How Partisanship Influences What Congress Says Online and How They Say It

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Abstract: We investigate the influence of partisanship on congressional communication by analyzing 180,000 press releases issued by members of Congress (MCs) between 2005 and 2019. Specifically, we examine whether partisan factors such as party control of the White House and/or Congress influence the tone used by MCs and whether MCs are more likely to focus on issues that their respective party owns. Our analyses include the use of multiple OLS models, the machine learning approach gradient boosting, and Grimmer's topical modeling software "expAgenda." We find that (1) partisanship influences the tone MCs use when communicating online; and (2) MCs are unable to prioritize discussing issues that their respective party own but devote slightly greater attention to their party's issues than MCs from the opposite party. Our study ultimately finds strong evidence of partisan influence in the way MCs design their press releases and has important implications for online congressional communication.

Dataset can be found here:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/YWK3XQ

Introduction

Does partisanship influence what members of Congress (MCs) say online and how they say it? To answer our research question, we exploit a vast database of press releases published by MCs on their official websites. With these press releases, we specifically examine whether party control of the White House and/or Congress influences the tone used by MCs when communicating and whether MCs prioritize their communication on issues owned by their respective parties. Our analyses include the use of several multiple regression models regressing the tone of press releases on party control of the White House and of Congress, while controlling for other sources of influence such as legislators' effectiveness. We also employ gradient boosting machine learning models to assign sentiment scores to press releases. Finally, using the "expAgenda" software, we assign press releases topic labels.

We observe several findings from our study, such as that partisanship influences the tone MCs use when communicating online, and that MCs are unable to prioritize discussing issues that their respective party owns, but they devote slightly greater attention to their party's issues than MCs from the opposite party. Our findings have important implications for congressional communication on the Web.

Press Releases

Press releases serve as an appropriate medium for the type of analysis to evaluate our question as they are low-cost (Adler et al., 1998), spatially limitless (Druckman et al., 2010), and are not filtered through journalists (Lipinski & Neddenriep, 2004, p. 7; Malecha & Reagan, 2012, p. 59). They encapsulate how MCs generally communicate to their constituents (Adler et al., 1998; Grimmer, 2010; Lee, 2017, p. 117; Mayhew, 1974) as well as how they behave in

Congress (Grimmer, 2013). In addition, MCs consider them to be "instrumental" in providing information about local services, "communicating their views[,] and explaining their actions to their constituents" (Malecha & Reagan, 2012, p. 18).[1]

While press releases may not be consumed often by the average constituent directly, they remain an essential part of the congressional communication process. Traditionally, MCs' communications staff understand that constituents consume a great deal of their information through local media and they take great care to develop relationships with local press to build a receptive audience (Cook, 1989). In turn, local reporters report on press releases and hopefully present them in positive terms. As the resources for local outlets continue to decline, the importance of the press release has not necessarily diminished. Grimmer demonstrates that local papers often engage in what he terms "ventriloquism" (Grimmer, 2013, p. 32). Rather than report on the MC's press release, the press will simply lift text from the press release and print it in the local paper as a news story. In this way, the constituent may not come into contact with the press release in its original form, but the likelihood that they will encounter it in their daily newspaper, perhaps with minimal filtering, is relatively high.

Previous Studies of Legislator Communication Using Press Releases

Congressional communication not only provides constituents a window into the legislative activities of their MCs, but may also shape their attitudes (Ansolabehere et al., 1993; Druckman, 2001; Grimmer, 2013; Jacobs & Shapiro, 2000, pp. 50, 61; Krosnick & Kinder, 1990; Malecha & Reagan, 2012; McCombs & Shaw, 1972; McGraw & Ling, 2003; Miller &

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[1] Although a significant portion of press releases is likely to have been written by MCs' press secretaries, we believe this distinction is irrelevant as such power is delegated by the MCs. Press secretaries are also highly unlikely to publish a piece of communication inconsistent with the MCs' views (Lipinski, 2004, p. 12).

Wanta, 1996; Page et al., 1987). As citizens and MCs devote more attention to Internet modes of communication and information gathering (Esterling et al., 2013; Fitch, 2016; Fitch et al., 2005; Johnson, 2013, p. 84; Lupia & Philpot, 2005), understanding how MCs behave online becomes more important as such behavior may differ from more traditional mediums of communication (Esterling et al., 2013).

Although several studies focus on the Internet's influence on the political process more broadly (Davis, 1999; Johnson, 2013; Malecha & Reagan, 2012; Oleszek, 2007), as well as the Internet's impact on certain congressional behavior (Adler et al., 1998; Bimber, 1999; Carter, 1999; Druckman et al., 2010; Owen et al., 1999; Simon, 2002; Xenos & Foot, 2005), very few studies have attempted to "understand the content of Congressional communication through the capturing and categorizing of individual messages" (Golbeck et al., 2010) and how such content is specifically influenced by partisanship.

Furthermore, few studies consider the relationship between partisanship and tone of congressional communications. Tone may reveal systematic patterns of partisanship influence in congressional communication. Tone is also a significant component of framing (Brunken, 2006; Gunther, 1998; Hester & Gibson, 2003), which in turn influences the public in various policy debates (Druckman, 2001; Jacobs & Shapiro, 2000, pp. 50, 61; Krosnick & Kinder, 1990; Malecha & Reagan, 2012; McCombs & Shaw, 1972; McGraw & Ling, 2003; Miller & Wanta, 1996; and Page et al., 1987). Consequently, understanding MCs' use of tone is essential to understand MCs' framing practices. For example, Lipinski (2004) finds that MCs are more likely to communicate positively about Congress' legislative activities should their party control both chambers (pp. 53–56). However, Lipinski's analysis is limited to district-wide and targeted mailings by MCs rather than internet communication—a different medium that may entail

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differences in strategic behavior (Davis, 1999, p. 97). Second, Lipinski only considers the direction of sentiment (i.e., positive, negative, or neutral) and ignores the strength of the direction. A continuous variable for tone may provide a more nuanced analysis of partisanship's influence on communication since MCs' behavior may vary by electoral context.[2] Finally, Lipinski only considers majority control of Congress and does not include party control of the presidency—another potential source of partisanship's influence.

Issue ownership theory suggests that partisanship also influences the policies discussed by elites. The theory posits that the public "believe[s] that one of the major parties is better suited to deal with particular issues" (Druckman et al., 2010, p. 5) as a result of the party's "history of attention, initiative, and innovation" towards those issues (Petrocik, 1996, p. 826). Previous research on issue ownership has mainly focused on congressional candidates' strategies rather than incumbents (Ansolabehere & Iyengar, 1994; Simon, 2002; Spiliotes & Vavreck, 2002; Xenos & Foot, 2005). Although Grimmer's (2013) study of US senator press releases finds that "both parties engage in debates about the same topic[s]" (p. 103), Grimmer does not consider House members' press releases and thus potentially neglects the effects of the institutional differences between the two chambers (Smith, 2007).

Framework

Partisanship Influence on Tone

We argue that party control of the White House leads MCs to employ a more positive tone. The president's copartisans have a vested interest in ensuring that the president's agenda

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[2] For example, it is possible that MCs from competitive districts or states publish positive/negative press releases at similar rates as their copartisans, but use less extreme tones.

and his performance is viewed favorably by the public for several interrelated reasons: First, the increase in political/ideological polarization among voters has largely aligned the president's constituents with those of his copartisans (Jacobson, 2017, pp. 56–57). Consequently, the policy goals of the president and his copartisans should largely be aligned (Smith, 2007, p. 72). Second, even if the president's policy agenda diverges from his copartisans on several key issues, copartisan MCs still possess an interest in supporting the president's general image since, following the increase in political polarization, MCs are closely attached to their party's reputation which, in turn, is closely linked to the president and his platform (Bond & Fleisher, 1990; Jacobson, 2017, p. 59; Malecha & Reagan, 2012, p. 21; Smith, 2007, p. 28). Indeed, midterm elections are often perceived as a referendum on the president's performance (Groeling, 2010, p. 88; Campbell, 2015, p. 71). Finally, by shoring up public support for the president, copartisan MCs potentially assist in the president's ability to prime voters on issues desirable to the president (and thus the party) (Miller & Wanta, 1996).

The relationship between the copartisans' desire to support the president and their increased likelihood to employ a more positive tone for press releases have two hypothetical grounds for support.[3] The first theory is that the president's copartisans will publish a nontrivial amount of positive press releases defending the president's actions. While MCs are not restricted to using positive sentiment in their defenses (e.g., Democrats defending President Obama's healthcare plan by arguing: "Repealing the ACA with no replacement isn't only a broken promise—it's dangerous. Repeal would leave millions without the care they need"),[4] they will

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[3] We note that our discussion (and subsequent analysis), focus mostly on behavior in the aggregate. To be sure, exogenous events can occur that may influence members of the majority party or the president's party to take on a more negative tone. Overall, however, we expect that copartisans of the president will be more positive than the opposition.

[4] TheDemocrats, 2017.

nonetheless make defenses that *are* positive. Furthermore, we can reasonably expect copartisan MCs to make positive defenses of the President more frequently than MCs of the opposite party (Lee, 2017, p. 127; Groeling, 2010, pp. 61, 83).[5] We expect MCs of the opposite party to negatively attack the president in an attempt to turn public opinion against the president, thus limiting his legislative influence (Malecha & Reagan, 2012, p. 3; Ostrom & Simon, 1985; Page et al., 1987; Reeves & Rogowski, 2015).

The second theory is more subtle: research suggests that the president is often "portrayed by the media and perceived by the public as the government's central actor" (Hetherington, 1998, p. 793). Consequently, the president's congressional copartisans will likely refrain from publishing an overwhelming amount of negative criticism because the public may associate such mood with the president's performance. Instead, they would likely focus on positive outcomes and claim credit, either explicitly or implicitly, for the current administration. Thus, the president's copartisans should publish positive press releases more frequently (Malecha & Reagan, 2012, p. 73). Conversely, MCs of the opposite party may criticize outcomes to sway public opinion against the president.

> **White House Control Hypothesis (White House Control Hypothesis):** *MCs of the president's party will employ a more positive tone than those of the opposite party*.

Party control of Congress may also influence MCs' tone. Previous literature indicates that when Congress is controlled by a single party, voters will often hold the majority party responsible for social and economic outcomes (Jones & McDermott, 2004; Nicholson & Segura,

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[5] Analyzing evening newscasts, Groeling finds a relatively high percentage of positive evaluations of the president by his copartisans and that, even under unfavorable conditions (see page 87), presidential party members were more likely to give positive evaluations of the president than nonpresidential party members (Groeling, 2010, p. 83).

1999). The close connection between individual MCs and their party incentivizes MCs to promote a favorable party brand lest they risk facing electoral consequences (Lipinski, 2004, p. 24). Indeed, survey responses from Congress indicate that "more than two-thirds [of Congress] agree[d] that when a voter disapproves of Congress, she is less likely to vote for an incumbent member of the majority party" (Lipinski, 2004, p. 29). Consequently, we suspect that legislators of the majority party will communicate a more optimistic narrative of the state of the nation, in general, to portray Congress and the majority party as responsible for achieving such prosperity (Lipinski, 2004, p. 24). Conversely, MCs of the opposite party are incentivized to negatively criticize the state of affairs.

We also propose another cause in the potential tone difference across party: blame. Since MCs are unable to pass legislation most of the time (Lee, 2017, p. 139), and since MCs of both parties are expected by their constituents to fulfill their legislative promises, MCs have an incentive to blame the other party for their legislative failures (Lee, 2017, pp. 125–126). However, while MCs of both parties engage in such behavior, members of the majority party should do so less frequently. As Lee argues:

> …majority parties bear a greater burden of expectations to deliver on legislation, both from their base voters and (probably) from the public at large. A majority party that successfully legislates will likely be seen as more competent in terms of government management, assuming that the legislation passed is not unpopular (Lee, 2017, p. 120).

Since the public has higher expectations for majority-party MCs to pass legislation, majority-party MCs will limit their blame tactics, relative to the minority party, as doing so would highlight their failures to pass legislation.[6]

> **Congress Control Hypothesis (Congress Control Hypothesis):** *MCs will employ a more positive tone if their party controls Congress*.

Next, we suspect that the MCs' reelection context will mediate their strategies. For example, competitive districts or states will be associated with less partisan communication since MCs fear alienating their constituents.[7] Indeed, Lipinski noted that "several [communication staffers] admitted that their bosses did not faithfully employ [their party's] scripted messages because they wanted to avoid drawing public or media attention to an unpopular party message that might turn off the folks back home" (Lipinski, 2004, pp. 61–63). MCs that serve in competitive districts have instead been found to prioritize credit claiming (Grimmer et al., 2012; Grimmer, 2013; Yiannakis, 1982, pp. 1055–1056) and emphasize constituent casework (Adler et al., 1998) in their communications. Since these types of press releases are generally more positive in tone, we make the following hypotheses:

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[6] Groeling (2010) appears to suggest this. Using 6 years of newscast data, Groeling finds that under a unified government there is a greater amount of news coverage of presidential party members praising each other (15%) than presidential party members attacking nonpresidential members (8%). In contrast, there is greater coverage of nonpresidential party members attacking presidential party members (38%) than nonpresidential party members praising each other (7%) (Groeling, 2010, p. 170). However, it should be noted that news coverage may not be representative of the true number of cases in which the above occurs (Groeling 2010, p. 87; see also Baum & Groeling, 2009).

[7] Electoral concerns should trump MCs' partisan interests as "being in Congress is necessary to achieve anything else there" (Jacobson, 2017, p. 35).

Close Election Tone Partisan Influence Hypothesis (Close Election Tone Partisan Influence Hypothesis): *MCs elected under a close (less than five percent) margin will employ a tone that is not statistically influenced by partisan factors.*

Close Election Tone Hypothesis (Close Election Tone Hypothesis): *MCs will employ a more positive tone if they were elected under a close margin.*

Issue Ownership

Both parties may devote different levels of attention to different issues when communicating to the public. Although much of the literature on issue ownership concerns congressional candidates and their incentive to communicate "largely within the policy space defined by their respective parties" (Spiliotes & Vavreck, 2002, p. 258; see also Ansolabehere & Iyengar, 1994; Simon, 2002; and Xenos & Foot, 2005), MCs share the same incentive. Incumbents craft their communication efforts to improve their reelection prospects (Davis, 1999, p. 122; Lipinski, 2004, p. 20). However, we suggest that while MCs in the House majority will concentrate on issues they own, House minority members and senators will communicate both about issues they own as well as issues owned by the opposing party. We suggest that only MCs in the House majority will be able to communicate primarily about issues that they own since the House's structural rules grant the majority party extensive control over the floor and thus the legislative agenda. Consequently, it is unlikely that the minority's policy initiatives will pose a serious legislative threat to the majority party—allowing the majority party to concentrate their

communication efforts towards focusing the public's attention to issues in which they have an advantage discussing (Sellers, 2010, pp. 6, 7).[8]

Own Party Issues Point of Interest: *Members of the House majority will communicate largely about issues owned by their party.*[9]

Although the House minority party will similarly attempt to focus on issues they own, we suggest that the minority party will nonetheless be inclined to dedicate a considerable amount of their communications responding to the majority's agenda. That is, the minority party will "trespass" on the other party's issues, particularly if it is possible to point out shortcomings on an issue where the majority party will be seen accountable (Damore 2004; Dulio and Trumbore 2009). For example, Dulio and Trumbore (2009) find that Democratic challengers to Republicans in 2006 were likely to discuss the Iraq War, an issue area typically owned by Republicans. To be sure, others find that trespassing occurs in political campaigns (Sides, 2007) and in online messaging (Sulkin et al., 2007). The strategy's effects are uncertain since a politician is effectively discussing an issue where their opponent may appear more credible and competent (Simon, 2002). Yet, the approach provides those out of power, specifically the minority party and challengers, an opportunity to attribute blame to those in power (i.e., the majority party and incumbents). The benefits for the majority party talking about an issue that is owned by the minority are less clear, since they will not wish to draw attention to issues that they do not prioritize.

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[8] Indeed, unnecessarily mentioning policy initiatives raised by the minority party may provide the minority party an advantage by providing their issues greater exposure.

[9] This is a point of interest as it is not a testable hypothesis. Unlike the other hypotheses, which make comparative evaluations, this point of interest observes the attention of House majority MCs in absolute.

Minority Party Hypothesis (Minority Party Hypothesis): *Members of the House minority will communicate about issues owned by the opposing party more frequently than the majority party*.

Similarly, MCs from different chambers may engage in different partisan communications strategies. The obligations and electoral contexts for Senators and House members differ in many ways (e.g., Fenno, 1982; Lee & Oppenheimer, 1999) and we posit many possible mechanisms for heterogeneity in their potential to discuss issues owned by the opposing party. The legislative norms have the potential to influence how legislators talk about policy. For example, senators serve on more committees than House members and thus may be involved in more policy realms than House members, including those areas typically owned by the opposing party. Furthermore, the Senate grants the majority party less influence over the legislative agenda and senators of either party are unable to communicate solely about issues they own. Consequently, they will dedicate a significant portion of their communications addressing issues owned by the opposite party (Smith, 2007, p. 77). Structurally, senators typically represent much more diverse constituencies. To adapt to this heterogeneity, they are much less parochial in their media strategy because they need to gain state-wide coverage to build a reelection coalition (Fenno, 1982). For this reason, they may be pressured to discuss a wider array of issues in their press releases, including those owned by the opposing party.

Senators Discussing Opposing Party Issues Hypothesis (Senator Hypothesis): *Members of the Senate majority party will communicate about issues owned by the opposing party more frequently than the House majority party*.

Data and Methods

The main study population includes MCs serving continuously between January 3, 2005 and January 3, 2019.[10] This includes 10 Democratic senators, fifteen Republican senators, 69 Democratic representatives, and 34 Republican representatives, totaling 184,873 press releases.[11] This set of press releases will hence be referred to as the "Main Data Set."[12] We also created a "Close Elections Data Set," which includes press releases from MCs who were elected under a close (less than five percentage points) margin in 2014. This population includes two Democratic senators, three Republican senators, eight Democratic representatives, and nine Republican representatives, totaling 9,825 press releases.[13] Since several members elected under a close election in 2014 subsequently lost reelection, and since the population size for the *Close Elections Data Set* is relatively small, we retrieved press releases from former MCs in this set using the Internet Archive's "Wayback Machine."[14] We include three representative examples of MCs' press releases coded under Mayhew's (1974) framework in Supplemental Appendix C.

Tone

To test our hypotheses regarding tone, we performed text sentiment analysis on press releases in both the *Main Data Set* and *Close Elections Data Set*. We omitted press releases written in any non-English language, such as Spanish. Since MCs sometimes simply embed a

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[10] However, we only collected press releases from active government websites. We have chosen this timeframe because it provides an accessible, comprehensive sample of press releases. Furthermore, it also provides variation with respect to Congress and White House Control, allowing our hypotheses to be tested.
[11] See Supplemental Appendix A.1 for the list of MCs in the main study population.
[12] See Supplemental Appendix B.1 for the date distribution of press releases for the *Main Data Set*.
[13] See Supplemental Appendix A.2 for the list of MCs in the close elections population. See Supplemental Appendix B.2 for the date distribution of press releases in the *Close Elections Data Set*.
[14] Web.archive.org.

video as their press release, we also removed any text equal to or shorter than a hundred words.[15]

Finally, we removed any special characters, URLs, and email addresses from the texts.

We then built a natural language processing (NLP) machine learning model to assign

each press release a value between −1 (denoting negative sentiment) and 1 (denoting positive

sentiment). To reduce the costs of manually reviewing thousands of press releases to create

training and testing sets for our model, we used two open-source text sentiment analysis

packages—sentimentR and TextBlob—to score each text's sentiment. We then retrieved the set

of press releases whose two scores were within 0.05 of each other.[16] We considered the texts'

scores to be fairly accurate and robust if similar results were achieved between the two separate

packages and thus have confidence in using these texts to train our model. We ultimately

extracted 50,000 press releases that fit our criteria. Our goal was to predict the relationship

between features extracted from press releases and the sentiment using XGBoost linear model.[17]

Each of the 50,000 press releases underwent a bag of words preprocessing before it could be fed

to the model. This included tokenization, lower casing, stop word removal, and stemming

(Grimmer & Stewart, 2013); as well transforming to document-term matrix (dtm).

To account for the fact that longer documents will have higher individual term counts and

frequency of term appearance in all documents, we applied the term frequency-inverse document

frequency (TFIDF) function to normalize all documents to be length-independent and penalize

terms that occurred frequently and have no predictive power. Doing so calculated the importance

of a term to a document in the bag of words. Since the TFIDF matrix does not take word context

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[15] Less than 1% of our total press releases measured 100 words or less.
[16] Both sentimentR and TextBlob assigned sentiment scores within the range of −1 and 1.
[17] For documentation regarding XGBoost's linear booster, please refer to the following:
https://xgboost.readthedocs.io/en/latest/parameter.html#parameters-for-linear-booster-booster-gblinear.

into consideration and can become a very large sparse matrix, we applied LSA to extract

relationships between the documents and terms assuming that terms close in meaning will appear

in similar pieces of text. The process uses a singular value decomposition (SVD) factorization of

the transposed TFIDF matrix. The matrix factorization has the effect of combining columns by

collapsing highly correlated terms down into a single concept, potentially enriching signal in the

data. By selecting a fraction of the most important singular values, latent semantic analysis

(LSA) dramatically reduces dimensionality. The selected singular vectors are the most

significant feature-rich representations of data, the higher-level concept extracted out of the

transposed TFIDF matrix.[18] They were converted to a DMatrix and fed to a XGBoost model that

generates the sentiment prediction for our sentiment analysis.

Using our model, we rescored each press release in both population sets.[19] Since we used

an automated method to create our training set (agreement in sentiment scores generated by

sentimentR and TextBlob) rather than manually code the set, the training set may not be entirely

accurate. Consequently, to validate our model's results, we randomly sampled fifty press releases

with positive [0, 1] sentiment scores and fifty press releases with negative [−1, 0) sentiment

scores. Using a pairwise comparison approach detailed in Montgomery and Carlson (2016), we

generated a thousand random comparisons while making sure that each press release is in exactly

twenty comparisons.[20] We then uploaded all one thousand comparisons as Human Intelligence

Tasks (HITs) via Amazon Mechanical Turk (AMT). Each HIT was manually reviewed by a

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[18] For more information concerning TFIDF, SVD, and LSA, please see
https://towardsdatascience.com/latent-semantic-analysis-distributional-semantics-in-nlp-ea84bf686b50.
[19] See Supplemental Appendix D for the distribution of the sentiment scores.
[20] We required that each text be in exactly twenty comparisons. As Montgomery and Carlson found, when
"generat[ing] valid estimates of latent traits embedded in texts," there is a "very mild gain in precision"
moving beyond twenty comparisons (Montgomery & Carlson 2016, p. 12).

human worker on AMT who chose which of the two press releases carried a more positive tone.[21] Comparisons were coded as a "1" if the worker identified the text with the higher sentiment score as reading more positive or if the worker believed that neither of the two texts was more positive and the sentiment scores of the two texts were within 0.005 of each other. Otherwise, the comparison was coded as a "0." We found that 683 of the 1,000 comparisons were coded as "1," suggesting that the accuracy of our sentiment model lies around 68%.[22]

As further validation, we randomly sampled another 200 press releases and determined whether the sentiment score was in the appropriate direction (i.e., positive or negative). We include the results of this validation step in Supplemental Appendix E. We note that our model tended to inflate sentiment scores. We do not believe this poses an issue to our analysis, although we note that we consequently cannot make precise absolute labels (e.g., "positive" or "negative").

With the press release scores, we examined our tone hypotheses by estimating three models using ordinary least squares (OLS).[23] For the first model, the dependent variable is the sentiment scores for press releases in the *Main Data Set*. We included two dummy covariates that address partisan control. First, we used a measure of **White House control** that was coded

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[21] As Montgomery and Carlson mention, the use of pairwise comparisons "can reduce the cognitive burden for respondents [and] improve the reliability of responses" (Montgomery & Carlson 2016, p. 8). Nonetheless, in an effort to maintain even higher accuracy, we impose a "Masters" qualification for our HITs—a status awarded to workers who have "demonstrated a high degree of success in performing a wide range of HITs across a large number of Requesters" (https://www.mturk.com/worker/help).
[22] While Montgomery and Carlson (2016, SI-2) and Socher et al. (2013) find much higher validation scores for the positivity of text (91% and 85%), we must note that in this context our validation measure of 68% is relatively strong. For one, workers in those studies were asked to evaluate film reviews, which tend to be either positive or negative by their nature. Furthermore, workers read from two reviews that were predetermined to be negative or positive by a star rating. Press releases may be much more nuanced in their positivity, and thus we might expect slightly lower scores. Nonetheless, we find that, on average, our measurement of sentiment matches with the readers.
[23] We cluster standard errors by MC.

as 1 if the author of the text belonged to the president's party and 0 otherwise. Second, we employed a variable for **Congress control** that is coded as 1 if the author is a member of the party that controls both chambers of Congress, and 0 otherwise.

MCs may communicate more positively because they win more legislative battles and thus have more opportunities to react positively than minority party MCs. We thus included a **key votes** control that "measures the percentage of key votes (as defined by Congressional Quarterly) for which the member votes on the winning side" (Lipinski, 2004, p. 50).[24] We slightly modified the variable so that the percentage is cumulative rather than aggregated by session since we considered each piece of text the day it is published.[25] We also employed a **votes with party** score (Lipinski, 2004). The party unity score is calculated as a proportion between 0 and 1, with 1 representing a MC who votes with the majority of Republicans 100 percent of the time and 0 representing a MC who votes with the majority of Democrats 100 percent of the time. In addition, we include the **Legislative Effectiveness Score (LES)**, developed by Volden and Wiseman (2014). The LES measures a legislator's "ability to advance [his or her] agenda items through the legislative process and into law" (Volden & Wiseman, 2014, p. 18). MCs with higher LES may be more positive since they can advertise their achievements. Members with lower LES might blame others for their legislation's failures, producing negative sentiment. Finally, we include a variable for monthly **presidential approval** as the president's copartisans may criticize the president if presidential approval declines

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[24] Since Congressional Quarterly did not publish the House and Senate key votes for 2018 at the time of our study, we used ProPublica's "major votes" as a substitute for 2018 only.

[25] The Key Votes cumulative percentages reset at the beginning of each year. "No votes" are treated as null; this also explains the discrepancy between the number of press releases retrieved and the number used in our OLS models. Lipinski's approach of considering only key votes is more appropriate than considering all votes as MCs may strategically propose legislation doomed to fail to serve their political needs—members may intentionally lose a greater number of legislative battles with the intention of behaving more negatively (Lee, 2017).

(Groeling, 2010).[26] To test whether MCs in close elections are more likely to be positive than the average MC, we estimated our OLS models with press releases from both data sets. In this model we included a variable identifying whether the author of the text belongs to the *Main Data Set* population or the *Close Elections Data* Set population, labeled **Close to Main**.

Issue Ownership

To examine the **Own Party Issues Point of Interest** and test our hypotheses **Minority Party Hypothesis** and **Senator Hypothesis**, we performed topical modeling on press releases in the *Main Data Set*. We generated thirty-seven topic labels using Grimmer's (2010) "expAgenda" package.[27] We referred to Gallup to determine which issues were owned by which party ("Party Images", 2019). Using this as a reference, we treated six of the thirty-seven topics as issues owned by Democrats: "Civil/Human Rights," "Environment," "Financial System/Consumer Protection," "Gun violence," "Healthcare," and "Higher Education."[28] Likewise, we treated five topics as issues owned by Republicans: "Agriculture," "Federal Budget," "Law Enforcement/Crime," "Military/Defense," and "Veterans' Affairs."

Next, we calculated the percentage of press releases each MC in the main population dedicated to Democrat-owned issues and Republican-owned issues, respectively. To observe the **Own Party Issues Point of Interest**, we calculated the quartile numbers (the minimum, the first quartile, the median, the third quartile, and the maximum) for the percentages of press releases

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[26] Although we argued earlier that the president's copartisans will defend and/or praise the president in an attempt to influence public approval of the president, MCs may strategically criticize the president to dissociate with an unpopular president.

[27] See Supplemental Appendix F for the list of issue topics as well as the number of press releases assigned to each topic. The topics of 15.7% of press releases could not be determined and are labeled as "Other."

[28] We chose not to assign the topic label "Memorial/Women's Issues" to either party as the label includes both a Democrat issue (women's issues) and a Republican issue (memorial).

issued by House majority MCs that discussed issues owned by their party. According to the **Own Party Issues Point of Interest**, we expect these numbers to be relatively high. To test the **Minority Party Hypothesis**, we calculated quartile numbers for the percentages of press releases issued by House majority MCs that discuss issues owned by the opposing party. We then calculated quartile numbers for the percentages of press releases issued by House minority MCs that discussed issues owned by the opposing party. According to the **Minority Party Hypothesis**, we expect the quartile numbers for the House majority to be lower than those of the House minority.

To test the **Senator Hypothesis**, we calculated quartiles for the percentages of press releases issued by House majority MCs that discuss issues owned by the opposing party. We then calculated quartile numbers for the percentages of press releases issued by Senate majority MCs that discuss issues owned by the opposing party. We expect the quartile numbers for the Senate majority to be higher than those of the House majority. We limited this analysis to congressional sessions in which the same party controlled both the House and the Senate.

Results

Tone (White House Control Hypothesis-Close Election Tone Hypothesis)

Figure 1 illustrates the semimonthly-average sentiment ratings for press releases (in the *Main Data Set*) by party affiliation, and their respective 95-percent confidence intervals. The trend appears to match our expectations for the **White House Control Hypothesis**: Republicans were, on average, consistently more positive than Democrats during George W. Bush's second term. Upon Obama taking office, Democrats became on average consistently more positive. A second flip occurred in November 2016, when Republican nominee Donald Trump defeated

Democrat nominee Hillary Clinton. Figure 2 mimics Figure 1 using the *Close Elections Data Set*. The trend appears to match our expectations for the **Close Election Tone Partisan Influence Hypothesis**: unlike MCs in the main population, MCs facing close elections use tones that are (for the most part) very similar, regardless of party affiliation. Figure 3 illustrates the sentiment in both data sets by party affiliation. The trend provides tentative support for the **Close Election Tone Hypothesis**: Democrats and Republicans in the *Close Elections Data Set* use more positive tones than those in the *Main Data Set*; however, the differences are only largely distinguishable between May and October 2016 for Republicans; and between November 2016 and January 2019 for Democrats.

Figure 1: Semimonthly-average sentiment ratings and their 95-percent confidence intervals for press releases (*Main Data Set*) by party affiliation, January 2005-January 2019
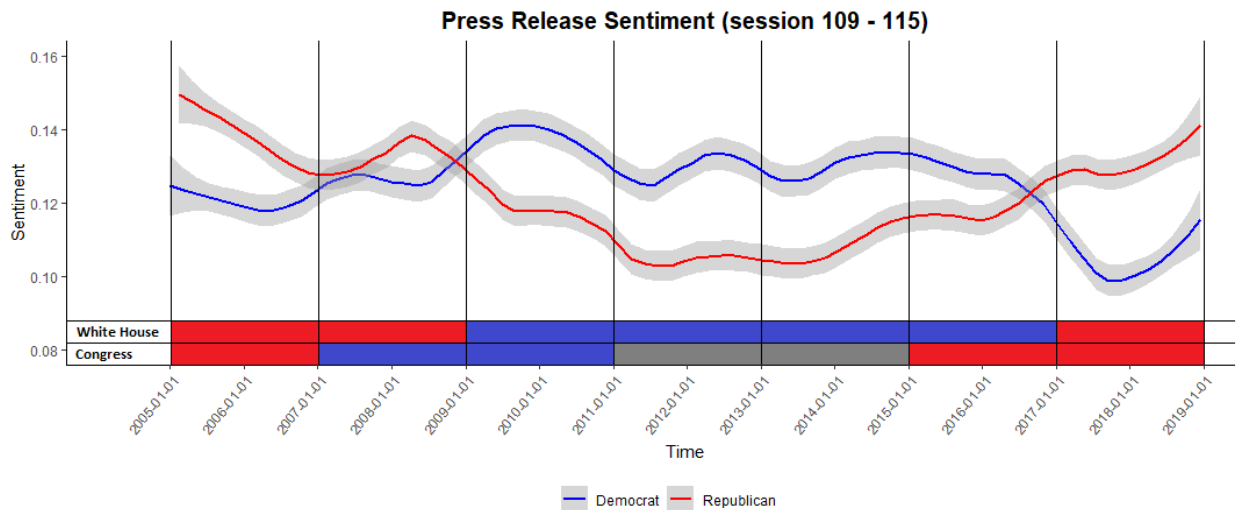
Figure 2: Semimonthly-average sentiment ratings and their 95-percent confidence intervals for press releases (*Close Elections Data Set*) by party affiliation, January 2015-January 2019
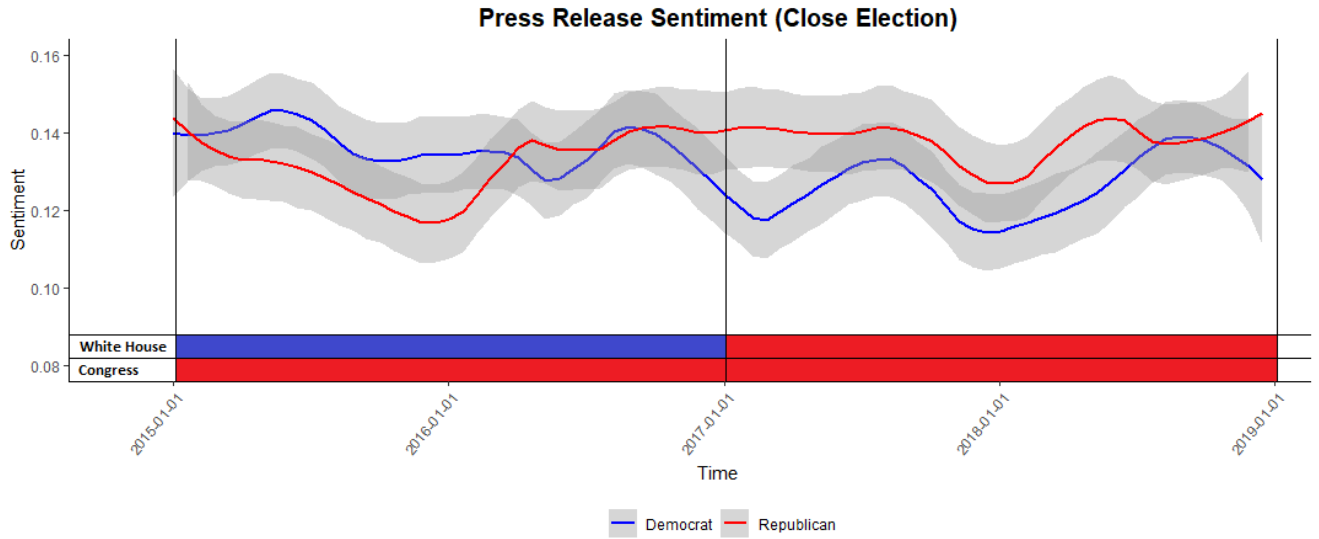
Figure 3: Semimonthly-average sentiment ratings and their 95-percent confidence interval for press releases (both *Main Data Set* and *Close Elections Data Set*) by party affiliation, January 2015-January 2019

The results for all three models estimated with OLS are shown in Table 1. In Column I, both the White House and Congress control are positively and significantly associated with sentiment, supporting the **White House Control Hypothesis** and the **Congress Control Hypothesis**: MCs from the president's party and th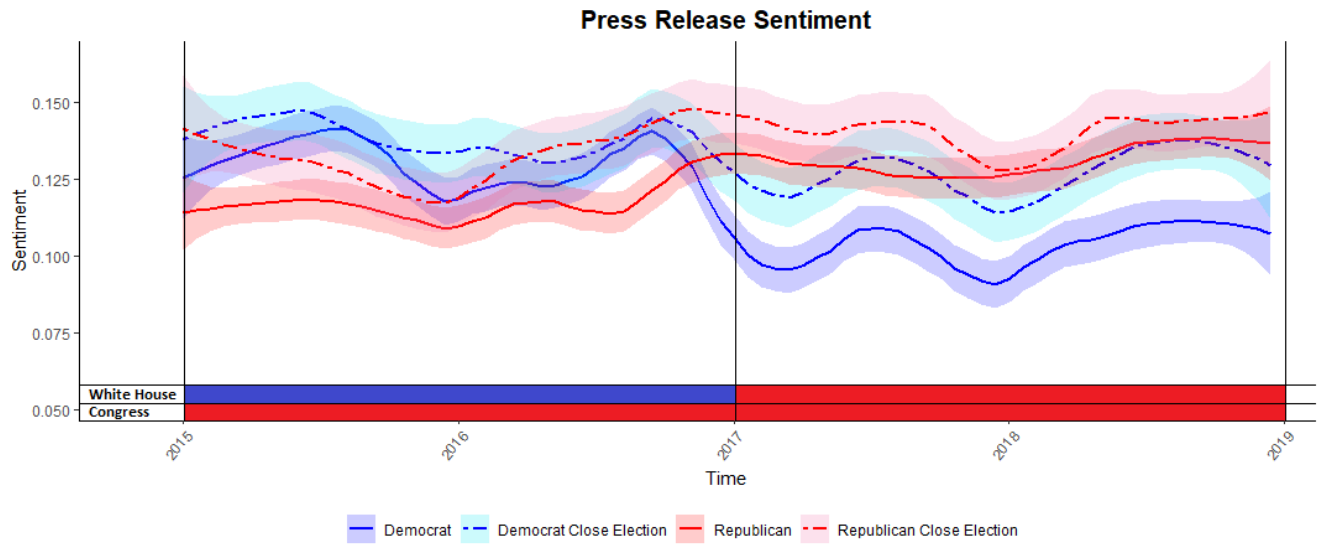ose from a majority party that controls both chambers are more likely to be positive in sentiment than those from members of the party out of power. The dependent variable, the score of the press release tone, ranges from −0.48 to 0.55 with a mean of 0.12 and a standard deviation of 0.08. This result suggests that all else equal, a press release issued by an MC from the president's party will roughly be one-fourth of a standard deviation more positive than a member of the opposition's press release. While the Key Votes coefficient is in the direction predicted—MCs who are winning a higher percentage of significant legislative battles are more likely to be positive—the coefficient for the LES variable is surprisingly negative, indicating that MCs with greater influence are more likely to be negative in their communications. Since LES likely correlate with seniority and leadership positions, this estimate may be negative because of a function of the leadership office. For example, committee chairs may have to discuss more controversial or difficult policies, which involves a less positive tone.[29] It is also possible that leadership MCs issue fewer press releases detailing constituency work (which, as mentioned above, are usually positive) and instead engage more frequently in contentious partisan messaging (which are usually negative).

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[29] We thank Dr. Justin Fox for raising this possible explanation.

Table 1: Predicting Press Release Tone

	Main Data Set	Close Elections Data Set	All Press Releases
	109th – 115th Congress	114th – 115th Congress	114th- 115th Congress
White House Control	0.018**	0.008*	0.017***
	(0.002)	(0.003)	(0.002)
Congress Control	0.010**	-0.030	0.024
	(0.003)	(0.053)	(0.069)
Key Votes	0.014**	-0.001	0.019***
	(0.003)	(0.005)	(0.005)
Vote with Party	-0.000	0.000	-0.000
	(0.000)	(0.001)	(0.001)
Influence	-0.004**	-0.001	-0.007***
	(0.001)	(0.003)	(0.002)
Approval	0.000	0.000	0.0003***
	(0.000)	(0.000)	(0.0001)
Close to Main			-0.012*
			(0.005)
Constant	0.109***	0.126***	0.120***
	(0.004)	(0.013)	(0.006)
Adjusted R^2	0.028	0.004	0.035
F-Statistic	37.94***	1.92*	38.81***
N	180,937	9,121	72,009

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the tone of press release, the unit of observation, in which positive press releases are higher values. The first column estimates the tone using our *Main Data Set* sample. The second column estimates the tone of press releases for MCs using elections decided by five percentage points or fewer. The third column includes all press releases for all MCs in our sample. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

We also considered the possibility of heterogeneous effects under different types of divided and united government. Under unified government, the accountability process between government performance and voters may be more apparent (Norpoth, 2001). Only one party controls the executive and legislative branches and MCs may anticipate that voters will hold that party accountable. Thus, they may be more likely to be negative if their party is out of power or more positive if their party is in power since the accountability process is clearer to voters. For this reason, we might expect White House control's effect to be stronger under a unified government rather than under a divided government scenario. When the government is divided, we might expect these relationships to be weaker since the accountability chain is less clear. Drawing negative attention to the government could backfire against an MC's copartisan in the White House or Speaker of the House. Furthermore, we might expect weaker effects partisan control effects when Congress is divided by chambers.

In an ancillary analysis, we replicate Table 1, Column 1 in the Supplemental Appendix Table G7 by subsetting the *Main Data Set* into unified government, divided chamber, and divided government with unified chambers subsamples. Our results indicate that the strongest effect for the White House control variable is in fact when the chambers are divided by party, perhaps suggesting that when accountability is less clear for Congress, MCs are much more sensitive to the president's partisanship in their messaging strategy.[30]

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[30] We also investigated whether district-specific connections to a certain issue may influence the tone of how an issue is discussed. In Supplemental Appendix Table G2, we ran the model from Table I, Column I on all those press releases referring to agriculture, while controlling for the acres of farmland in each legislative district. While we found no evidence of an effect that the proportion of district devoted to farming influenced tone, our main results with respect to partisan control held. In Supplemental Appendix Table G13, we investigated whether partisan control's effect is conditioned by an issue being owned by a party. We find that the majority party is significantly more likely to discuss an issue positively if they own it, relative to an issue not owned by their party.

Table 1, Column II provides modest support for **Close Election Tone Partisan Influence Hypothesis**. While the White House Control estimate is still significant, the Congress Control estimate is not. We conducted an additional regression model to compare the White House control effects across the main and close elections populations.[31] We found that party control of the White House had a stronger effect on the tone of press releases issued by MCs in the Main population than those issued by MCs in the close elections population, providing further support for **Close Election Tone Partisan Influence Hypothesis**. We replicated the approach from Column I of Table 1, but instead standardize the coefficients to gauge the relative strength of White House and Congress control. We found that the standardized White House estimate was nearly twice the size of the Congress Control's magnitude.[32]

In Table 1, Column III, we find that the "Close to Main" is negative and statistically significant, indicating that press releases in the *Main Data Set* are more negative in tone than those in the *Close Elections Data Set* (thus providing support for **Close Election Tone Hypothesis**).

Issue Ownership (Own Party Point of Interest and Minority Party Hypothesis-Senator Hypothesis)

Figure 4 shows the quartile numbers for the percentage of press releases issued by Democratic/Republican MCs dedicated to discussing Democrat/Republican-owned issues for each of the seven congressional sessions. Under the **Own Party Issues Point of Interest**, we expect the House majority to largely focus on issues they own. However, in Figure 4, we find that most House majority members dedicated no more than 21% of their press releases to party's

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[31] See Supplemental Appendix Table G8.
[32] See Supplemental Appendix Table G9.

issues. When ignoring outliers, we see that no MC dedicated more than 38% of their press

releases to their party's issues. Consequently, the **Own Party Issues Point of Interest** does not

find as strong of support as we had expected.

Figure 4: Quartile numbers for percentages of press releases dedicated by Senate/House
Democrats and Republicans to Democrat/Republican-owned issues for each congressional
session, respectively
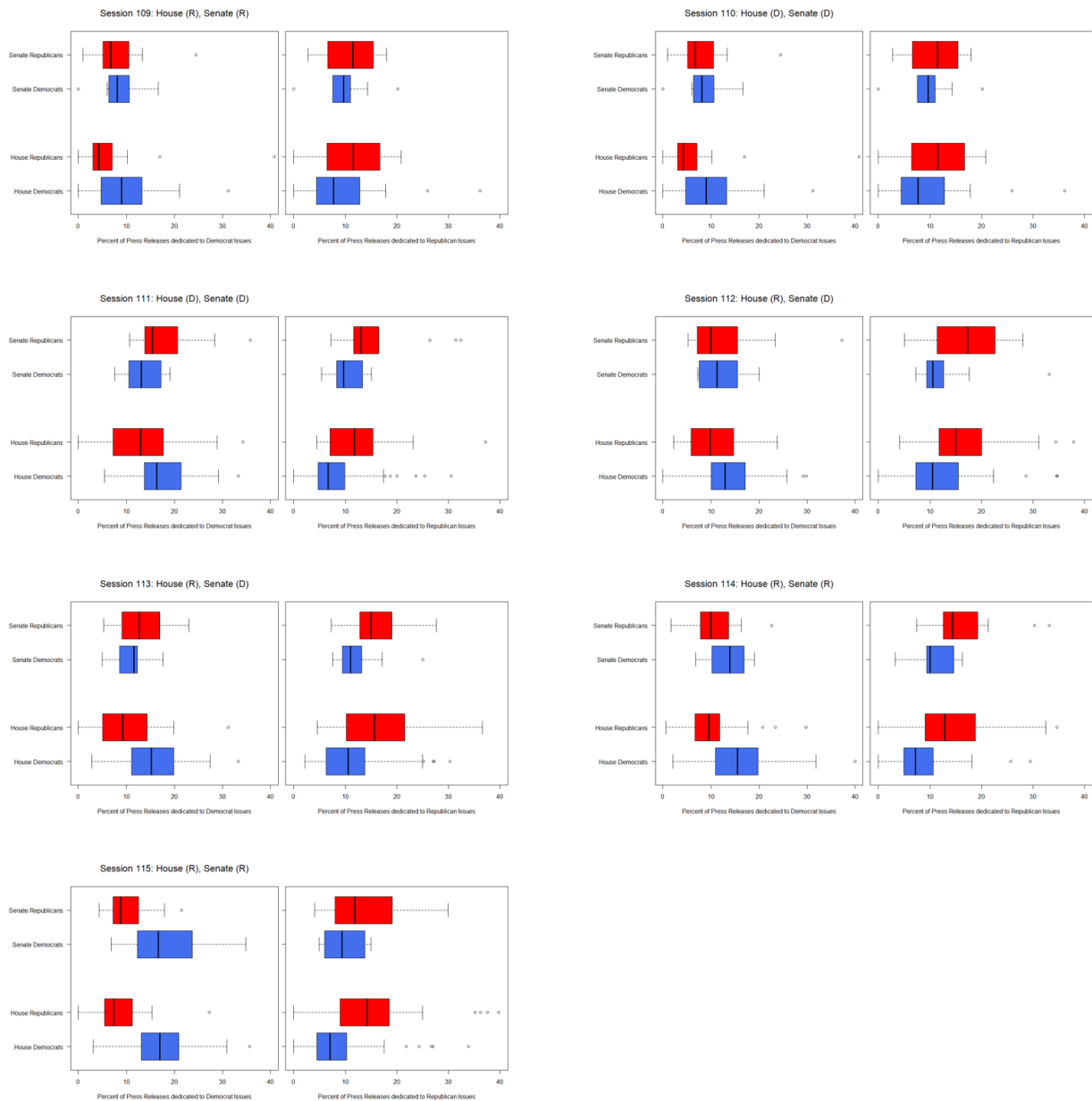
Nonetheless, we find that MCs devoted a slightly higher percentage of press releases to issues that their party owns than MCs of the other party. For example, Figure 4 illustrates that most or all of the quartile numbers for Republican MCs' percentages are higher than the respective numbers for Democratic MCs' percentages when discussing Republican issues. Similarly, most or all of the quartile numbers for Democratic MCs' percentages are higher than the respective numbers for Republican MCs' percentages when discussing Democratic issues. Only two exceptions occur in this general pattern regarding senators discussing Democrat-owned issues in the 111th and 113th sessions. We regressed the percentage of press releases MCs devoted to discussing Republican and Democratic issues, respectively, on party affiliation using OLS while controlling for the legislative session.[33] Column I of Table 2 demonstrates that a Republican senator was estimated to discuss Republican issues by 4.16% points more than a Democratic senator, a statistically significant difference. In the House (Table 2, Column II), we find a similar result: Republicans discussed Republican issues more frequently than Democrats by roughly 5.07% points. We next examine Democratic issues in Columns III and IV. While we do not find a reliable effect for partisanship in the Senate, the estimated coefficient for House members is negative and precise. A Republican is estimated to talk about Democratic issues less frequently than a Democrat by approximately 5.21% points.

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[33] For the ease of interpretation, we estimated and present models using OLS. In this way, it is possible to get a sense of the baseline for the percentage of press releases that MCs devote to discussing their own and the other party's issues. We are then able to show how our variables of interest are associated with expected shifts in the messaging strategy. An OLS approach is limited in that it allows for nonsensical out-of-sample predicted estimates. For this reason, we also estimated our models using a fractional logit approach. The results are consistent with the findings presented in the main text and may be found in Supplemental Appendix Table G3.

Table 2: OLS regression testing whether differences in attention towards Republican issues are significant between Democratic and Republican senators and representatives

	% of Press Releases Dedicated to Republican Issues		% of Press Releases Dedicated to Democratic Issues	
	Senate	House	Senate	House
Republican	4.156***	5.065***	-0.512	-5.213***
	(1.037)	(0.608)	(1.433)	(0.692)
110th Congress	3.920*	0.616	2.628	2.582*
	(1.972)	(1.225)	(2.726)	(1.396)
111th Congress	2.711	-0.442	11.462***	8.344***
	(1.953)	(1.165)	(2.700)	(1.327)
112th Congress	5.371***	3.494***	4.106	5.363***
	(1.972)	(1.163)	(2.726)	(1.324)
113th Congress	4.320**	3.289***	3.911	5.408***
	(1.934)	(1.159)	(2.674)	(1.319)
114th Congress	3.879**	0.335	3.241	5.579***
	(1.934)	(1.159)	(2.674)	(1.319)
115th Congress	2.101	1.188**	4.938*	5.856***
	(1.934)	(1.156)	(2.674)	(1.317)
Constant	7.798***	8.209*	8.630***	10.134***
	(1.544)	(0.926)	(2.134)	(1.054)
Adjusted R^2	0.104	0.126	0.079	0.125
N	166	644	166	644

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the percentage of press releases a MC devoted to the issues of a given party. The unit of analysis is MC. The first two columns present estimates of the percentage or press releases devoted to issues traditionally owned by Republicans, while the third and fourth columns present estimates for issues traditionally owned by Democrats. The first and third columns are estimates for the US Senate, while the second and fourth columns are estimates for the US House. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Per Minority Party Hypothesis, we expect the House majority party's quartile numbers concerning percentages of press releases dedicated to issues owned by the opposing party to be lower than the respective quartile numbers for the House minority party. However, according to Figure 4, we find an inconsistent pattern of this occurring in only four of the seven sessions. In Table 3, we regressed the percentage of press releases dedicated to the other party's issues on a dummy variable for MC party affiliation and whether the MC was a member of the majority. Surprisingly, we find that Republicans were more likely to talk about Democratic issues than Democrats were to talk about Republican issues. This finding could be due to issue topics such as "Healthcare" and "Environment"—two Democrat-owned issues—being quite salient in the given period. In addition, representatives in the majority party were less likely to talk about issues owned by the opposite party than were representatives in the minority party. In summary, the results support the **Minority Party Hypothesis**.

Table 3: OLS regression testing whether differences in attention towards issues owned by the opposite party are significant between the House majority and the House minority

Republican	1.422**
	(0.644)
House Control	-1.492**
	(0.606)
Constant	9.909***
	(0.367)
Adjusted R^2	0.009
N	644

Note: Regression estimated using ordinary least squares. The dependent variable of each model is the percentage of press releases a House member devoted to the issues of the opposing party. The unit of analysis is legislator. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Per **Senator Hypothesis**, we expect the Senate majority quartile numbers to be higher than the respective quartile numbers of the House majority party. Limiting our comparisons to sessions in which the same party controlled both the House and the Senate, we find evidence supporting the **Senator Hypothesis**: as illustrated in Figure 4, we find that the quartile numbers for the Senate majority's percentages of press releases discussing issues owned by the opposing party are always equal to or higher than those of the House majority across all five sessions. Furthermore, as displayed in Table 4, regressing the percent of press releases dedicated to issues owned by the opposite party on a dummy variable for chamber demonstrates evidence of a difference between chambers: the estimated coefficient suggests House members are slightly less likely to talk about issues owned by the opposite party than senators.[34]

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[34] We conducted several ancillary analyses to identify patterns of press release behavior. Supplemental Figure G1 and Tables G6 and G10 demonstrate that close elections are associated with more credit-claiming. Supplemental Table G11 shows those in close elections are slightly more positive.

Table 4: OLS regression testing whether differences in attention towards issues owned by the opposite party are significant between the Senate majority and House majority

Republican	0.836
	(0.549)
Senate	2.087**
	(0.658)
110th Congress	0.732
	(1.092)
111th Congress	2.987**
	(1.047)
112th Congress	3.250**
	(1.040)
113th Congress	2.697**
	(1.040)
114th Congress	0.793
	(1.040)
115th Congress	0.471
	(1.038)
Constant	7.787***
	(0.836)
Adjusted R^2	0.036
N	810

Note: Regression estimated using ordinary least squares. The dependent variable of each model is the percentage of press releases a legislator devoted to the issues of the opposing party. The unit of analysis is legislator. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Limitations

Our study faces several limitations. First, press releases are not always a source of clean data for analysis. For example, MCs may cite quotations that they find disagreeable. However, this phenomenon rarely occurs: in a random sampling of 200 press releases, we find that 85 percent did not cite a direct quote; 13 percent cited a quote in which the author of the text shared the same sentiment; and the remaining 2 percent cited a quote with which they disagreed. In all of the press releases that included a quote that the author disagreed with, the quote took

less than 5 percent of the total word count of the press release. Consequently, we do not believe that members used direct quotations in a manner that raises serious concerns over the model's accuracy. MCs may also divide press releases into several sections, with each section dedicated to a different issue topic. Such practice poses a challenge to the accuracy of our analyses concerning topic as expAgenda assigns each press release a single topic label. This practice, however, is rare as well. Using the same random sample of 200 press releases, we found only one press release that was divided into distinct issue sections. Grimmer (2013) also considered this phenomenon to be infrequent and to be of little challenge to expAgenda's utility (p. 42). Finally, press releases may also be jointly issued by several MCs (as denoted within the text of the press release) but only published on a subset of the authoring MCs' websites. Again, we found this practice to be rare—occurring in less than five percent of the 200 press release sample.

Second, as previously mentioned, we noticed that our sentiment analysis model inflated sentiment scores for all press releases. However, such an issue does not challenge our findings for three reasons: First, we make a comparative analysis in regard to tone—we examine under which circumstances texts are *more positive or negative* rather than whether they are, in absolute terms, positive or negative. Moreover, as indicated by our validation step using AMT, the accuracy score for the *relativity* of our model's ratings is fairly high—68%. Second, the findings of our study are robust, regardless of how we assign sentiment scores to texts. For example, our model only assigns four percent of texts with a score in the negative direction; sentimentR and TextBob observe more reasonable percentages, at sixteen percent and ten percent, respectively. We performed the same analyses regarding tone using both packages individually and found no significant differences in results. Third, from our second validation approach of manually

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reviewing 200 press releases and the direction of their sentiment scores, we found that negative press releases number relatively low in general (please see Supplemental Appendix E for more information).

Another limitation in our study is the lack of information concerning the distribution of true issue topics that are grouped into the "Other" category by expAgenda. Since the percentage of press releases in the "Other" category is fairly consistent across all seven congressional sessions, we are not concerned by potential issues as a result of inconsistent labeling. However, we are uncertain as to whether the distribution may affect our analysis regarding issue ownership and, if so, by how much. We mitigate this uncertainty by random sampling 200 press releases labeled "Other." We manually coded each press release in the sample with an issue topic and assigned forty-four different issue topics in total. Twenty-nine percent of these issue topics were not topics previously generated by "expAgenda" and included topics concerning Native Americans, the swearing in of MCs, and advertisements for internships. We also found that there is a slightly higher percentage of press releases dedicated to Democrat issues (18%) than Republican issues (9%), although we do note that these percentages likely reflect the greater number of texts authored by Democrats in the overall dataset. The top three most frequent issue topics for press releases in the "Other" category were "Honorary," "Memorial," and "Appropriations"—constituting twenty-six percent of the sample. We ultimately believe that the distribution of issue topics within the "Other" category does not pose a significant challenge to our analyses.

Conclusion

As MCs increasingly use the Internet to communicate with their constituents, and as the public gathers political information from the internet more frequently, it becomes increasingly important to understand congressional behavior on the Web. We contribute to this understanding by examining online congressional communication under existing theories of strategic partisan communication. Specifically, our study analyzes the influence of partisanship on MCs' use of tone and examines whether MCs prioritize communicating about issues that their party owns. In the process, we provide what we believe is the most comprehensive and contemporary analysis of MCs' press releases thus far.

In particular, we observe several findings from our study: First, party control of the White House and of Congress both influence MCs to communicate more positively. We find evidence that the differences in tone regarding the former variable are caused by nonpresidential party MCs attacking the President and the Administration more frequently; and by presidential party MCs communicating more optimistically when discussing the general state of the nation. However, party control of the White House possesses a smaller effect for MCs serving in competitive districts or states while party control of Congress has no effect. We find that these marginal MCs engage more frequently in credit claiming instead. Furthermore, when marginal MCs do discuss policy issues, they employ a more positive tone regardless of partisan affiliation. Party control of the White House also appears to possess a greater influence on tone than party control of Congress for all MCs.

Second, MCs devote slightly greater attention to issues that their respective party owns than MCs from the opposite party. However, MCs are largely unable to prioritize their party's

issues in their communications. We also find that MCs in the House minority discuss issues

owned by the opposite party slightly more frequently than do MCs in the House majority, and

that the Senate majority does devote a larger percentage of press releases discussing issues

owned by the opposite party than the House majority.

Our results have important implications for congressional communication on the Web.

Ultimately, we find that MCs engage in strategic behavior when communicating on the Web—

partisanship not only affects what MCs say, but how they say it. Such behavior can potentially be

troubling as political polarization increases within Congress (Lee, 2017; Theriault, 2008) and

may have a profound impact on the lack of genuine or meaningful discourse by MCs on the

Web. For example, if MCs' attitudes when discussing policy is more easily influenced by

partisanship rather than the merits of said policy, MCs may ultimately offer an incomplete or

even fallacious set of information to their constituents, who then use such information when

deciding whether to support the policy. Indeed, previous literature has found that what MCs

choose to discuss in their press releases (and, as importantly, what they choose *not* to discuss in

their press releases) has a significant impact on the information constituents use to evaluate their

representatives (Grimmer, 2013). Cohen (2003) also finds that the public's evaluation of a policy

is influenced by the political affiliations of supporters for that policy. For example, Cohen found

that "for both liberal and conservative participants, the effect of reference group information

overrode that of policy content. . . If their party endorsed it, liberals supported even a harsh

welfare program, and conservatives supported even a lavish one" (p. 811). Consequently, we

should not only be concerned with the selection of content presented within MCs' press releases,

but also the *presentation* of such content as both have significant influence on constituents'

decision-making in the political process. Although previous literature has captured the influence

of partisanship on congressional communication in more traditional mediums of communication, such as television and newspapers (Callaghan & Schnell, 2005; D'Angelo & Kuypers, 2010; Reese, 2001, pp. 49–61; Schaffner & Sellers, 2010), few have observed such an influence on congressional Web communication. Our study attempts to supplement the latter.

Acknowledgements

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Appendix

Appendix A.1: List of members in the *Main Data Set* population and number of press releases per member:

Member	Press Release Count
Adam Schiff	943
Adam Smith	980
Al Green	556
Albio Sires	719
Alcee Hastings	1,206
Anna Eshoo	981
Barbara Lee	2,124
Bennie Thompson	96
Betty McCollum	847
Bill Pascrell Jr	1,585
Bobby Rush	865
Brad Sherman	713
Carolyn Maloney	2,618
Cathy McMorris Rodgers	1,208
Charles Grassley	8,307
Charles Schumer	4,031
Christopher Smith	2,587
Collin Peterson	427
Dan Lipinski	1,260
Danny Davis	179
David Price	994
David Scott	417
Debbie Stabenow	1,131
Debbie Wasserman Schultz	688
Devin Nunes	112
Diana DeGette	933
Dianne Feinstein	3,498
Don Young	1,751
Doris Matsui	1,682
Dutch Ruppersberger	963
Earl Blumenauer	1,116
Eddie Bernice Johnson	896
Eleanor Norton	3,931
Elijah Cummings	1,142
Eliot Engel	2,872
Emanuel Cleaver II	357
Frank Lucas	314
Frank Pallone	2,402
Fred Upton	886

GK Butterfield	623
Grace Napolitano	539
Greg Walden	893
Gregory Meeks	798
Gwen Moore	663
Harold Rogers	956
Henry Cuellar	1,474
Jack Reed	3,185
James Clyburn	366
James Inhofe	3,572
James Sensenbrenner	394
Jan Schakowsky	1,844
Jeff Fortenberry	371
Jerrold Nadler	1,824
Jim Cooper	675
Jim Costa	993
Jim Langevin	1,506
Jim McGovern	877
Joe Wilson	1,192
John Carter	1,298
John Cornyn	3,392
John Larson	1,654
John Lewis	718
John Shimkus	528
John Thune	2,112
Johnny Isakson	2,021
Jose Serrano	1,051
Kay Granger	577
Ken Calvert	684
Kenny Marchant	673
Kevin Brady	951
Lamar Alexander	3,892
Linda Sanchez	810
Lindsey Graham	1,721
Lisa Murkowski	3,097
Lloyd Doggett	976
Louie Gohmert	303
Lucille Roybal-Allard	1,710
Marcy Kaptur	1,155
Maria Cantwell	3,005
Mario Diazbalart	851
Maxine Waters	1,095
Michael Burgess	1,062
Michael Conaway	674

Michael Crapo	2,573
Michael Enzi	2,171
Michael McCaul	736
Mike Doyle	395
Mike Rogers	596
Mike Simpson	770
Mike Thompson	1,120
Mike Turner	894
Mitch McConnell	3,534
Nancy Pelosi	4,668
Nita Lowey	1,347
Nydia Velazquez	719
Pat Roberts	1,670
Patrick Leahy	4,853
Patrick McHenry	703
Patty Murray	4,406
Pete Visclosky	649
Peter DeFazio	914
Raul Grijalva	1,226
Richard Burr	1,482
Richard Durbin	3,949
Richard Neal	438
Richard Shelby	1,838
Rick Larsen	1,581
Rob Bishop	657
Robert Aderholt	433
Robert Scott	995
Ron Kind	1,086
Ron Wyden	2,201
Rosa Delauro	2,823
Sam Graves	437
Sanford Bishop Jr	911
Sheila Jackson Lee	512
Steny Hoyer	1,849
Stephen Lynch	675
Steve King	1,346
Susan Collins	1,952
Susan Davis	305
Thomas Carper	3,624
Tim Ryan	1,428
Tom Cole	920
Virginia Foxx	852
William Lacy Clay	362
William Thornberry	456

Zoe Lofgren	745
Total	**184,873**

Appendix A.2: List of members in the *Close Elections Data Set* population and number of press releases per member:

Member	Press Release Count
Alex Mooney	114
Ami Bera	190
Bob Dold Jr.	139
Brad Ashford	143
Bruce Poliquin	626
Cory Gardner	939
Cresent Hardy	121
Dan Sullivan	615
Frank Guinta	207
Gwen Graham	156
Jeanne Shaheen	1,426
Jerry McNerney	240
John Delaney	767
Julia Brownley	311
Mark R. Warner	1,251
Martha McSally	517
Pete Aguilar	354
Rod Blum	140
Scott Peters	427
Sean Maloney	516
Thom Tillis	708
Will Hurd	316
Total	**10,223**

Appendix B.1: Distribution of *Main Data Set* Press Releases by Year:

Count of Main Data Set Press Releases by Year
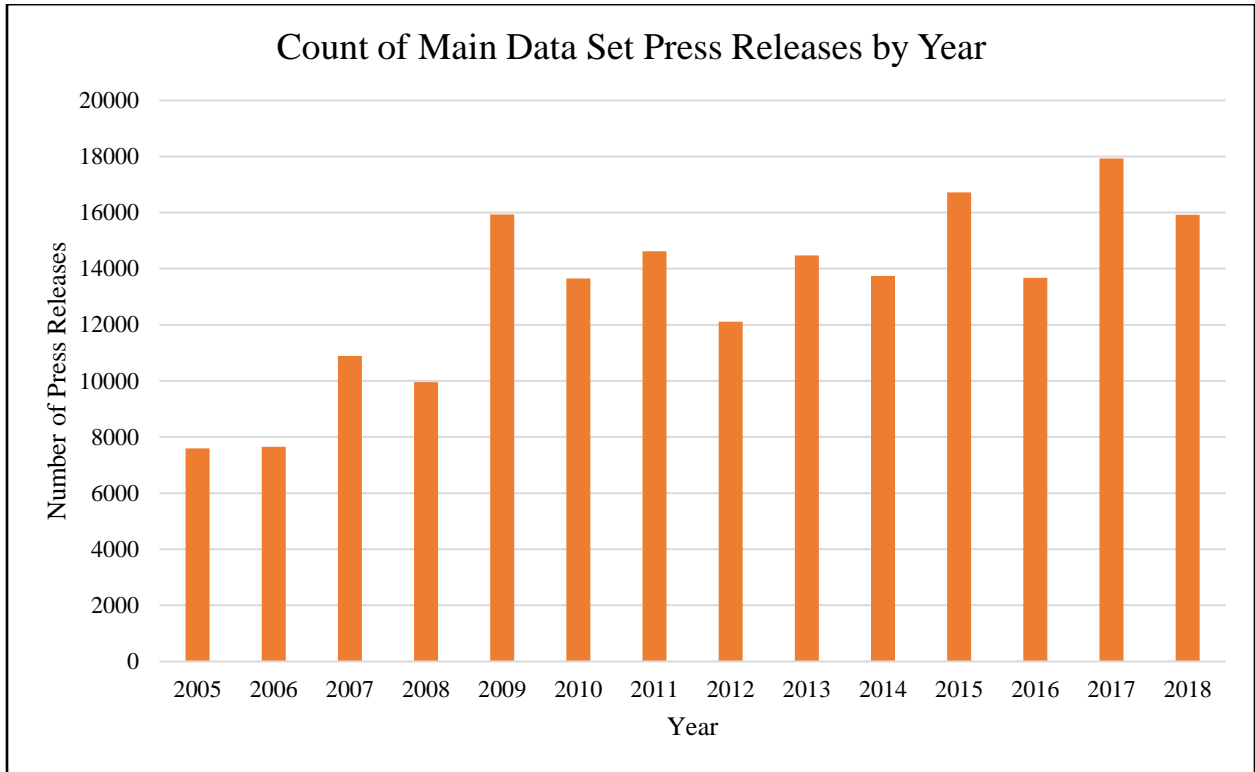
Appendix B.2: Distribution of *Close Elections Data Set* Press Releases by Year:

Count of Close Elections Data Set Press Releases by Year
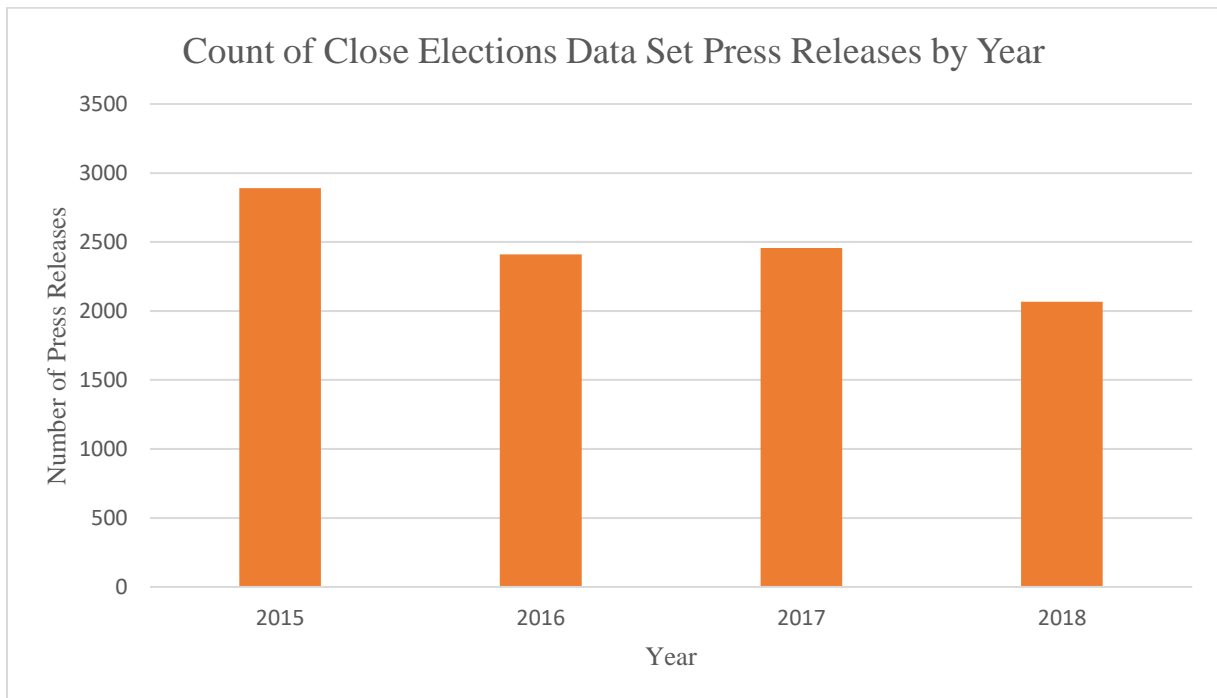
Appendix C: Sample press releases, coded under the framework of Mayhew 1974:

Position-taking: (Washington, DC)--On October 1, 2013, Congressman Al Green released the following statement on the GOP government shutdown. \Tonight's government shut down represents a collective failure to responsibly govern our country. It is truly disappointing that we have, allowed a partisan minority to impede the progress and recovery of our country. \"I am a true believer in the American democratic system; one that is predicated on a legislature, an executive branch and a judicial branch acting as a check and balance to each other. I believe that when the legislature passes a law, that is then signed by the executive and then upheld by the judicial branch, the final product is one that reflects the representative will of the American people in our representative form of government. \"The Affordable Care Act was passed by Congress, signed by the President and upheld by the Supreme Court of the United States of America-it is the law of the land. I support amending it to improve it; but I do not support using a government shutdown to end it, as many of my colleagues have chosen to do. \"I remain committed to finding a solution and I will continue to work with my Democratic and Republican colleagues until we find such a solution without closing the doors of healthcare to more than 6 million Texans. We must not turn our backs on the millions who will benefit from the Affordable Care Act to placate a partisan minority.\""

Advertising: (Washington, DC)--This Friday, Congressman Al Green will join with all Americans in commemorating the tragic events of September 11, 2001, with a National Day of Service and Remembrance. Created by the Edward M. Kennedy Serve America Act, the National Day of Service channels the powerful sense of unity, patriotism and shared purpose Americans felt in the wake of the 9/11 attacks into meaningful action in our communities. \As America reflects on the tragic events of 9/11, let us remember the thousands of men, women and children who lost their lives and the servicemen, first-responders and volunteers who answered the call to service. In a time of crisis, the American people stood in solidarity against fear and terrorism,\" Congressman Al Green said. \"It is in this spirit of selfless sacrifice and compassion that the House passed H.R. 722, recognizing September 11th as National Day of Service and Remembrance.\" The National Day of Service and Remembrance is the culmination of several months of service projects-an important part of the Kennedy Act. Projects held in all fifty states and the District of Columbia included food drives, neighborhood cleanups and volunteer construction work. Hundreds of additional projects involving tens of thousands of volunteers, nonprofits, businesses, faith groups and governments will take place across the country as Americans reflect on the 9/11 anniversary. \"September 11th serves as a powerful reminder our country's strength - that in the face of great adversity, America rises and overcomes it. The American people are resolved to protect the universal ideals that make our nation great: freedom, equality and democracy,\" Congressman Al Green said. \"We have a responsibility to do all in our power to ensure that our country is secure now and for future generations. I proudly continue to work with my House colleagues and President Obama to keep our nation secure and strong, and I encourage my constituents to join me this September 11th and in the days ahead in giving back to our community and honoring the memories of those who have already given us so much.\""

Credit-claiming: Today, U.S. Rep. Collin Peterson (D-Minn.) announced over $35 million for Water and Wastewater Infrastructure improvements in rural Minnesota communities. The funding comes from the United States Department of Agriculture (USDA) Rural Development Water and Waste Disposal Loan and Grant Program. \Upgrading and investing in local water

systems creates jobs while keeping communities healthy,\" Peterson said. \"These funds are critical to meeting our rural communities' water treatment needs.\" The upgrades will improve the drinking water, storm water drainage, and waste water systems in Redwood, Mahnomen, Douglas, Cottonwood, Big Stone, and Lyon counties. Details for funding below: Tracy, MN will receive a loan of $8,399,000 and a grant of $4,458,000 Clinton, MN will receive a loan of $4,595,000 and a grant of $2,369,000 Red Rock Rural Water will receive a loan of $1,400,000 Farwell-Kensington Sanitary District will receive a loan of $325,000 and a grant of $1,095,000 Mahnomen, MN will receive a loan of $11,919,000 Revere, MN will receive a loan of $161,000 and a grant of $402,000 Congressman Peterson is a strong advocate for the Water and Waste Disposal Loan and Grant Program which serves small rural communities. In 2017 he led the effort to protect the program which was slated to be eliminated in President Trump's Budget Request."

Appendix D: Distribution of Sentiment Scores for *Main Data Set* and *Close Election Data Set* Press Releases, Respectively:
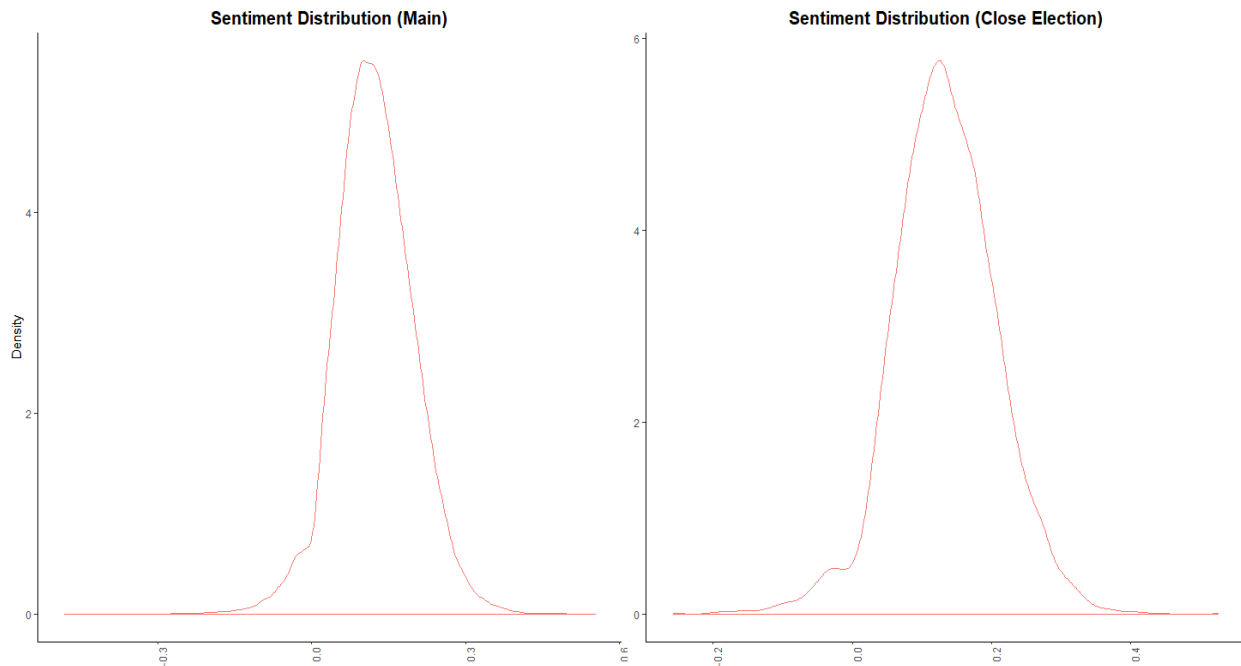
Appendix E: Model Sentiment Score Validation

We randomly sampled two hundred press releases and review the direction of their sentiment scores. We considered the sentiment score to be correct if the score was greater than or equal to 0 for texts written with a positive tone and if the score was less than 0 for texts written with a negative tone. We find an overall accuracy rating of 78%.

We note, however, that our model tended to inflate sentiment scores across all texts. Consequently, texts that read negatively often received scores greater than zero. Below is a table illustrating the rate of false positives and false negatives:

		Model Score	
		Positive	Negative
Actual	Positive	154	2
	Negative	42	2

We see that the model is able to accurately characterize texts with positive sentiment but it was only able to correctly identify two of the forty-four negative texts. As discussed in the Limitations section, we do not believe this is a significant issue as our analysis involves comparing scores rather than labeling them in absolute (i.e. "positive" or "negative") terms. We include box plots illustrating the minimum, quartile one, median, quartile two, and maximum sentiment scores for true positives (positive texts that were correctly identified by the model as positive) and for false positives (negative texts that were incorrectly identified by the model as positive), respectively. We see that the aforementioned measurements are all greater for true positives than for false positives. Consequently, we are confident that all (and not just the negative) press releases experienced a shift in their scores towards the positive side and that our comparative analysis is valid.
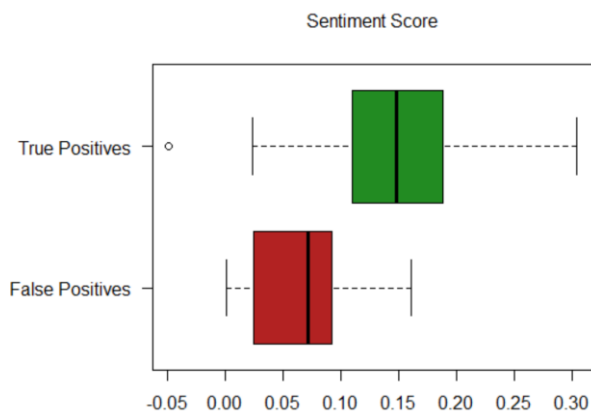
Appendix F: List of issue topics as well as count of press releases per each topic

Topic	Main Data Set		Close Elections Data Set	
	Dem Count	Rep Count	Dem Count	Rep Count
AG/Justice	1,841	1,467	42	79
Agriculture	1,348	1,371	54	54
Approp: Firefight	1,816	1,033	52	55
Approp: General	4,412	1,964	124	199
Approp: Healthcare	3,769	1,732	99	108
Approp: HUD	1,973	551	53	36
Approp: Transportation	4,307	1,265	184	136
Approp: Water Proj.	1,930	798	50	36
Cancer/Research	426	166	5	8
Childrens' Issues	2,340	1,115	60	58
Civil/Human Rights	2,553	1,311	55	58
Energy/Clean/Oil	3,298	2,930	111	91
Environment	1,685	1,511	107	79
FDA/Food Policy	1,514	442	14	10
Federal Budget	2,435	2,076	87	82
Financial System/Consumer Protection	2,378	784	34	120
Gun Violence	1,897	367	85	53
Healthcare	4,813	2,969	143	195
High School Competition	2,365	1,443	88	87
Higher Education	3,276	1,409	120	109
Honorary	2,235	1,135	81	88
International Relations/Conflict	3,775	2,434	192	231
Iran/North Korea Nuclear Deal	982	885	121	104
Iraq War	1,503	820	17	10
Jobs/Economy	5,502	2,346	207	248
Judicial nom.	2,493	2,078	71	99
Law Enforcement/Crime	2,188	1,397	99	95
Legislative Activity/Voting	6,649	5,804	257	342
Memorial/Womens' Issues	2,036	405	73	76
Military/Defense	2,212	3,085	210	261
National/Homeland Security	3,592	1,835	134	270
Other	17,140	11,943	681	852
Prescription/Illicit Drugs	1,322	1,116	89	130
President/Executive Administration	4,712	3,033	157	225
Tax Policy	2,590	2,663	73	162
Town Hall/Meeting	1,608	1,388	84	103
Veterans' Affairs	2,840	2,047	444	319
Total	**113,755**	**71,118**	**4,557**	**5,268**

Appendix G. Additional Analyses

Table G1: Predicting Press Release Tone with Leadership Dummy

	Main Data Set 109th – 115th Congress
White House Control	0.018**
	(0.002)
Congress Control	0.010**
	(0.003)
Key Votes	0.014**
	(0.003)
Vote with Party	-0.000
	(0.000)
Influence	-0.004**
	(0.001)
Approval	0.000
	(0.000)
Party Leadership	0.003
	(0.005)
Constant	0.108***
	(0.004)
Adjusted R^2	0.028
N	180,937

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the tone of press release, the unit of observation, in which positive press releases are higher values. The column estimates the tone using our *Main Data Set*. p<0.001, '***'; p<0.01, '**', p<.05, '*'.

Table G2: Predicting Press Release Tone in Agricultural Press Releases Controlling for District Farmland

	Main Data Set
	109th – 115th Congress
White House Control	0.008**
	(0.003)
Congress Control	0.019**
	(0.003)
Key Votes	-0.009**
	(0.004)
Vote with Party	-0.000***
	(0.000)
Influence	-0.001
	(0.001)
Approval	0.000
	(0.000)
Acres of Farmland (in thousands)	-0.000
	(0.000)
Constant	0.145***
	(0.003)
Adjusted R^2	0.025
N	2,811

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the tone of press release, the unit of observation, in which positive press releases are higher values. The column estimates the tone using our *Main Data Set*. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Table G3: OLS regression testing whether differences in attention towards Republican issues are significant between Democrat and Republican senators and representatives Fractional Logit

	Owned by Republicans		Owned by Democrats	
	Senate	House	Senate	House
Republican	0.369*** (0.084)	0.484*** (0.058)	-0.046 (0.115)	-0.475*** (0.063)
110th	0.371** (0.181)	0.072 (0.145)	0.303 (0.203)	0.280** (0.137)
111th	0.268 (0.182)	-0.044 (0.131)	0.999*** (0.272)	0.766*** (0.142)
112th	0.486*** (0.174)	0.350*** (0.124)	0.446** (0.202)	0.533*** (0.152)
113th	0.404*** (0.154)	0.332*** (0.123)	0.428** (0.176)	0.537*** (0.132)
114th	0.368** (0.165)	0.044 (0.127)	0.364** (0.176)	0.551*** (0.133)
115th	0.213 (0.174)	0.134 (0.131)	0.521*** (0.195)	0.574*** (0.131)
Constant	-2.402*** (0.148)	-2.398*** (0.109)	-2.371*** (0.157)	-2.228*** (0.118)
R^2	0.144	0.136	0.116	0.137
N	166	644	166	644

Note: Regressions estimated using fractional logistic regression. The dependent variable of each model is the percentage of press releases a MC devoted to the issues of a given party. The unit of analysis is MC. The first two columns present estimates of the percentage or press releases devoted to issues traditionally owned by Republicans, while the third and fourth columns present estimates for issues traditionally owned by Democrats. The first and third columns are estimates for the US Senate, while the second and fourth columns are estimates for the US House. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Table G4: OLS regression testing whether differences in attention towards issues owned by the opposite party are significant between the House majority and the House minority, Fractional Logit

Republican	0.162**
	(0.076)
House Control	-0.172**
	(0.074)
Constant	-2.209***
	(0.040)
R^2	0.012
N	644

Note: Regression estimated using fractional logit. The dependent variable of each model is the percentage of press releases a House member devoted to the issues of the opposing party. The unit of analysis is legislator. p<0.001, '***'; p<0.01, '**', p<.05, '*'.

Table G5: OLS regression testing whether differences in attention towards issues owned by the opposite party are significant between the Senate majority and House majority, Fractional Logit

Republican	0.091
	(0.057)
Senate	0.217***
	(0.071)
110th Congress	0.090
	(0.136)
111th Congress	0.333***
	(0.142)
112th Congress	0.359***
	(0.124)
113th Congress	0.304***
	(0.120)
114th Congress	0.097
	(0.121)
115th Congress	0.058
	(0.123)
Constant	-2.455***
	(0.123)
R^2	0.049
N	810

Note: Regression estimated using fractional logit. The dependent variable of each model is the percentage of press releases a legislator devoted to the issues of the opposing party. The unit of analysis is legislator. p<0.001, '***'; p<0.01, '**', p<.05, '*'.

Table G6: OLS regression testing whether differences in attention towards credit claiming issues are significant between the MCs in the Close Elections population and MCs in the Main population, Fractional Logit

Close to Main	-0.190**
	(0.081)
115th Congress	-0.190**
	(0.081)
Constant	-1.181***
	(0.109)
R^2	0.054
N	294

Note: Regression estimated using ordinary least squares. The dependent variable of each model is the percentage of press releases devoted to credit claiming. p<0.001, '***'; p<0.01, '**', p<.05, '*'.

Table G7: Predicting Press Release Tone, Subsetting By Divided Government, Main Population Data Set

	Unified Government	Split Chambers	Unified Chambers, Divided Government
White House Control	0.025***	0.036***	0.021
	(0.001)	(0.005)	(0.017)
Key Votes	0.015***	0.006***	0.009***
	(0.001)	(0.001)	(0.001)
Vote with Party	-0.000	0.000**	-0.000***
	(0.000)	(0.000)	(0.000)
Influence	-0.004***	-0.000	-0.007***
	(0.000)	(0.000)	(0.000)
Approval	0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
Constant	0.107***	0.089***	0.110***
	(0.001)	(0.005)	(0.017)
Adjusted R^2	0.046	0.024	0.015
N	95,433	53,534	50,159

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the tone of press release, the unit of observation, in which positive press releases are higher values. Estimates are for the tone using our *Main Data Set* sample. The first column estimates using press releases from periods of unified government. The second column estimates the tone of press releases from periods of government in which the chambers are controlled by different parties. The third column estimates using press releases from divided government, but both chambers are unified. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Table G8: Comparing the Effects of White House Control between the Main and Close Election Populations

	All Press Releases 114th – 115th Congress	Main Data Set 114th – 115th Congress	Close Elections Data Set 114th- 115th Congress
White House Control	0.019**	0.018***	0.008*
	(0.002)	(0.002)	(0.003)
Congress Control	0.022	0.029	-0.030
	(0.070)	(0.076)	(0.053)
Key Votes	0.019***	0.022***	-0.001
	(0.005)	(0.005)	(0.005)
Vote with Party	-0.000	-0.000	0.000
	(0.001)	(0.001)	(0.004)
Influence	-0.007***	-0.008***	-0.001***
	(0.002)	(0.002)	(0.003)
Approval	0.0003***	0.0003**	0.0002
	(0.0001)	(0.0001)	(0.0001)
Close Election	0.017***		
	(0.005)		
Close Election x White House Control	-0.011*		
	(0.005)		
Constant	0.108***	0.108***	0.126***
	(0.005)	(0.005)	(0.013)
Adjusted R^2	0.035	0.037	0.004
N	72,009	62,888	9,121

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the tone of press release, the unit of observation, in which positive press releases are higher values. The first column estimates the tone using all press releases for all MCs in our sample and illustrates the interaction between White House control and Close Elections. The second column estimates the tone using our *Main Data Set* sample. The third column estimates the tone of press releases for MCs using elections decided by five percentage points or fewer. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Table G9: Comparing the effects of White House Control and Congress control in the Main population

	Main Data Set 109th – 115th Congress Unstandardized	Main Data Set 109th – 115th Congress Standardized
White House Control	0.018**	0.114*
	(0.002)	(0.011)
Congress Control	0.010**	0.060**
	(0.003)	(0.019)
Key Votes	0.014**	0.060***
	(0.003)	(0.013)
Vote with Party	-0.000	-0.010
	(0.000)	(0.024)
Influence	-0.004**	-0.075
	(0.001)	(0.026)
Approval	0.000	0.012
	(0.000)	(0.009)
Constant	0.109***	-0.000
	(0.004)	(0.026)
Adjusted R^2	0.028	0.028
N	180,937	180,937

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the tone of press release, the unit of observation, in which positive press releases are higher values. The first column estimates the tone using our *Main Data Set* sample with unstandardized coefficients. The second column estimates the tone of press releases for MCs with standardized coefficients. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Table G10: OLS regression testing whether differences in attention towards credit claiming issues are significant between the MCs in the Close Elections population and MCs in the Main population

Close to Main	-5.583***
	(1.708)
115th Congress	-2.678**
	(1.159)
Constant	23.235***
	(1.668)
Adjusted R^2	0.048
N	294

Note: Regression estimated using ordinary least squares. The dependent variable of each model is the percentage of press releases devoted to credit claiming. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Table G11: A comparison of party-average sentiment scores across all thirty-seven issue topics between MCs in the *Main Data Set* and *Close Elections Data Set*, respectively. Comparisons in bold indicate that the 95-percent confidence intervals did not overlap between the two means

White House								
Congress								
	114		114		115		115	
	Main	Close	Main	Close	Main	Close	Main	Close
Topic	Democrats	Democrats	Republicans	Republicans	Democrats	Democrats	Republicans	Republicans
AG/Justice	0.097	0.134	0.084	0.100	0.063	0.078	0.101	0.121
Agriculture	0.169	0.166	0.150	0.190	**0.138**	**0.171**	0.159	0.155
Approp: Firefight	0.210	0.188	0.179	0.204	0.213	0.215	0.173	0.196
Approp: General	0.149	0.138	0.131	0.148	0.143	0.155	0.140	0.138
Approp: Healthcare	0.123	0.121	0.115	0.134	0.112	0.107	0.138	0.128
Approp: HUD	0.172	0.169	0.156	0.166	**0.156**	**0.184**	0.158	0.175
Approp: Transportation	0.148	0.144	0.155	0.163	**0.150**	**0.174**	0.181	0.197
Approp: Water Proj.	**0.163**	**0.130**	0.153	0.149	0.149	0.161	0.151	0.151
Cancer/Research	0.136	0.148	0.131	0.110	0.132	0.112	0.139	0.191
Childrens' Issues	**0.141**	**0.171**	0.131	0.131	0.091	0.113	0.128	0.152
Civil/Human Rights	0.119	0.144	**0.068**	**0.111**	0.104	0.100	0.074	0.109
Energy/Clean/Oil	0.145	0.162	**0.140**	**0.164**	**0.125**	**0.173**	0.157	0.174
Environment	0.119	0.137	0.097	0.098	0.106	0.115	0.113	0.114
FDA/Food Policy	0.112	0.147	0.134	0.125	0.088	0.100	0.134	0.059
Federal Budget	0.104	0.102	0.083	0.101	0.066	0.072	0.105	0.095
Financial System/Consumer Protection	0.104	0.107	**0.078**	**0.121**	0.089	0.093	0.094	0.094
Gun Violence	-0.001	0.017	0.045	0.044	**0.002**	**0.060**	0.049	0.063
Healthcare	0.132	0.143	0.118	0.114	**0.078**	**0.108**	0.122	0.109
High School Competition	0.210	0.216	**0.220**	**0.243**	0.204	0.225	0.211	0.219
Higher Education	**0.187**	**0.211**	0.188	0.208	**0.173**	**0.202**	0.201	0.196
Honorary	0.161	0.170	0.164	0.160	**0.150**	**0.182**	0.159	0.165
International Relations/Conflict	0.110	0.122	0.095	0.105	0.089	0.099	0.111	0.113
Iran/North Korea Nuclear Deal	0.084	0.086	0.066	0.065	0.061	0.060	0.062	0.059
Iraq War	0.066	0.090	0.065	0.071	0.074	0.093	0.064	0.050
Jobs/Economy	**0.128**	**0.155**	0.136	0.136	0.132	0.146	0.142	0.147
Judicial nom.	0.138	0.145	0.114	0.132	**0.105**	**0.147**	**0.166**	**0.207**
Law Enforcement/Crime	0.082	0.074	0.057	0.089	0.061	0.092	0.064	0.080
Legislative Activity/Voting	0.106	0.120	**0.121**	**0.136**	0.094	0.110	0.132	0.130
Memorial/Womens' Issues	0.142	0.153	0.154	0.193	0.135	0.131	0.169	0.238
Military/Defense	0.116	0.132	**0.109**	**0.124**	**0.110**	**0.138**	0.123	0.129
National/Homeland Security	**0.104**	**0.122**	**0.089**	**0.114**	0.088	0.107	**0.098**	**0.123**
Other	0.131	0.132	**0.127**	**0.144**	**0.109**	**0.119**	**0.137**	**0.155**
Prescription/Illicit Drugs	0.069	0.085	0.083	0.087	0.066	0.083	0.082	0.079
President/Executive Administration	0.120	0.143	0.071	0.087	0.057	0.068	0.108	0.108
Tax Policy	0.121	0.137	0.093	0.108	**0.070**	**0.100**	0.127	0.129
Town Hall/Meeting	0.151	0.176	**0.125**	**0.165**	0.149	0.160	0.138	0.150
Veterans' Affairs	**0.157**	**0.142**	0.148	0.147	0.158	0.164	0.159	0.159

Table G12: A comparison of party-average sentiment scores across all thirty-seven issue topics, across all seven sessions. Comparisons in bold indicate that the 95-percent confidence intervals did not overlap between the two means

Topic	109 Democrats	109 Republicans	110 Democrats	110 Republicans	111 Democrats	111 Republicans	112 Democrats	112 Republicans	113 Democrats	113 Republicans	114 Democrats	114 Republicans	115 Democrats	115 Republicans
AG/Justice	0.077	0.118	0.071	0.097	0.094	0.084	0.086	0.063	0.103	0.072	0.097	0.084	0.063	0.101
Agriculture	0.121	0.133	0.149	0.124	0.148	0.131	0.135	0.125	0.148	0.116	0.169	0.150	0.138	0.159
Approp: Firefight	0.185	0.257	0.190	0.218	0.183	0.216	0.210	0.198	0.215	0.153	0.210	0.179	0.213	0.173
Approp: General	0.148	0.156	0.146	0.152	0.164	0.145	0.155	0.121	0.147	0.123	0.149	0.131	0.143	0.140
Approp: Healthcare	0.119	0.159	0.120	0.157	0.146	0.157	0.130	0.123	0.138	0.111	0.123	0.115	0.112	0.138
Approp: HUD	0.145	0.202	0.146	0.152	0.160	0.147	0.164	0.109	0.161	0.134	0.172	0.156	0.156	0.158
Approp: Transportation	0.153	0.177	0.139	0.168	0.160	0.177	0.152	0.137	0.147	0.137	0.148	0.155	0.150	0.181
Approp: Water Proj.	0.148	0.161	0.143	0.149	0.142	0.130	0.144	0.109	0.157	0.128	0.163	0.153	0.149	0.151
Cancer/Research	0.130	0.138	0.112	0.136	0.121	0.149	0.114	0.130	0.133	0.157	0.136	0.131	0.132	0.139
Childrens' Issues	0.143	0.153	0.143	0.154	0.170	0.159	0.155	0.131	0.130	0.128	0.141	0.131	0.091	0.128
Civil/Human Rights	0.121	0.080	0.109	0.071	0.123	0.081	0.116	0.064	0.132	0.078	0.119	0.068	0.104	0.074
Energy/Clean/Oil	0.100	0.144	0.124	0.123	0.165	0.126	0.130	0.121	0.149	0.131	0.145	0.140	0.125	0.157
Environment	0.100	0.115	0.113	0.116	0.139	0.094	0.123	0.090	0.121	0.083	0.119	0.097	0.106	0.113
FDA/Food Policy	0.108	0.110	0.110	0.103	0.107	0.107	0.101	0.110	0.098	0.112	0.112	0.134	0.088	0.134
Federal Budget	0.061	0.098	0.102	0.077	0.113	0.051	0.071	0.048	0.078	0.057	0.104	0.083	0.066	0.105
Financial System/Consumer Protection	0.100	0.110	0.099	0.076	0.093	0.068	0.096	0.079	0.114	0.082	0.104	0.078	0.089	0.094
Gun Violence	0.048	0.065	0.037	0.071	0.040	0.062	0.023	0.020	0.035	0.020	-0.001	0.045	0.002	0.049
Healthcare	0.104	0.125	0.130	0.140	0.142	0.098	0.125	0.098	0.133	0.098	0.132	0.118	0.078	0.122
High School Competition	0.227	0.194	0.205	0.201	0.221	0.202	0.220	0.211	0.222	0.216	0.210	0.220	0.204	0.211
Higher Education	0.186	0.228	0.191	0.216	0.199	0.208	0.191	0.180	0.175	0.162	0.187	0.188	0.173	0.201
Honorary	0.152	0.164	0.169	0.170	0.165	0.146	0.138	0.137	0.151	0.150	0.161	0.164	0.150	0.159
International Relations/Conflict	0.102	0.119	0.116	0.117	0.121	0.110	0.112	0.090	0.108	0.112	0.110	0.095	0.089	0.111
Iran/North Korea Nuclear Deal	0.060	0.076	0.072	0.109	0.074	0.080	0.077	0.081	0.080	0.068	0.084	0.066	0.061	0.062
Iraq War	0.079	0.113	0.065	0.094	0.101	0.119	0.109	0.098	0.067	0.063	0.066	0.065	0.074	0.064
Jobs/Economy	0.107	0.148	0.117	0.136	0.123	0.113	0.134	0.109	0.144	0.130	0.128	0.136	0.132	0.142
Judicial nom.	0.139	0.162	0.104	0.131	0.145	0.134	0.129	0.125	0.148	0.102	0.138	0.114	0.105	0.166
Law Enforcement/Crime	0.080	0.084	0.081	0.083	0.083	0.081	0.099	0.070	0.087	0.060	0.082	0.057	0.061	0.064
Legislative Activity/Voting	0.113	0.132	0.127	0.115	0.129	0.097	0.111	0.101	0.109	0.104	0.106	0.121	0.094	0.132
Memorial/Womens' Issues	0.141	0.126	0.146	0.170	0.156	0.179	0.135	0.159	0.138	0.159	0.142	0.154	0.135	0.169
Military/Defense	0.109	0.126	0.103	0.127	0.121	0.095	0.115	0.099	0.106	0.090	0.116	0.109	0.110	0.123
National/Homeland Security	0.103	0.099	0.120	0.092	0.113	0.079	0.109	0.075	0.113	0.067	0.104	0.089	0.088	0.098
Other	0.128	0.141	0.130	0.144	0.136	0.130	0.130	0.113	0.129	0.120	0.131	0.127	0.109	0.137
Prescription/Illicit Drugs	0.103	0.129	0.094	0.099	0.120	0.090	0.098	0.084	0.082	0.093	0.069	0.083	0.066	0.082
President/Executive Administration	0.099	0.139	0.110	0.130	0.136	0.093	0.124	0.081	0.121	0.069	0.120	0.071	0.057	0.108
Tax Policy	0.104	0.109	0.109	0.096	0.098	0.075	0.083	0.082	0.114	0.084	0.121	0.093	0.070	0.127
Town Hall/Meeting	0.139	0.160	0.140	0.141	0.129	0.142	0.144	0.126	0.154	0.131	0.151	0.125	0.149	0.138
Veterans' Affairs	0.117	0.150	0.141	0.158	0.166	0.167	0.164	0.158	0.159	0.143	0.157	0.148	0.158	0.159

Table G13: Predicting Press Release Tone, Accounting for Issue Ownership

	Main Data Set 109th – 115th Congress	Main Data Set 109th – 115th Congress
White House Control	0.017***	0.017***
	(0.002)	(0.002)
Congress Control	0.010**	0.009**
	(0.003)	(0.003)
Key Votes	0.014***	0.014***
	(0.003)	(0.003)
Vote with Party	-0.000	-0.000
	(0.000)	(0.000)
Influence	-0.004**	-0.004**
	(0.001)	(0.001)
Approval	0.000	0.000
	(0.000)	(0.000)
Party Owns Issue	-0.013***	-0.016***
	(0.002)	(0.002)
Party Owns Issue x WH Control		0.002
		(0.002)
Party Owns Issue x Congress Control		0.007**
		(0.002)
Constant	0.111***	0.111***
	(0.004)	(0.004)
Adjusted R^2	0.031	0.031
N	180,937	180,937

Note: Regressions estimated using ordinary least squares. The dependent variable of each model is the tone of press release, the unit of observation, in which positive press releases are higher values. Both columns estimate the tone using our *Main Data Set*, with the second column illustrating interaction between control variables and Party Own Issue. $p<0.001$, '***'; $p<0.01$, '**', $p<.05$, '*'.

Figure G1: The quartile numbers for the percentages of press releases issued by MCs in the *Main Data Set* and the *Close Elections Data Set*, respectively. Numbers are higher for the *Close Elections Data Set*

% of Press Releases dedicated to Credit Claiming