional the party might be. If, following Sundquist (1983), we think that a party, and especially its nomination for office, is a prize or “a terrain to be fought over, conquered, and controlled first by one element, then by another,” then we might expect to identify the combatants in the network. If parties are primarily terrain for battle, and if that conflict represents long-standing cleavages within the party, we should find factions that reflect those conflicts in who endorses whom from contest to contest.

For example, the 2008 conflict among Republicans is said to reflect a frac-

turing of the social conservative and economic conservative wings, (and to some, even the foreign-policy hawk wing). Giuliani and Romney were suspect with social conservatives for various reasons, while Huckabee was suspect with economic conservatives. McCain was suspect to many in the Republican Party on a variety of fronts. Among Democrats, the conflict in 2008 was more about style, but potential cleavages over the Iraq War and social vs. economic liberalism emerged in earlier years.

On the other hand, a network theory of party suggests that the party nomination is more than just a prize that is up for grabs to the most successful interest group. The informal network of policy demanders would want to find a candidate who can appeal across *all* of its various potential factions. In that case, we might expect to find a dense network without much factionalism at all. There may be conflict, but the party actors know that they have something in common that they are trying to advance, even if that something is merely shared control of office. Party leaders in a party network have to tradeoff their policy preferences with the need to form a united front to win in the general election. Backing the factional candidate will not bring victory, which in turn will not bring about the faction's preferred policies. (See Cohen et al. and Bawn et al. for a more in depth treatment of this motivation.)

There are a number of ways to measure such factionalization. A variety of techniques exist to identify communities in a network. The degree to which a given set of communities divides the network can be characterized by its modularity (described more below). This gives us our first hypothesis. If the network theory is correct:

H1: The network will not be easily divided into large factions or modular communities. Modularity of any factions will be minimal, and the factions small.

2.2 Centrality

Secondly, if the key determinant of participation in the party network is a desire to coordinate, then it should still be the case that individual actors vary in this desire. Some will tend to endorse mainstream candidates who go on to win the nomination (perhaps, as Cohen et al. argue, as a result of their coordination), while a smaller, more marginal group will endorse fringe candidates. If coordination is the main focus, we should expect mainstream and especially successful candidates to be more centrally located in the network. Thus:

H2: Successful candidates will have higher measures of centrality in the network.

Evidence for a similar proposition appears in Cohen et al. They show that the candidate who has the most endorsements tends to win the nomination, controlling for polling, media coverage and fund-raising. They also show that the effect is stronger for “repeat” endorsers, which they call the “pond” after the small pond of central actors. However, merely repeating is not the best evidence of centrality in the endorser pool. Centrality measures of the network should add needed leverage. There are numerous measures of “centrality” in social networks analysis, discussed below.

2.3 Similarity of Endorsement Patterns

The first two hypotheses focused on the end-state of the network. Party leaders wish to behave in a particular way. If they are successful, the network should have those features. But what of the mechanisms to achieve those ends? How do party leaders coordinate without the institution of a convention to facilitate and enforce their agreements?

Even before the information age, political leaders communicated about presidential nominations. Some of that communication takes place through public

endorsements, but most of it is behind the scenes. Leaders who know a candidate well share their impressions with those who are just learning about him. Since one of the goals of the party is to identify a candidate who is broadly acceptable, the support of others is an important signal.

But communication is still easier for some than for others. Leaders from the same state should find coordination easier. Members of the Washington community should find coordination easier. There is reason to believe that governors, through their national associations, can coordinate with each other easily. We would thus expect two actors who are both members of one of those groups to be likely to share information and thus endorse the same candidates. Patterns of endorsement should reflect this varying ability to share information, implying

H3: Party elites who have more opportunities to communicate with one another should be more likely to endorse the same candidates.

Each of these hypotheses can be tested in a variety of ways, using the specific methods of social network analysis. The measures and approaches employed will be discussed below, in Section 4. But first, we should describe the data and the networks in more detail, bearing in mind the expectations spelled out above.

3 Data and Network Structure

Most of the efforts at measuring a social network described in the previous section identify a network of party actors, but the match between these actors and the “party elite” actors described by theory is not always ideal. Koger et al., for instance, describe a network of interest groups, publications and campaign committees, but many key interest groups and party leaders never solicit anyone

for donations. Using campaign contributions can be equally problematic, if some influential figures wield their power without their pocketbook.

This paper uses a dataset that is much closer to the set of actors we think of when we think of the informal party, and it focuses on behavior closely related to the theory. It links every actor and group who participates in one central party activity, taking an early position in presidential nomination politics. The scope is thus wide, since anyone, even those who are not officially recognized by the party, can enter. And the action taken is an act of coordination. So these actors are a natural place to look for patterns in the party network. However, the data are still not a direct observation of every kind of party coordination. They are still limited to their specific context, but that context is the one provided by the theory in Cohen et al.

The data consist of every possible public endorsement for the major party presidential nominations found in newspapers and magazines in the year prior to the primaries, up until the day before the Iowa caucuses. Most of the data were originally collected for analysis in Cohen et al. (2008), which examined the relationship between endorsements and success in the primaries. Data from 2008 were collected separately by the author, following the same procedures.

The data stop at Iowa to ensure that the decision to endorse is not endogenous to any electoral victory. The decision of course could be endogenous to polls, money raised or media coverage of the candidates. However, Cohen et al. (2008, see especially chapters 8 and 9) show that endorsements before Iowa seem to be largely independent of those other factors. It is still likely that endorsers are affected by considerations of “electability,” but it is their own estimates of electability, not that revealed by electoral contests.

The decision to stop before Iowa both aids and hinders interpretation. On the one hand, we can be less concerned that the network of endorsers is not

simply driven by the desire to get on the winners' bandwagon. This is important, because successful candidates eventually draw even detractors, at least before the general election. If we want to uncover any internal structure, we need to observe it before too many elites are switching to general election mode. On the other hand, if it is the case that key actors hold back until the candidates have proved themselves in a few state contests, we will miss their participation. In 2008, Barack Obama secured the support of a number of high profile party insiders, including John Kerry and Ted Kennedy, but only after he received the plurality of votes in the Iowa Caucuses. Kerry and Kennedy were not bandwagoning a candidate who was already assured of a win, although they were apparently reacting to an increase in Obama's apparent probability of victory. The current analysis errs on the side of avoiding endogeneity, but at the cost of not capturing insider support like Obama's.

The data thus consist of every pre-Iowa link between an endorser and an endorsee from 1972 to 2008. Because most elites endorse only one candidate per cycle, the main links between endorsers come from their participation in multiple cycles. Thus the network would trace out long-standing factions or clusters, rather than personalistic or election-specific ones.

This can be represented as a network in several ways. The most natural is a bipartite network or two-mode graph, which links two kinds of nodes, endorsers and candidates. All ties begin with an endorser and go to a candidate. Each actor must belong to one of the two kinds of nodes. When a candidate later endorses someone (either in the same contest or, more common, a different one), that actor appears in the dataset twice, once as an endorser and once as an endorsee. So, for instance, Bill Clinton is a candidate in 1992, but he also endorses Hillary Clinton in 2008. In that case, a separate Bill-Clinton-as-endorser node is created. It is assumed that all such actors also "endorsed"

themselves.

Bipartite networks can be useful to visual the relationships that create the network. However, many common network measures cannot be computed on them. It is thus common to convert two-mode graphs to one-mode graphs. Two such one-mode graphs can be created here: a candidate-by-candidate graph and an endorser-by-endorser graph. In the former, two candidates are said to have a tie if they have an endorser in common. Thus, because then-New York Governor Mario Cuomo endorsed Mondale in 1984 and Dukakis in 1988, Mondale and Dukakis have a tie. In the latter, two endorsees are said to have a tie if they both endorsed the same candidate. So Cuomo and U.S Representative Barney Frank (D-Mass.), who both endorsed Dukakis, are linked to each other.

Both of these networks are worth exploring. The endorser-by-endorser network more directly captures the notion of a the party as an informal network. However, the method of making the connections will necessarily create clusters of endorsees around each popular candidate. Communities may also be hard to interpret, since it is the candidates whom we know much about. The candidate-by-candidate network, on the other hand, may be more easily interpreted, but the network is much smaller. It also links candidates through the actions of a third party, over whom they have no direct connection. Of course, all three ways of organizing the network will be mathematically related and likely to lead to similar inferences.

4 Graphing the Networks

Before turning to the hypotheses, I present illustrations of the networks. Figures 1 and 2 show the bipartite network of the Democratic and Republican endorsees and endorsees. Rather than use a distance algorithm, the candidates are located substantively, arranged by year across the x-axis and by the centrality of the

candidates on the y-axis. Endorsers are located between their endorsees, and their locations have been jittered.

[FIGURES 1 AND 2 ABOUT HERE]

These figures illustrate the connections across years in both parties. Most of the connections are among the major candidates, near the bottom. It is possible here to trace out interesting patterns. For instance, note the extensive draw of support for Gore in 2000, from those who endorsed a variety of candidates in earlier contests, and who would go on to endorse a variety in later contests.

But the bipartite graph only goes so far in showing the relationships among the candidates and among the endorsers. I turn now to the one-mode networks that can be constructed from the bipartite graphs. First, Figure 3 shows the Republican candidate-by-candidate network, and Figure 4 shows the Democratic candidate-by-candidate network. There is a tight knot in the center of both graphs. From year to year, a handful of candidates are connected by receiving many endorsements from the same core of endorsers. The candidates on the fringe of the network are those who are also most generally thought of as fringe candidates — less successful with voters as well as with elites. This is especially true for the Democratic network.

[FIGURES 3 AND 4 ABOUT HERE]

Also clear from the Democratic network is that a few candidates are completely isolated from the network: McCarthy in 1972 and Wallace in 1972 and 1976. This may in part be due to the fact that both of these candidates come from the very beginning of the time series, so many of their endorsers drop out of the network. In fact, however, neither candidate received many endorsements at all. Their isolation reflects the more fragmented nature of the party at that time. Both McCarthy and Wallace were not mainstream candidates in the crowded

1970s fields. In some later analyses, including the coming endorser-by-endorser graphs, these separate networks will be removed.

Turning to the endorser-by-endorser networks, we can see that common endorsement of high-profile candidates creates knots of connection. Figures 5 and 6 present these for the Republican and Democratic parties. These knots are of interest — what, if anything, do the endorsers of a particular candidate have in common. But more central for this project is the connections among endorsers from endorsing more than one candidate in common, or from their connections across different periods.

[FIGURES 5 AND 6 ABOUT HERE]

Endorsers of the major candidates in 2008 are in color in these figures. Studying these figures, a few things jump out. In Figure 6, the endorsers for McCain, Romney, Giuliani and Huckabee all appear to be on the outer edge of the network. This is largely because many of their endorsers were unique to 2008, and so are peripheral. The story is slightly different on the Democratic side. Obama’s cluster does appear to be more peripheral in Figure 5, but this is in part due to the randomness in the plotting algorithm. Still, Clinton’s cluster is more embedded in the network.

These patterns depend on the large number of endorsers who participate in only one contest. Those who endorse only one candidate are connected to the others who endorse that candidate, but to no one else. These one-timers are interesting, but the party network is defined by those who participate more than once. It is thus worthwhile to consider only those repeat endorsers, who are presented in Figures 7 and 8.

[FIGURES 7 AND 8 ABOUT HERE]

Now the network appears much more dense. There are almost no discernible clusters, and the endorsers for major candidates (such as the 2008 candidates highlighted in color) are spread throughout the network. The impression of these figures is of a single, well-integrated party network.

5 Testing Hypotheses

Visualizing the relationships among nodes is a key asset of graph theory. But specific hypotheses need sharper tests than a visual impression. I turn now to such tests.

Hypothesis 1 claimed that, if the network is to be thought of as a party, then it should not be easily broken into subgroups. It should not be especially factionalized. To test this hypothesis, we need to identify factions in the network, and then determine how well those factions divide the network.

There exist a large number of ways to identify subgroups in a network. While I have explored several, I will discuss here walk-trap community detection. This technique works from the assumption that short walks from node to node along their edges will tend to stay in the same community. Having identified small clusters in this way, we can proceed step by step to connect them to their neighboring clusters, until we eventually have the entire network linked.

At each step of that process, we will have divided the network into some number of communities. How well we have divided them is a separate question. For any given division, we can measure the “modularity,” or how well the division separates the vertices in each grouping. The measure assesses how many intergroup and intragroup edges there are. The measure runs from 0 to 1, where 0 means the division is poor — there are as many intergroup edges and intragroup edges, while 1 is perfect division — there are no intergroup edges.

According to Hypothesis 1, if the network really is a party attempting to co-

operate, factionalism among the endorsers should be low. Thus the modularity of attempts to find communities in the endorser-by-endorser graph should be low. If this modularity is politically significant — at least, if it is of the order of a major schism in the party, it presumably represents a split into a small number of communities (rather than into dozens of very small groups).

Table 1 reports the modularity of the most modular possible communities. The value depends on how we present the network. The candidate-by-candidate network has very low modularity. Nearly every candidate is endorsed by many actors who also endorsed others, so there are many connections. But the endorser-by-endorser network has high modularity. As above, this is because of the many endorsers who only enter one contest. All of the actors who endorsed McCain in 2008 *and no one else* are connected to each other, but they are connected to only those repeaters who also endorsed McCain in 2008. In years where there are many such actors, those clusters represent distinct factions.

But such factions are an artifact of that behavior. Theoretically, the party network is made up of long-view players who participate repeatedly. When we restrict the analysis to those, we again find a very unfactional network. Notably, the Republican network is less factional than the Democrats (although that difference is not great), perhaps consistent with the observation that the Republican coalition has been more united in this period.

Table 1: Modularity of Most Modular Community Structure

Network	Democrats	Republicans
Candidate-By-Candidate	0.04	0.13
Endorser-By-Endorser	0.71	0.69
Endorser-By-Endorser (Repeaters Only)	0.30	0.08

Hypothesis 2 turned the focus to the candidates. If the network is trying to coordinate, then the endorsers who are most central to the network — and thus most coordinating with others — ought to be the most valuable endorsers. If endorsements have any causal value, successful candidates will be those who are most connected into the endorser-created network. And they will receive more endorsements from more centrally connected endorsers.

There are many ways of measuring “centrality,” or how well integrated a node is into the network. Degree centrality, a common measure, is simply the number of edges a vertex has, or how many ties the actor has to any other actor. This is equivalent to counting the number of endorsers who have also endorsed another candidate, which Cohen et al. had done when they looked at repeat endorsers. Confirming their finding, Figures 9 and 10 plot the degree centrality of each candidate in the candidate-by-candidate network for each contest. Eventual winners are labeled, and other candidates are indicated with a dot. That is, it shows which candidates are most connected to other candidates through their endorsers. Candidates with high degrees represent continuity with previous and future candidates. They are the insiders, as defined by a persistent grouping. Eventual winners are named.

[FIGURES 9 AND 10 ABOUT HERE]

A more nuanced measure of centrality is eigenvector centrality, which takes account of the centrality of the nodes to which each node is connected. Thus an actor’s eigenvector centrality is larger if it is connected to other actors that also have many connections. Figures 11 and 12 plot that measure. Yet another measure is betweenness, which measures the number of shortest paths between other nodes that pass through a particular node. In other words. Figures 13 and 14 plot betweenness. There are still other common measures, but what is clear from these three is that their substantive implications are all the same.

[FIGURES 11, 12, 13 AND 14 ABOUT HERE]

Insiders tend to win. Of the Republicans, all but two of the top eight are winners. And the two winners who have low degree are simply anomalies. Bush in 1992 and Reagan in 1984 were obviously insiders — they were incumbents. They score low on centrality because almost no one bothered to endorse them in the primaries, as they faced no serious contest. Bush was challenged by Buchanan, but no one took this challenge very seriously. Reagan was unchallenged. They should perhaps not even be in the dataset, but their endorsers do help to tie together other actors in other periods, so they are useful for other questions.

Meanwhile the other two low centrality Republican candidates are meaningful. Ford was an incumbent challenged by Reagan in 1976, and his popularity was weak in the party. Republicans rallied around him, but their support was lukewarm. The same could be said of McCain's support in 2008. While he has a higher degree than his 2008 rivals, the difference is not that great, as might be expected by his own lukewarm support from his party.

On the Democratic side we have a similar story. Most of the high centrality candidates are the eventual winners. The deviations from that pattern are also illustrative. Carter in 1976 and McGovern in 1972 were competing in the period immediately after the McGovern-Fraser reforms, and before most in the party had completely adapted to them. It's actually notable that McGovern has the highest degree of any 1972 candidate, as it was widely believed that Muskie was the inside favorite. And probably he was, but McGovern's supporters were perhaps more likely to continue to participate in the process. Like McGovern, Carter surprised the party with his out-of-nowhere showing. But that is something that candidates have not been able to do since 1980, when party leaders began coordinating before the primaries (Cohen et al. 2008).

Kerry's low showing in 2004 is also telling. Democrats in 2004 were hesitant to endorse anyone. Dean eventually pulled ahead in endorsements, but only after many in the party became convinced he would be the winner. They flocked to Kerry once Dean, who was a true outsider, faltered in early contests. (e.g. Cohen et. al 2008, Koger et al. 2009).

Finally, Barack Obama's low degree, and Hillary Clinton's high degree, are evidence of Obama's outsidersness and Clinton's insider position. Obama surprised the party with his plurality finish in Iowa, and then party leaders moved to back him. His degree would be higher if those endorsements were included, but as noted above, that endogeneity might distort our interpretation.

Hypothesis 3 focused on the patterns of joint endorsement. I argued that some endorsers should be more likely to behave similarly in endorsement – that is, they should be more likely to have a link in the endorser-by-endorser graph. Here, we can model links among endorsers as a function of endorser characteristics, using an Exponential Random Graph Model. Such a model takes as its dependent variable the presence or absence of a link, and as explanatory variables features of the nodes and node structure independent of that link.

The models estimated in this section predict links among endorsers. That is, they predict when endorsers are likely to have endorsed the same candidate. The principle variables used here to predict link structure will be whether two endorsers match on some characteristic. For instance, are two party leaders from the same state more likely to have links than two leaders who are from different states? What about two leaders who both serve in the United States Senate?

Exponential Random Graph Models of networks also tend to have a few other terms. The first is the "edges" term, which captures the total number of edges in the graph. This term functions like the constant in a typical regression

analysis. The term is negative when, conditional on the other terms in the model, links are unlikely to form, and positive otherwise. Like the intercept in a regression, it is not usually of substantive interest.

The second unusual term in this model is the "triangle." The triangle variable is an indicator for a link between two nodes that would complete a triangle among three nodes. For example, if John and Claire have a link, and Claire and Brian have a link, then the variable is coded a 1 for the potential link between John and Brian. If that pattern is not present, the variable is a 0. The variable captures the tendency for networks to complete such triangles. In a friendship network, Claire might have an occasion to introduce John and Brian, or the circumstances that led each of the boys to know Claire might lead them to also know each other. If we want to account for other more substantive determinants of the network, we should control for this one.

The endorser network is not built like a typical friendship network, but the triangle structure should still be controlled for. Two endorsers are linked if they endorsed a candidate in common. If endorser A and B are linked because they endorsed John McCain in 2008, and if B and C are linked because they endorsed McCain, then A and C are by definition linked, because they also both endorsed McCain. It is possible that B and C could be linked because they both endorsed some other candidate (say Bush in 2000), in which case A and C might not be linked. But the structural tendency for them to be linked is akin to the tendency for John, Claire and Brian to all know each other because they all met in the same circumstance. We would expect the triangle term to be positive if this is the case, but there is no particular interpretation of the term theoretically.

The remaining terms capture whether the trait in question is shared. The STATE variable means both endorsers are from the same state. The SENATE, HOUSE and GOVERNOR variables mean both endorsers are U.S. Senators, U.S.

Representatives or state governors, respectively. The endorsers have also been categorized by the level of office they hold. The LOCAL LEVEL, STATE LEVEL and NATIONAL LEVEL variables mean that the endorsers hold office (or are in an organization) at those levels. All governors are state-level actors, and all members of either chamber of Congress are national. Finally, if both endorsers are official party organizations, the PARTY variable reflects that.

In some cases, two traits must be shared. The STATE+STATE LEVEL variable means that both endorsers are from the same state *and* are at the state level.

Tables 2 and 3 report results from estimates of those models for both the Democratic and Republican networks. Most results are consistent with the theoretical expectations above, but they may be consistent with other explanations as well.

[TABLES 2 AND 3 ABOUT HERE]

First off, endorsers from the same state tend to endorse the same candidates. That could be because they are in closer communication with each other, which follows from the notion of the party as a network. It could also be that state is a useful proxy for preferences, and there is no coordination whatsoever.

That explanation is less plausible for the finding that members of the House and Senate (significant only among Republicans) are more likely to have endorsed the same candidate. They may have political reasons to want to favor one of their own (which may explain the large number of endorsements Gephardt has gotten from House members when he has run). But the best explanation for their common behavior is that coordination can occur in the institution.

The commonality among governors for the Democrats also is expected. Governors also may want one of their own, but they also tend to share information and would trust each other's perspective. Governors are on the edge of moving between state and national politics, and

The negative relationship among governors for Republicans is a puzzle. It is widely known that governors led the way in backing George W. Bush in 2000, and they also were substantially united behind Dole in 1996. However, this tendency appears to not be systematic across other years.

Exponential Random Graph Models are not common in political science, and they are often applied to quite different network data. If we wish to explain friendship networks or marriage patterns, the interpretation of terms is different than for co-endorsement data. Thus suggestions for further modeling strategies in this work-in-progress are welcome.

6 Conclusions

This paper is a work in progress. But the findings so far are suggestive. The project needs to move forward in several directions. I outline three below.

First, more work needs to be done to describe the communities so far identified. In both parties, maximal modularity comes with the division into several communities, not two or three. If we divide the network into a smaller number of communities, one is clearly the dominant one, with others as the fringe. So the cleavage is not social versus economic conservatism. But the groups might be still meaningful.

Fortunately, there is data on the characteristics of the endorsers, notably their home state, their office and their ideological location. And of course the data includes their names, which might suggest other categories of investigation.

Second, a similar sort of analysis should investigate patterns in centrality. According the network theory of parties, elected office holders should not be more important in the network than many informal actors (although truly informal actors, such as entertainers, should not be important).

Third, the exponential random graph model requires measures of ideology.

This is the most central potential cleavage, and it is not modeled here.

Finally, this analysis could be brought more directly to bear on the argument I make with coauthors in Cohen et al. I find here that Obama is an outsider, while there we argued that his later endorsements suggested he was not. Those findings are based on different data — I omit all endorsements before Iowa, while there we argued that post-Iowa behavior reflected party strategy.

References

- Aldrich, John. 1995. *Why Parties? The Origin and Transformation of Political Parties in America*. Chicago: University of Chicago Press.
- Bawn, Kathleen and Hans Noel. 2007. Long Coalitions Under Electoral Uncertainty: The Electoral Origins of Political Parties. In *Midwest Political Science Association*. Chicago, Ill.: .
- Bawn, Kathy, Marty Cohen, David Karol, Seth Masket, Hans Noel and John R. Zaller. 2006. A Theory of Parties. In *the annual meeting of the American Political Science Association*. Philadelphia, Pa.: .
- Bernstein, Jonathan. 1999. The Expanded Party in American Politics PhD thesis University of California, Berkeley.
- Cohen, Marty, David Karol, Hans Noel and John Zaller. 2008. *The Party Decides: Presidential Nominations Before and After Reform*. Chicago: University of Chicago Press.
- Doherty, Joseph. 2006. The candidate-consultant network in California legislative campaigns: A social network analysis of informal party organization PhD thesis University of California, Los Angeles.
- Dominguez, Casey. 2005. Before the Primary: Party Participation in Congressional Nominating Processes PhD thesis University of California, Berkeley.
- Heaney, Michael and Fabio Rojas. 2007. "Partisans, Nonpartisans, and the Antiwar Movement in the United States." *American Politics Research* 34(4):431–464.
- Koger, Gregory, Seth Masket and Hans Noel. 2009. "Partisan Webs: Information Exchange and Party Networks." *British Journal of Political Science* 39(3):633–653.
- Koger, Gregory, Seth Masket and Hans Noel. forthcoming. "Cooperative Party Factions in American Politics." *American Politics Research* .
- Masket, Seth. 2009. *No Middle Ground: How Informal Party Organizations Control Nominations and Polarize Legislatures*. Ann Arbor: The University of Michigan Press.
- Monroe, J.P. 2001. *The Political Party Matrix: The Persistence of Organization*. Ithaca: State University of New York Press.
- Schwartz, Mildred A. 1990. *The Party Network: The Robust Organization of Illinois Republicans*. Madison: University of Wisconsin Press.
- Skinner, Richard. 2005. "Do 527s Add Up to a Party? Thinking About the Shadows of Politics." *The Forum* 3(3):Article 5.

Sundquist, James L. 1983. *Dynamics of the Party System: Alignment and Realignment of Political Parties in the United States*. Washington: Brookings Institution.

Figure 1: Democratic Bipartite Graph

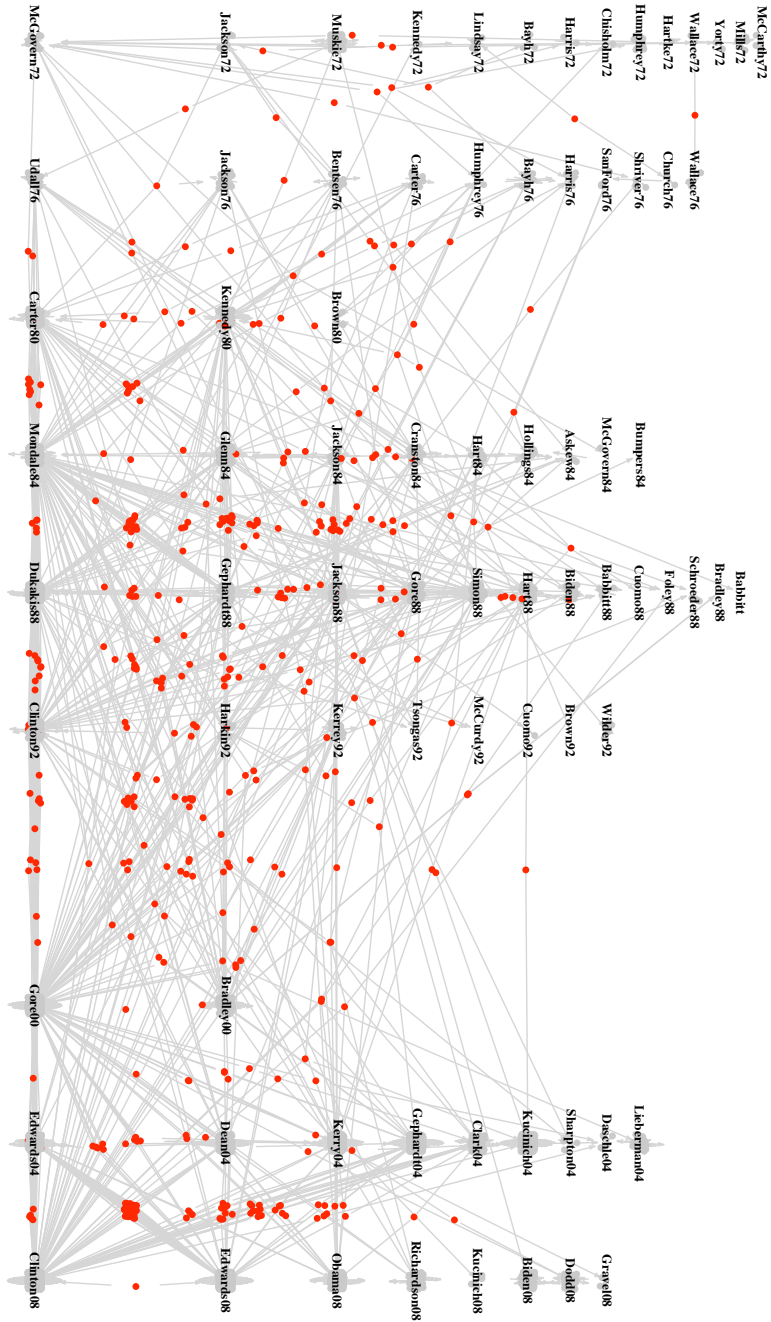


Figure 2: Republican Bipartite Graph

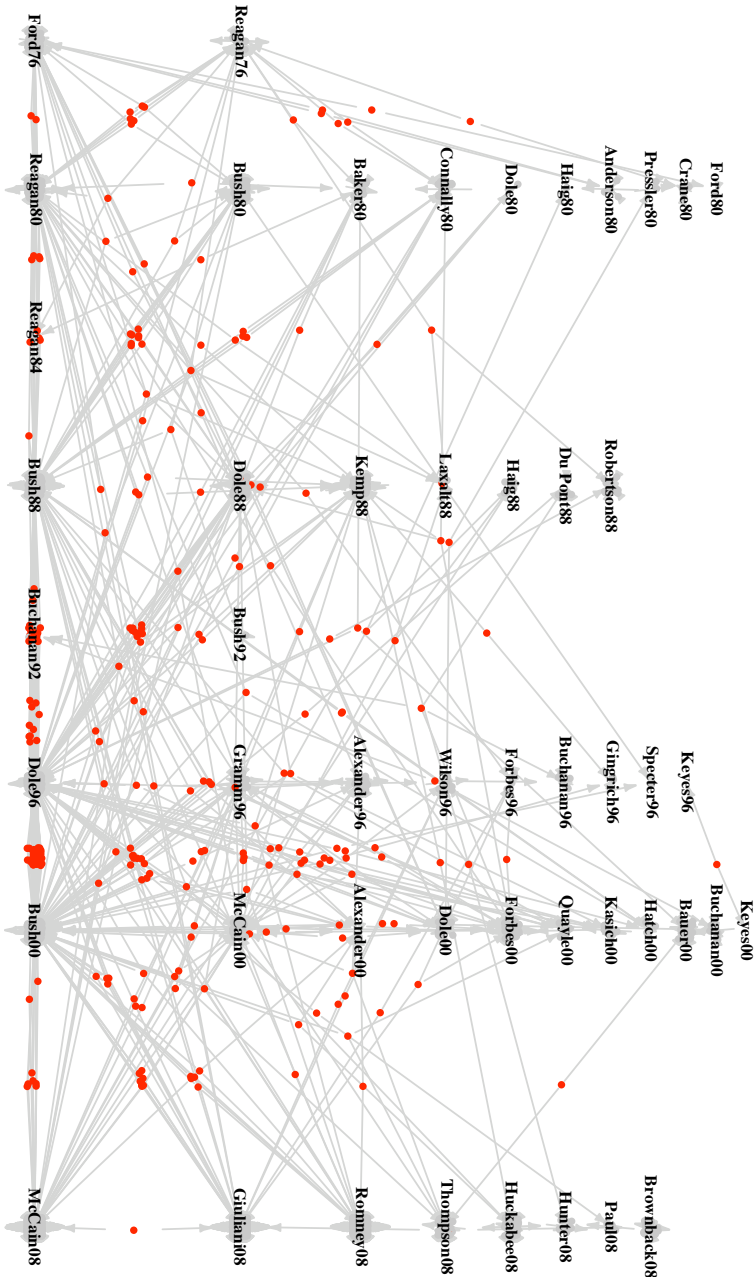


Figure 3: Democratic Candidate-By-Candidate Graph

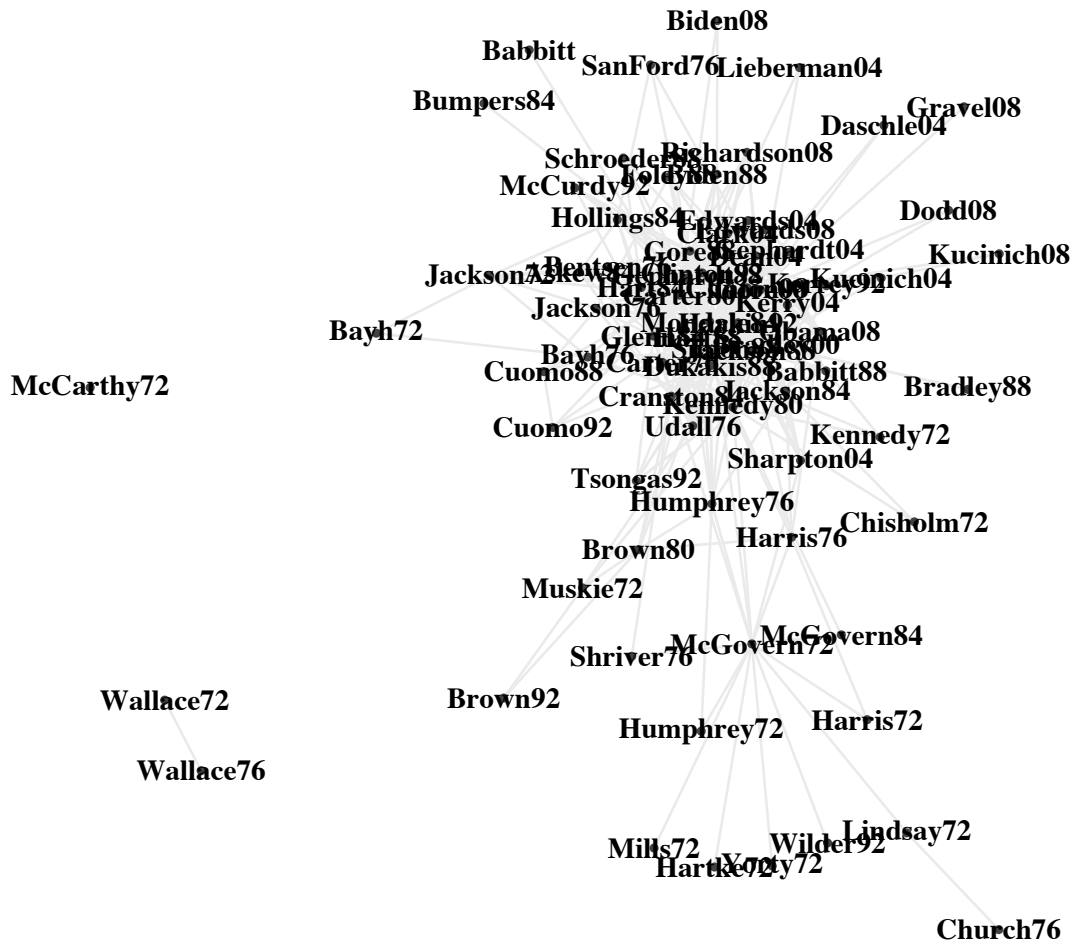


Figure 4: Republican Candidate-By-Candidate Graph

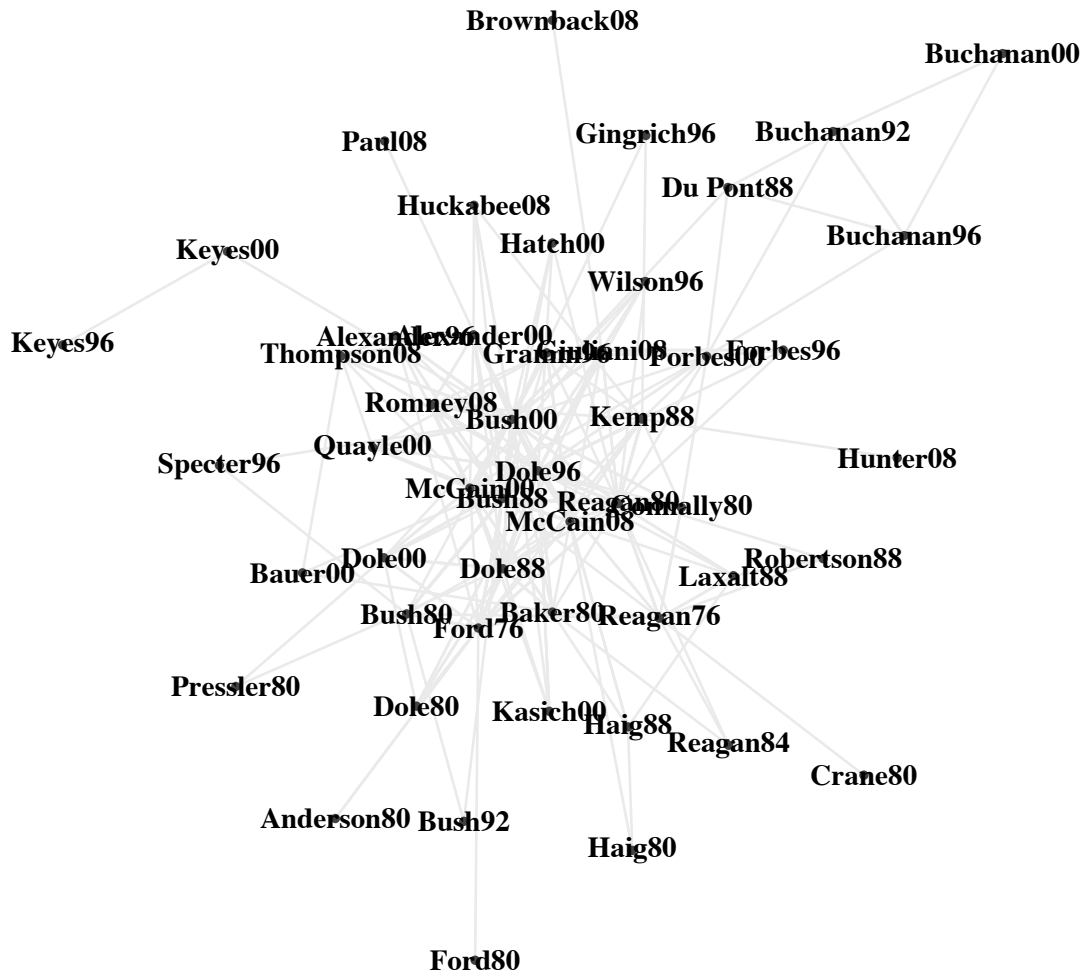
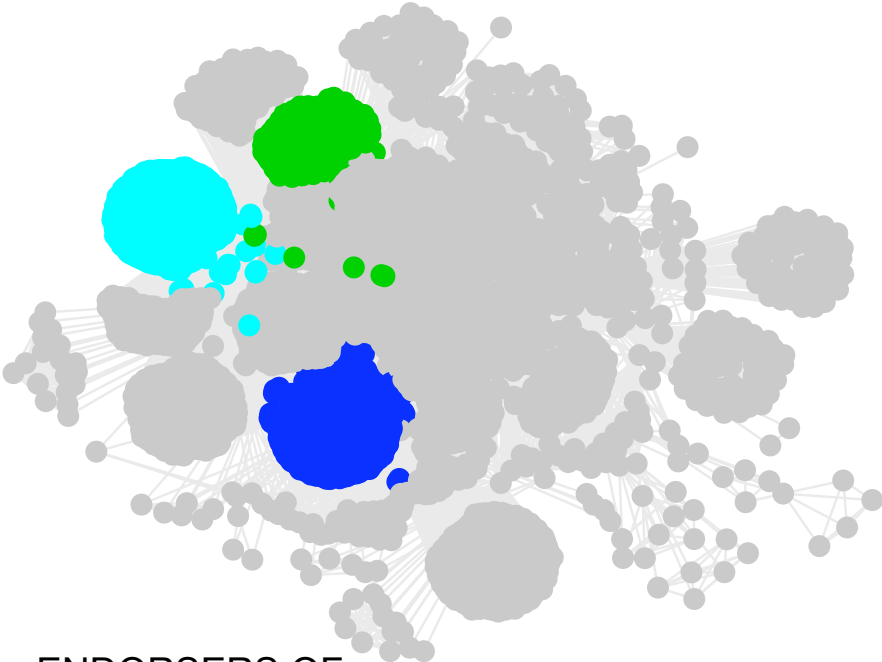
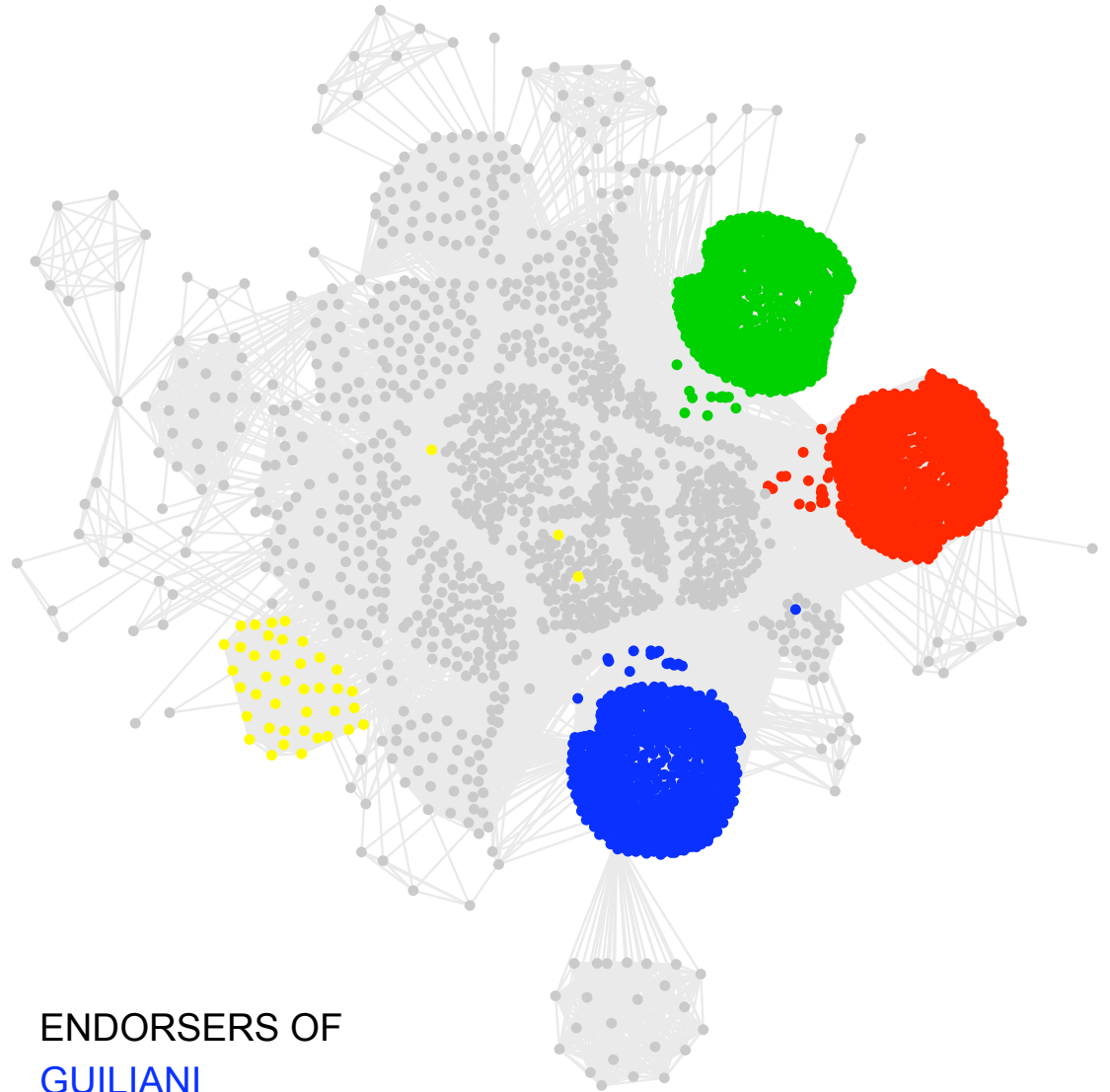


Figure 5: Democratic Endorser-By-Endorser Graph



ENDORSERS OF
CLINTON
OBAMA
EDWARDS

Figure 6: Republican Endorser-By-Endorser Graph



ENDORSERS OF
GUILIANI
ROMNEY
MCCAIN
HUCKABEE

Figure 7: Democratic Endorser-By-Endorser Graph (Repeat Endorsers Only)

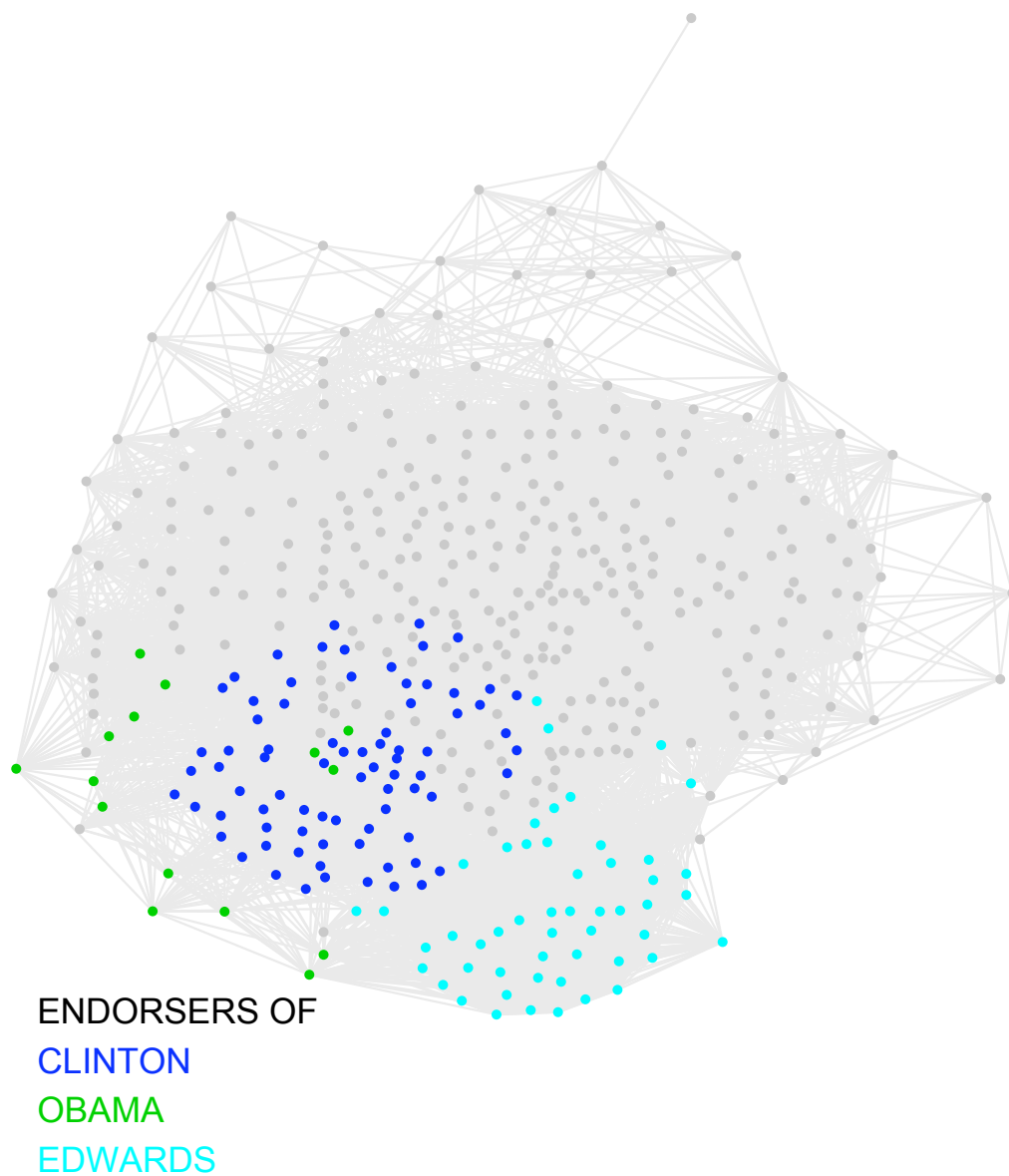
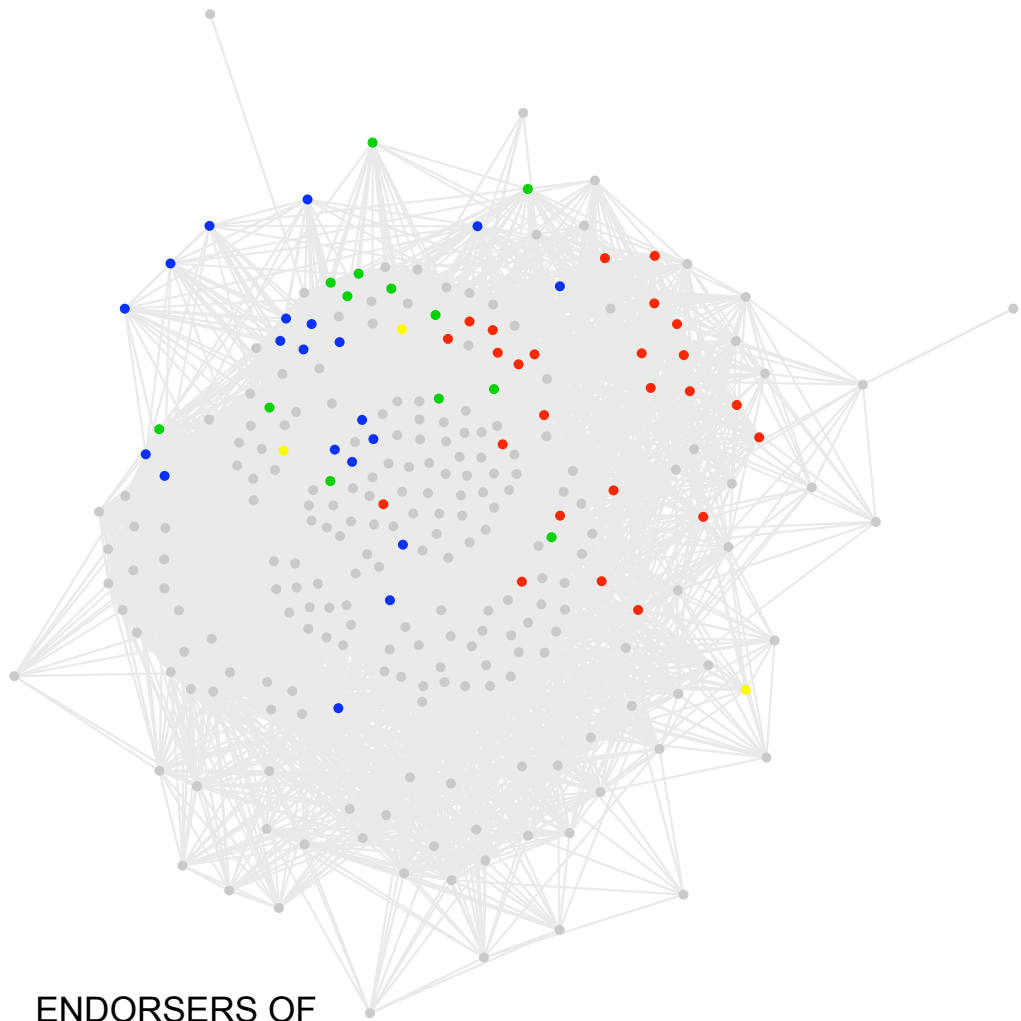


Figure 8: Republican Endorser-By-Endorser Graph (Repeat Endorsers Only)



ENDORSERS OF
GIULIANI
ROMNEY
MCCAIN
HUCKABEE

Figure 9: Degree Centrality of Democratic Candidates

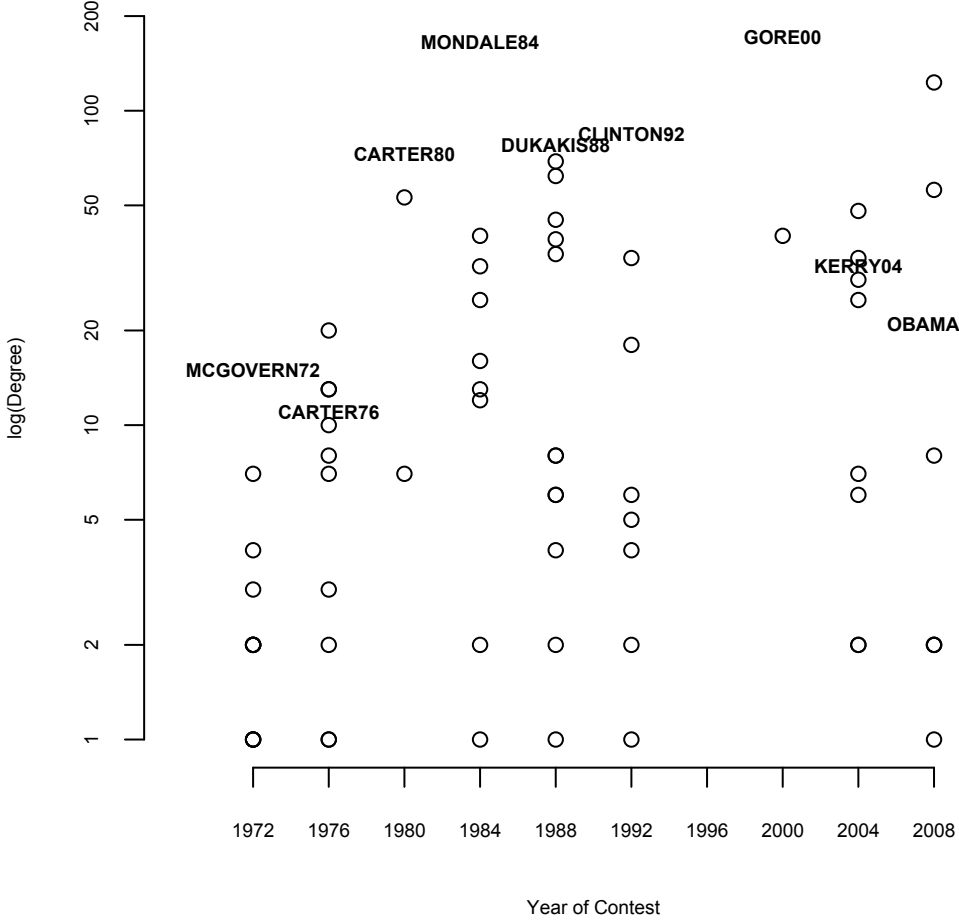


Figure 10: Degree Centrality of Republican Candidates

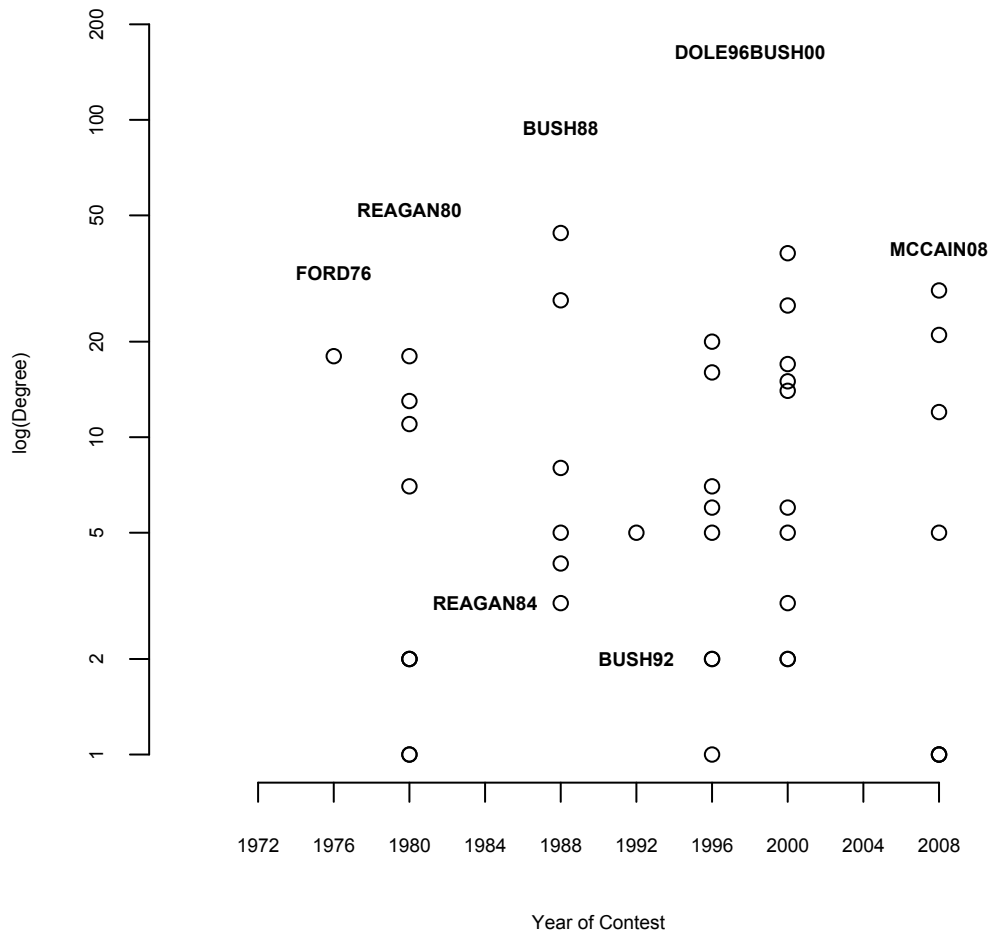


Figure 11: Eigenvector Centrality of Democratic Candidates

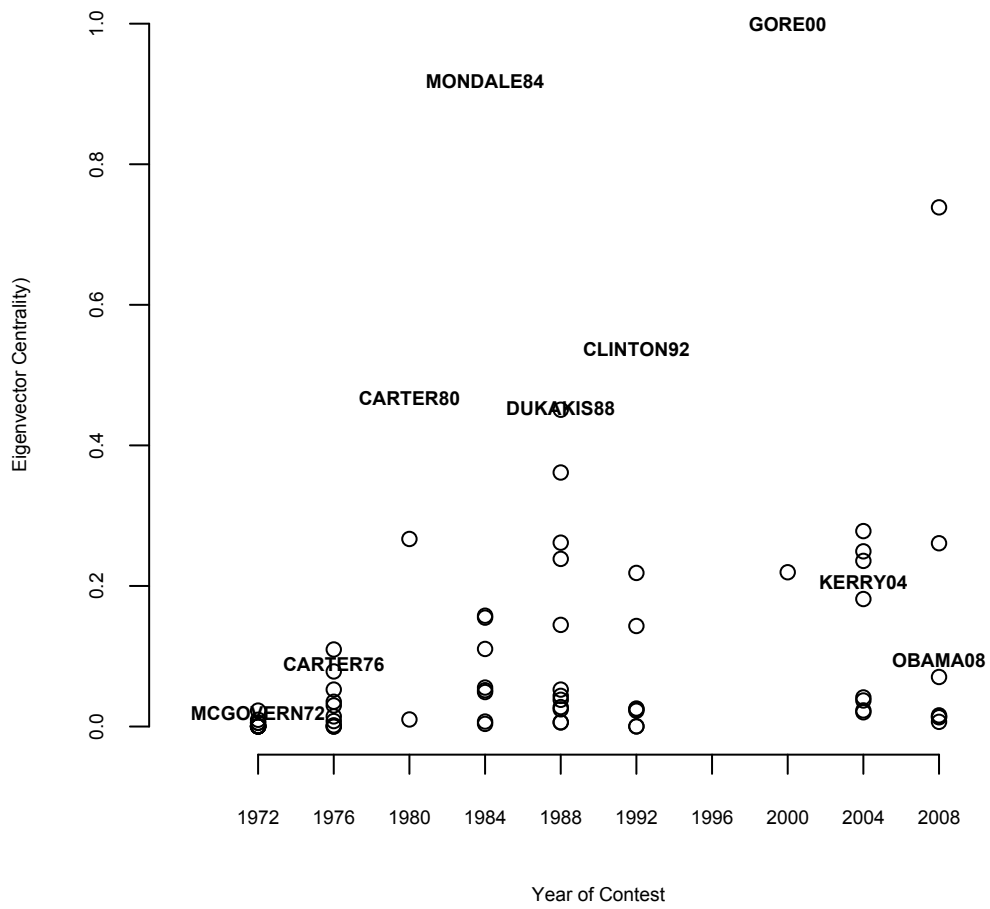


Figure 12: Eigenvector Centrality of Republican Candidates

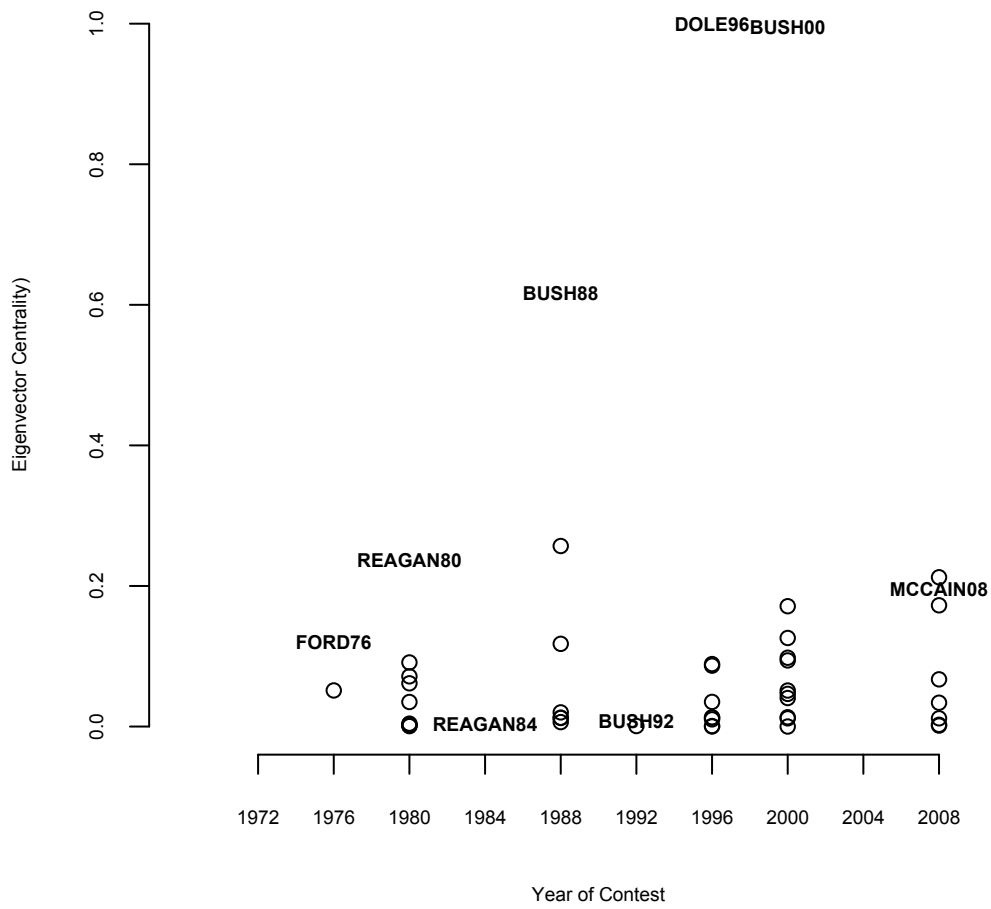


Figure 13: Betweenness Centrality of Democratic Candidates

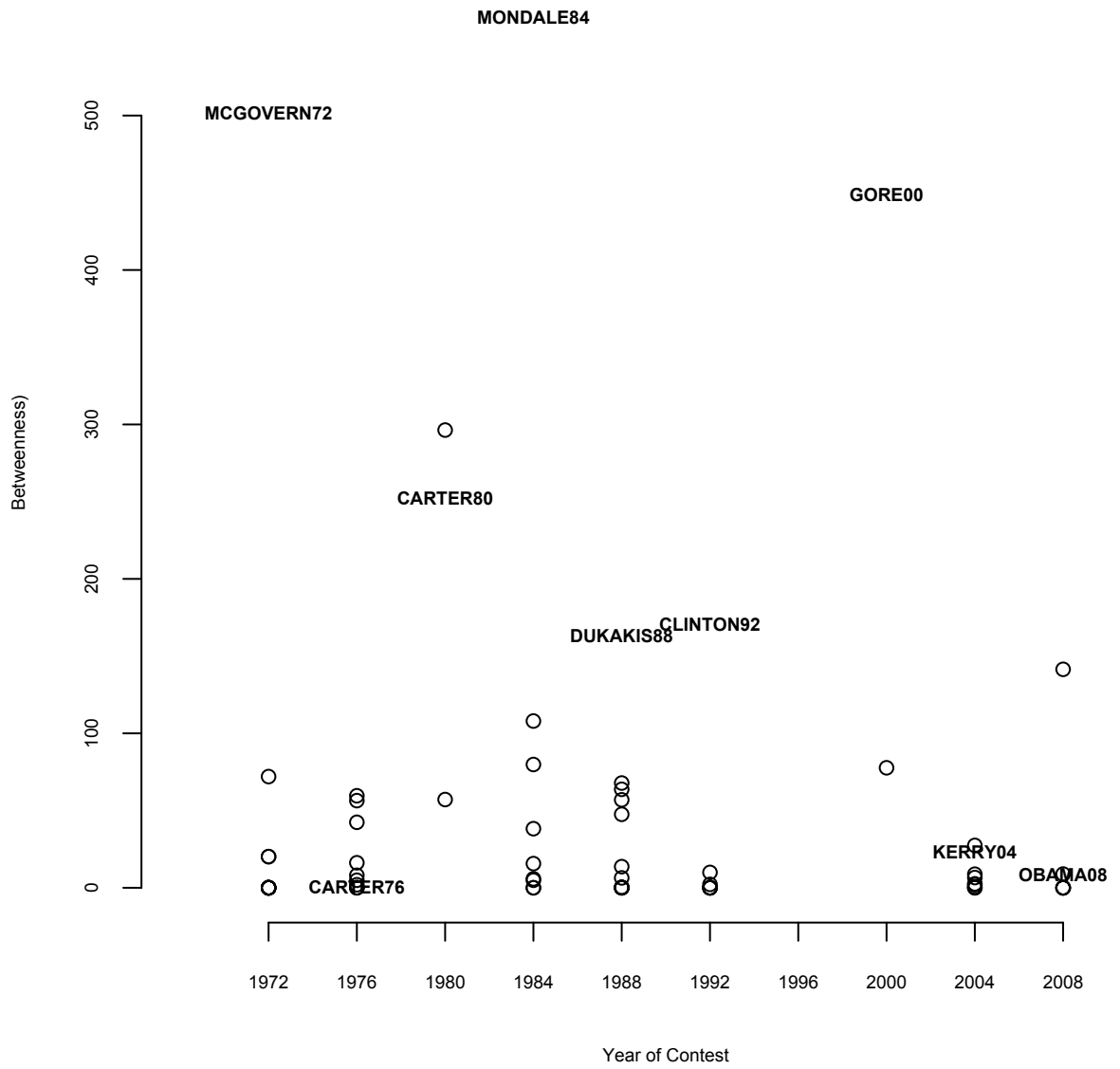


Figure 14: Betweenness Centrality of Republican Candidates

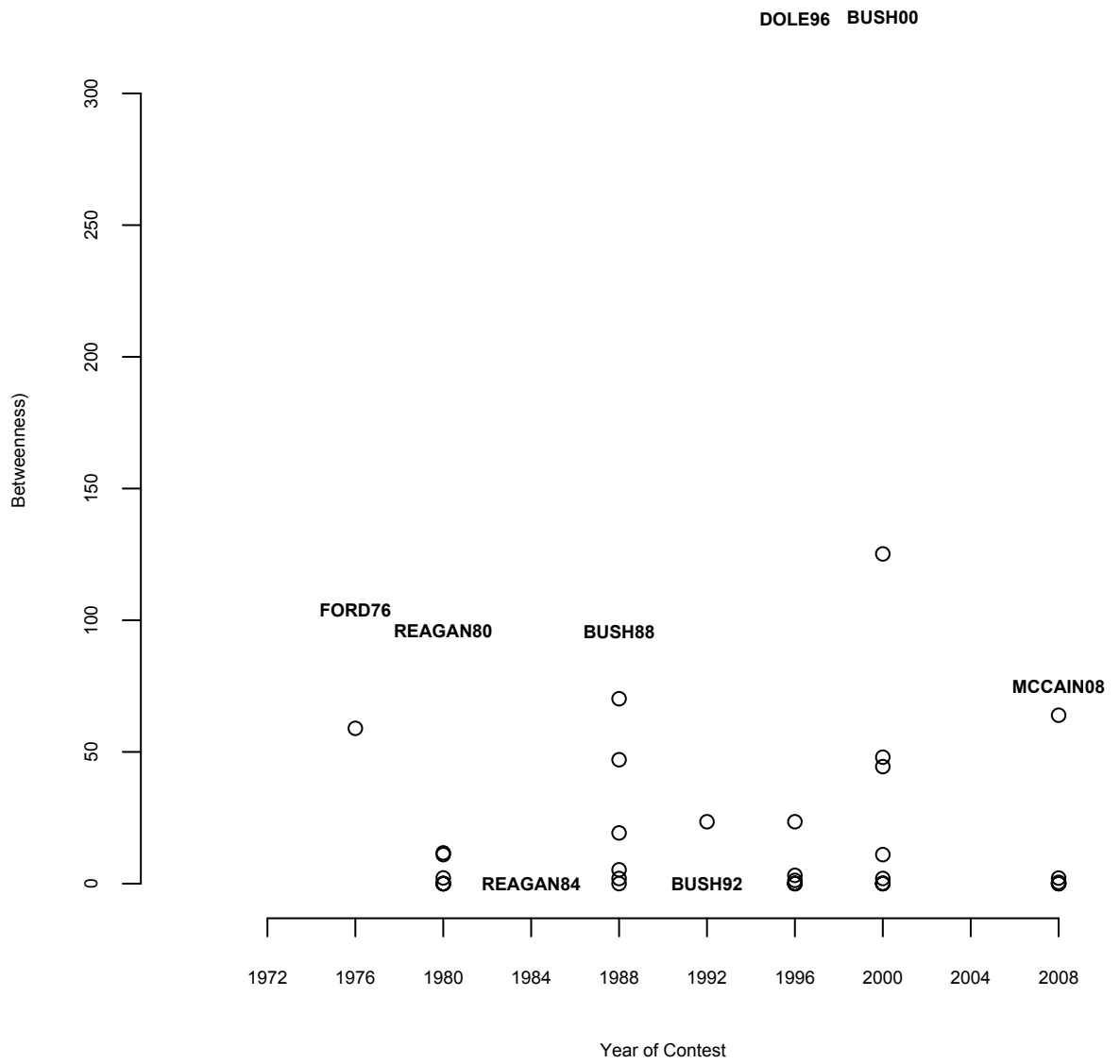


Table 2: Exponential Random Graph Models: Democrats

Variable	Model 1		Model 2		Model 3	
EDGES	-5.594 (0.210)	***	-6.508 (0.317)	***	-6.485 (0.367)	***
TRIANGLE	0.126 (0.052)	*	0.126 (0.064)	*	0.126 (0.053)	*
STATE	0.687 (0.206)	***	1.026 (0.488)	**	0.631 (0.208)	**
STATE LEVEL	-0.029 (0.113)				-0.066 (0.130)	
LOCAL LEVEL	-0.127 (0.16638)				-0.038 (0.156)	
NATIONAL LEVEL	0.196 (0.148)				-0.119 (0.211)	
STATE + STATE LEVEL			-0.341 (0.410)			
STATE + LOCAL LEVEL			-0.203 (0.502)			
PARTY			0.089 (0.174)		0.092 (0.229)	
SENATE			0.247 (0.168)		0.280 (0.196)	
HOUSE			0.401 (0.127)	**	0.477 (0.091)	***
GOV			0.406 (0.224)	***	0.441 (0.038)	***

Table 3: Exponential Random Graph Models: Republicans

Variable	Model 1		Model 2		Model 3	
EDGES	-3.703 (0.146)	***	-3.817 (0.053)	***	-3.995 (0.082)	***
TRIANGLE	0.059 (0.000)	***	0.059 (0.000)	***	0.059 (0.000)	***
STATE	0.804 (0.125)	***	1.083 (0.889)		0.767 (1.782)	***
STATE LEVEL	-0.125 (0.079)				-0.040 (0.010)	
LOCAL LEVEL	0.121 (0.137)				0.172 (0.263)	
NATIONAL LEVEL	0.088 (0.075)				-0.001 (0.428)	
STATE + STATE LEVEL			-0.057 (0.788)			
STATE + LOCAL LEVEL			-0.336 (1.154)			
PARTY			-0.003 (0.001)	*	0.006 (0.081)	
SENATE			0.266 (0.003)	***	0.272 (0.034)	***
HOUSE			0.117 (0.002)	***	0.127 (0.010)	***
GOV			-0.086 (0.001)	***	-0.056 (0.008)	***