Mind the Gap? Negative Tweets & Partisanship in the House of Representatives*

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Abstract

How does the lack of institutional legislative and political power and influence in the House of Representatives shape politicians' rhetoric? In previous work, we found evidence that members of Congress in the minority party in the House and in the party opposing the president were more negative in the language that they used on Twitter. This pattern was even stronger when they were a part of the minority in a unified congress. In this project, we dive deeper into their negative tweets and outline different ways that they can use negative language, such as by attacking other politicians or branches of government or stating policy critiques, and theorize under what conditions we expect representatives to be more likely to use them. We offer a plan of how to leverage almost 2 million unique tweets made by representatives from 2013-2018 (soon to be brought up to date to 2020) to assess the impact of a representative's political power, or relative lack thereof, on her use of different methods of strategic negative sentiment in her tweets. Given the increasing contention between the two parties on- and offline, it is unlikely that the use of negative rhetoric and its potentially harmful impact on American government and congress will decrease in the near future. By better understanding what representatives say on Twitter, we can better understand the impacts of their public statements on the platform.

1 Introduction

The intensified competitiveness of the congressional electoral landscape has changed the way that partisan representatives interact with each other and the public. More specifically, parties' incentives and strategic choices are driven by the battle for power in an era characterized by alternating congressional majorities (Lee 2016), declining incumbency advantage, and increasingly effective partisan coalitions in the electorate (Jacobson 2015). Parties seek institutional control in a two-party system where the enemy is always known and parties' must strategically communicate to the public in ways that helps them "make their case for majority status" (Lee, 2016, p. 120). Congressional members have electoral incentives to attract news coverage and steer political dialogue in a way that ultimately either allows them to maintain their majority position, or to take it. One tool they have at their disposal is the use of social media, such as Twitter. Gainous and Wagner (2014) note the importance of social media for members of Congress, writing that it "alters... who controls information, who consumes information, and how that information is distributed" (p. 1).

Social media plays an important role in how people understand politics today, making the question of how representatives and their leaders communicate and legislate on these platforms an increasingly critical one. While social media is often heralded as a means in which representatives can easily and directly communicate to their constituents, many scholars raise concerns about the increased incentives for representatives to be more negative online (Gross and Johnson 2016), which promote pithy, sound-bite worthy posts that draw the attention of traditional newsrooms (Flowers et al. 2003). Negativity in Congress is pervasive, especially online, and while conflict is considered the bedrock of democracy (Schattschneider 1975), too much negativity or incivility in elite discourse can undermine public trust in government (Mutz and Reeves 2005), as well as their motivation to pay attention, learn about politics, and get politically involved (Ansolabehere and Iyengar 1995). Given the rising prevalence of negative sentiment in congressional tweets, particularly since 2016 when President Trump was elected as we have found in other work, the specific ways in which party leaders and congressional members use negativity in their messages is an important yet understudied topic of research.

Public outreach and governing messages from U.S. elected officials represent an important

way that competing political actors can present policy alternatives and invite the public to partici-pate in the decision-making process. This sheds light on the role elite rhetoric plays in shaping the public's understanding of political issues. How legislators communicate their political agendas to the public may have important implications for public understanding of political information. This is especially concerning if these strategies can result in misleading or misinforming con-stituents. Considering the normative and practical importance of messages to the public as well as the current vitriolic political climate, it is important to empirically evaluate the extent to which party conflict impacts congressional communication throughout a congressional term.

In previous work, we used a dictionary-based approach and over 1.7 million congressional tweets to investigate the extent to which members of Congress (MCs) adopted negative language strategically as a function of party competition for power. We improved upon the accuracy of the negative sentiment dictionary derived from popular NRC Word-Emotion Association Lexicon (Mohammad and Turney, 2013) in our political context by hand-coding and validating all words in the category.[1] Through this earlier analysis, we found evidence that institutional power dy-namics within Congress shape representatives' incentives to go negative, depending on where their party is situated within the chamber; tweets sent by MCs who are in the minority party and the opposing party to the president within the House of Representatives are significantly more likely to use strategic negative sentiment in their public messages than those in the majority party and same party as the president, respectively. The level of negativity in congressional tweets also notably increases in the campaign year leading up to the election in comparison to the first year of governance. Moving forwards in this paper, our goal is to better capture the varying dynamics of power between the political parties in the House over over time by leveraging more nuanced and informative measures of tweet negativity across individual legislator and institutional features.

We use the 1.7 million tweets from all members of the House of Representatives from 2013 to 2018, to be expanded soon with a further 800,000 from 2018 to 2020, to analyze and compare how both leaders and rank-and-file members use negative language as an electoral strategy to signal viability and ultimately maintain, or change, patterns of power within the House. This study builds upon our prior research regarding strategic negative sentiment in U.S. congressional tweets

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[1]The coding process is outlined in the Appendix.

by investigating how the lack of institutional legislative and political power may shape not only the frequency in which negative messages are shared, but also the types of negative messages that are more likely to be shared. Some of the categories of potential tweet negativity include attacks against individuals, groups, and organizations, and policy critiques.

We were just awarded a Dirksen Center Congressional Research Grant in July 2020 to use to pay for coders on Mechanical Turk to hand-label thousands of congressional tweets by type of negative language. We have previously labelled all MC tweets as either positive or negative using a modified version of the NRC Word-Emotion Association Lexicon (Mohammad and Turney 2013)[2]. Before we finalize what we will ask the coders to manually label for us, now is the perfect time for feedback and suggestions on what is most interesting and where we should prioritize our time and resources.

Our long-term goal is to train supervised topic models with hand-coded tweets from coders on Amazon's Mechanical Turk. In this way, we will refine our understanding of (1) what congressional messages with negativity entails; (2) who or what it is directed towards; and (3) how members and leadership interact on Twitter. This offers a more comprehensive and nuanced understanding of how negative language is being used by MCs online and the conditions that shape the types of negative messages MCs choose to share. Our findings will contribute to the study of congressional communication strategies and can speak to research on congressional agenda-setting and issue ownership.

This paper proceeds as follows: we start with an overview of the relevant literature and our theory of the use of negative sentiment by members of Congress, as well as our theoretical expectations of the types of MCs and institutional features which will lead them to use negative language in different ways. Next is a description of our data collection process and an overview of tweets made by the politicians and their mention and retweet behavior, as well as our future plans for more nuanced classification. We conclude with a discussion of the implications for this line of research.

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[2]NRC Word-Emotion Association Lexicon available online here: http://saifmohammad.com/WebPages/NRC-Emotion-Lexicon.htm.

2 Congressional Communication

The American political system is becoming more nationalized (Hopkins 2018) and contentious. In this environment, politicians lack an incentive to compromise and are frequently critical of each other, as reflected in their use of negative sentiment and language. Congressmen and -women are expected to not work with the other party and to toe their party line, especially if they are a member of the minority party (Rohde 2012). Given that members of Congress act strategically and are focused on reelection prospects throughout their time in office (Grimmer 2013b, Lipinski 2004, Sellers 2009), there is an electoral incentive for candidates to engage in negative campaigning (Mattes and Redlawsk 2014) and criticize their opponents not only during campaigns, but also during periods of governance. Representatives regularly direct their negative language toward colleagues of the opposing party, and are also oftentimes publicly critical of the President when they do not share the same party affiliation.

When communicating, members of Congress work to display themselves in a positive light and to portray their opponents negatively (Herrnson 2016, Parmelee and Bichard 2011). Politicians strategically frame the messages they post in order to influence public opinion and policies (Hemphill et al. 2013, Harris 2010), as those who can control the argument are more likely to successfully translate belief into policy (Waldman and Jamieson 2003). Overall, MCs want their party to look good— they want their message to be perceived as positive, and to ultimately help their party to win elections. This can be seen in their behavior in the media and through procedures in the chamber (Evans and Oleszek 2001). Simultaneously, members of Congress are concerned that they will be punished for saying or doing the "wrong" thing (Arnold 1990); a politician can be punished by voters in the future for publicly stating a preference or taking a decision which is not in line with voters' preferences.

Members of the House, particularly members of the minority party, work to garner more attention in an effort to increase their influence and further their agenda within Congress (Sellers 2000). They want to promote themselves and their own party while also criticizing members of the other party. Cox and McCubbins (2007) write that rational legislators have many goals including re-election, advancement, and "good" policy. Through public communications like press releases,

legislators are able to state their priorities, establish policy positions, and claim credit (Grimmer 2013a); prior research has also found that representatives strategically omit information in their press releases (2013b) and in direct mailings to their constituents (Lipinski 2004). Grimmer (2013b) also finds that moderates engage in policy debates less than more ideological extremists, and that communication levels and content of press releases varies by district.

Previous studies have additionally found evidence that politicians strategically target specific opponents during the course of a campaign. For example, Gross and Johnson found evidence that candidates running in the 2016 Republican presidential primary election frequently "punched up" by targeting other candidates who were performing better than them in the race with negative tweets (2016). In a study of Facebook posts by senatorial candidates in 2010, Auter and Fine find that both candidates running in competitive races, and the unfavored candidate in a non-competitive race, were the most negative in their posts. Often the minority party makes more use of new technologies as a platform to better communicate its dissent (Ansley and Sellers 2010, Hong and Nadler 2011, Parmelee and Bichard 2011, Russell 2018). Minority party members are found to be more "negative" than majority party members in mailings to their districts Lipinski (2004), demonstrating that partisanship matters in congressional communications. With regards to partisan tone specifically, scholars have found notable differences between Democrats and Republicans online (Adler et al. 1998, Lipinski 2004).

2.1 Studying Congressional Tweets

Social media posts offer many advantages when studying congressional communication. In particular, tweets are often posted directly by the political actors themselves.[3] Social media posts also occur on a daily basis in a standardized format, which allows us to track variation between parties and even within-MC over time. Additionally, the advent of social media has importantly altered the ease with which political elites are able to interact with the public and embodies a new arena where political debate can occur.

Recent research demonstrates that politicians engage with citizens on social media by rais-

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[3]While we acknowledge that individual MCs may not always be the ones writing each of their tweets themselves, we assume that those who were hired to tweet on their behalf are representative of the MC they work for. We therefore consider all messages posted on each MC's official Twitter to be endorsed by the MC regardless of the original poster.

ing and discussing topics that citizens bring to their attention (Barberá et al. 2014), making social media communication by political elites increasingly consequential for the study of U.S. politics. Legislative debates are now extending beyond the structured area within Congress to a "broader, less-structured, and more-public arena" (Sellers 2009). Congressional members compete online to garner more news coverage to promote their legislative agenda and stay in office. The potential electoral advantages borne out of attracting larger audiences and greater virality on social media offer politicians a large incentive to strategically frame their messages in ways that are most appealing and attention-worthy. Problematically, this implies that the most circulated or viral posts may not necessarily be the most informative or accurate (if at all).

Beyond message content, the tone of a message can also be important. Technology can make it easier for politicians to target more specific, narrow groups for more directed negative campaigning strategies (Mark 2007). Many scholars find an increasing climate of polarization online (Conover et al. 2011) that is more negative than it would be offline, as seen through the widespread fragmenting of the online community and non-overlapping social networks (Stromer-Galley 2014). Twitter, in particular, is found to provide "a context in which candidates feel more comfortable discussing the negative qualities of their competitors" (Parmelee and Bichard 2011, 200–201).

2.2   Benefits of Negative Language

In an increasingly divided nation, political actors are often criticized for wielding language and communication as a weapon to attack their opponents and engage in "incivility" (e.g. Herbst 2010, Papacharissi 2004). Extensive research has looked at "going negative" in the context of political campaigns (e.g. Ansolabehere and Iyengar 1995, Wattenberg and Brians 1999, Freedman and Goldstein 1999, Druckman et al. 2010, Meffert et al. 2006, Geer 2008), as well as discourse "incivility" by partisan elites (e.g. Herbst 2010) and in the media (e.g. Forgette and Morris 2006, Mutz and Reeves 2005, Mutz 2007, Fridkin and Kenney 2008). This paper looks at the use of negative language on Twitter by members of Congress as a tool to help them achieve their political goals. There are many ways in which a MC can be negative (e.g. whether they are critiquing the other party (either in Congress or the president), assigning blame, attacking an opponent, complaining

about the state of the world, or taking a policy stance). We conceptualize going negative as a way to try and gain attention— through media coverage, broadening the audience of individuals who see their posts, or generating and participating in discussion on social media by political elites and citizens across the country. As laid out in the following section, we suggest that this is particularly appealing to representatives who lack other, more formal avenues of institutional power in the House such as those who do not share the same party identification as the president or are in the minority party. We outline how this might influence not only the decision to "go negative", but *how* the MC does so.

We draw from negativity bias theory, which posits that negative information resonates more strongly and affects cognitive processes than positive or neutral information in the individual context (e.g. Kanouse 1984; see also Ito et al. 1998, Meffert et al. 2006) and affects political processes in the institutional context (Soroka 2014). Individuals display a propensity to absorb, use, and learn from negative information (Vaish et al. 2008) and consistently weigh negative aspects of an event or stimulus more heavily than positive aspects (Tversky 1984). When individuals are confronted with threatening or negative information, they are more receptive to the information and stimuli to which they are exposed (Marcus and MacKuen 1993). Political elites are likely to strategically appeal to this negativity bias in their communications as to create content that is more compelling for their audience.

There is prior evidence that going negative can be a meaningful, strategic communication choice. A recent Pew Report found that politicians who go negative, or "disagreed", more frequently on Facebook attract more likes, comments, and shares than politicians who attempt to stick to more bipartisan messages (Messing and Weisel 2017). The study also demonstrated that Republican lawmakers went negative and attacked their opponents more frequently than Democrats. There are limited conclusions that can be drawn due to the relatively short sixteen-month period of analysis during the Obama administration, though the results are suggestive that the greater use of negativity by Republican lawmakers cannot solely be attributed to the fact that a Democratic president was in office. However, it raises an the question of how negativity can be used to shape political understanding-— for better or worse.

Politicians may feel more willing to be partisan and negative on a *cross-over* medium like Twit-

ter (Gross and Johnson 2016) due to the way that the platform itself motivates concise, sound-bite worthy quotes that can be easily picked up by traditional newsrooms (Flowers et al. 2003). Partisan tone online, such as name-calling and expressions of party loyalty, is primarily used by members of the minority party and party leaders (Russell 2018); of the partisan tweets she analyzed, 65.5% were coded as negative. Similarly, tweets have been found to be an effective way for underdog candidates to attack opponents (Gainous and Wagner 2014). This supports the idea that negative sentiment may be used strategically by political actors who are attempting to seek more public attention for their campaigns and (if) in office.

3 When They Go Low, We Go Lower

We present a theory of when and why members of Congress in the House of Representatives are more likely to go negative in their public online messages. We theorize that this behavior is driven by partisanship and power, or lack of power, in government. In our two-party system compromise between the two parties in Congress (and the president with out-party representatives) is becoming increasingly untenable. Particularly during a unified government, the expectation is that the majority will move and vote together and with the president, and the support of even some members of the the minority party is not guaranteed or even expected.

In this environment, members of the unfavored party in the House are more likely to be excluded from influencing the policy-making process as their votes and support are not necessary for the majority's preferred policies to be passed. One alternative avenue to try and gain attention is to signal that they are doing the best they can in pursuing their beliefs and preferred policies in tweets. This is a direct method of communication that may reach a wider audience (including the media, other politicians, and voters nationally) which the representative and her staff have more power over. Particularly when they have less influence in the policy-making process relative to representatives of the other party, Twitter offers them a place where they can make more negative statements, and in that way seek the benefits of doing so as outlined above.

We argue that combinations of features, including whether she is in the majority party during a unified or divided Congress, or whether she is in the same party as the president, shape rep-

resentatives' likelihood of going negative online. Depending on the balance of power between the two chambers in Congress and the presidency, the amount of power over agenda-setting and policy-making that a party's representatives have, they may turn to other platforms and strategies to shore up their existing influence. If less powerful, representatives may try and gain additional power or influence that they don't otherwise have. To what extent are these rhetorical strategies affected by variance in institutional party competitiveness? We theorize that congressional members strategically use more emotional appeals to elicit stronger reactions out of their own partisan base and motivate them towards action. Specifically, we argue that there are increased incentives for representatives to be more negative on Twitter than they would otherwise be, particularly when they are in formally disadvantaged positions of lower power.

When a single party controls Congress, it alters the political opportunity structure for minority party members to foster negative perceptions about the soundness of the majority's political agenda. In our current political environment where it can be politically detrimental to cooperate with the party in power, wielding negativity and criticism against the opposing, majority, party can be one of the few options left to legislators as an effort to signal their effectiveness as representatives and their belief in policies that are important to their party. We suggest that this type of behavior is even more appealing to minority party members in office during unified control of congress because there are fewer anticipated costs for the party should the enacted program fail or become unpopular. We further suggest that the wider the gap between the two parties in the House, the larger the incentive for the disadvantaged party to use negative language of all kinds as they critique and attack their opponents in the majority party and their policies.

3.1 Different Ways to "Go Negative"

Extant research on political campaigns have focused a great deal on negative rhetoric as a communication strategy, and have found mixed results on mobilizing the public (see Krupnikov and Bauer 2014). Though there are overall incentives for representatives to be negative on Twitter throughout their time in office, we expect that this will be most appealing for them while they are campaigning. This is the time that they perceive their most engaged voters and other audiences (such as their opponents) will be paying attention to them across platforms (Macdonald 2020).

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During periods of campaigning, candidates seek to differentiate themselves from their opponents, whether from within their own party during a primary election (Brady et al. 2007) or against the opposing party in the general. Scholars have found that the frequency of attack-oriented emails in congressional campaigns increased as the date of the election drew nearer (Hassell and Oeltjenbruns 2016). Similarly, candidates in the presidential context were found to exhibit stronger tendencies toward negativity against their opponents on Twitter as the primary election dates approached and the field dwindled (Gross and Johnson 2016).

MCs, driven by their desire to be reelected (Mayhew 1974), may be incentivized to use negative language as a strategy to help them achieve this goal. Partisan tone online, such as name-calling, is primarily used by members of the minority party and party leaders (Russell 2018). Similarly, tweets have been found to be an effective way for underdog candidates to attack opponents (Gainous and Wagner 2014). This supports the idea that negative sentiment may be used strategically by political actors who are attempting to seek more public attention for their campaigns and (if) in office. 'Going negative' therefore may gain them attention from voters, the media, and party leaders, increase the likelihood that they "go viral", and signal their beliefs, preferences, and emotions.

As outlined previously, though both parties have incentives to be negative online in our current political climate, we argue that this is highest or strongest when the difference between them is largest. Here, we go beyond whether a message is negative or not negative and investigate deeper the ways in which representative's tweets are negative, and when. We examine how institutional conditions and individual-level characteristics influence both the frequency in which MCs use negativity as well as the type of negative messages they choose to share, and suggest further that the *way* in which the representative is negative will vary over time and also by their (and their party's) institutional fortunes in the House. The goals of a party and its members (whether leadership or rank and file) vary based on several characteristics, including the balance of power between the majority and minority party, the party identification of the president, the competitiveness of the representative's district, and demographic characteristics of the MC him- or herself. As their goals vary, we predict that the strategies that they take online, and the types of negativity that they use, will similarly differ between representatives.

Let us consider the example of mentioning the president (either in support or critical of). By doing so, politicians can clearly signal their party allegiance, appeal to their base, and show why they are different (and even better) than their opponents. In this way, we can draw from these insights to learn about elite behavior and legislative politics more broadly. We outline these different features and combinations of features from two broad categories— (1) the types of negative posts and (2) features of the House, district, and candidate that we expect will shape when one or more of these types of negative posts will be more or less appealing for a MC to make. We then derive hypotheses.

There are different ways that MCs can be negative in their tweets. We focus on several of them here, including attacks (e.g. on other politicians, branches of government, and media organizations) and policy disagreements. We go through types of attacks first. Representatives can (and do) attack several different individuals and groups in their tweets. One "affordance", or feature, of Twitter that makes this particularly available are mentions and retweets. This enables one user to, respectively, mention another by handle and do so while referring to the other user's previous post. In both cases, the other user is notified and the post is more likely to be spread to a wider Twitter audience composed of followers of both the mentioner and mentionee.

Some of the individuals that a representative can attack with negative posts include their opponents in their district (which is an especially useful strategy in the months immediately preceding primary and general elections), members of the opposite party in the House, their own party leadership, the leadership of the other party, the president (especially if the president is of the other party than the representative), and brands or celebrities. MCs may also be critical and attack other branches of government, such as leaders in the Senate or the Supreme Court (also individual justices), as well as state and local officials and offices, and media organizations like Fox News or the New York Times. Attacks can take multiple forms; a key distinction is that between "personal" and "political". The former critiques the person, group, or organization for their traits, while the second critiques them for their actions or policy positions.

A tweet which is used to criticize or disagree with a policy position may or may not be an attack on a specific individual or political party. For example— a representative from either party may criticize the Green New Deal but not name a specific politician in their critique. In this case,

the tweet references a policy disagreement but not does include an attack on an individual. In contrast, a tweet which criticizes the Green New Deal *as well as* Representative Alexandra Ocasio-Cortez contains two types of negative language— a policy disagreement *and* an attack on a member of Congress. This example demonstrates that the different types of negative language are not necessarily mutually exclusive, though practically MCs are constrained by the 280 character limit of each post.[4]

3.2 Theoretical Expectations

In the following section, we outline our theoretical expectations. These consider rank and file MCs as well as those in leadership positions and how and when we expect them to use more negative language in their tweets in a way that is critical of their opponents. THe phrase "critical of" refers primarily to two types of negativity: (1) attack tweets and (2) policy critiques or disagreements. Though there are other reasons that a MC may use negative language in their posts (for example, complaining about the weather), we suggest that these two are the most likely types of negative content to be strategically used in the ways that we have described previously. We also refer to several different institutional circumstances which we will analyze, and how we expect tweet content to vary between them. These are if the MC or leader is a (1) member of the minority party, (2) member of the party opposing the president, or (3) both a member of the minority party and the party opposing the president. We outline our theoretical expectations in the hypotheses below.

The first set of hypotheses consider the behavior of rank and file representatives. Here we will most directly perform additional tests on the analysis from our previous paper where we found that MCs in the minority party or in the opposing party to the president were more likely to post tweets with negative language. We will use several ways of capturing references about the other political party (the party as a group, individual legislators, and leadership); across each of these, we predict that MCs in the minority, party opposing the president, or both, will be more critical of the other party.

- **Hypothesis 1**: MCs will be critical of the other party (as a unit, individual rank and file MCs,

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[4]Prior to November 2017, the limit was even more limiting at only 140 characters per tweet.

and leadership) when:

- **Hypothesis 1a**: they are in the minority party in the House or

- **Hypothesis 1b**: they are in the outparty to the president in the House, but

- **Hypothesis 1c**: will be even more critical when in the minority party *and* opposite the president's party.

Hypothesis 2 and 3 consider individual features of rank and file MCs that we expect may shape the negative content that they post on Twitter. In Hypothesis 2, we focus on their ideology and how this may shape the likelihood that they post an attack on or a policy disagreement with their own party's leadership. The further apart that a representative is from the median co-partisan in the House, or from their leaders, the more likely we expect them to be critical of their party's policies and its leadership.

- **Hypothesis 2**: Rank and file MCs will use more negative rhetoric and be critical of their own party's leadership inside and outside the House when:

  - **Hypothesis 2a**: they are more ideologically extreme than the median representative of their party, or

  - **Hypothesis 2b**: they are more ideologically extreme than their party leaders.

Hypothesis 3 considers the timing of elections, and predicts that representatives will be increasingly critical of their opponents as they get closer to their upcoming elections.[5]

- **Hypothesis 3**: MCs will be more critical their opponents for their primary and general elections, respectively, on Twitter, and this will increase as the election dates approach.

Theoretically, we expect that MCs holding leadership positions may use negativity differently in comparison to rank-and-file members (both when and how). Previous work has suggested that leaders are in a more prominent position to be more openly critical, and in this way may

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[5]It is likely that district partisanship or competitiveness will also influence these decisions; it is something that we need to think more about in this case.

use social media as a platform for agenda setting (see Russell 2018). Likewise, due to Twitter's algorithms and this focus on leadership, mentioning and attacking party leaders on Twitter may be an effective way for MCs to increase the spread of their posts and their own political goals. We predict here that party leaders of the minority party will be more critical of the party leaders of the majority party than the other way around. Though beyond the scope of this project, it is possible that leaders gain more from being negativity than the average member of Congress.

- **Hypothesis 4**: Party leaders will be more critical of leaders of the other party when they lead the minority party in the House.

As mentioned above, we further theorize that the size of the difference between the majority and minority party, rather than just a dichotomous status, may further impact the use of strategic negative sentiment in Congressional tweets. This is due to the possibility of compromise (though with the current polarized and contentious environment in Congress today, the likelihood of this occurring on Twitter may be decreasing with time). When the two parties are more equal in their number in the House, the likelihood that some members of the minority party may realistically (and even necessarily) join with the majority to pass legislation is higher. The further apart they are, or the safer the majority's majority is even if it has a few defectors, the less likely that the majority party will need the support of the minority. As the minority party members are more shut out and they have less options to attempt to influence the political process, this theory suggests that this will heighten their already-existing incentives to be negative and they will become more critical in their tweets.

- **Hypothesis 5**: MCs in the minority party will be less (more) critical of members of the other, majority, party when the difference in seats between the two parties is less (more).

In the next sections, we outline features of the Twitter data that we have already collected and will update as we approach the elections in November 2020.

4 Twitter Data

We analyze the communication strategies of all House members from the 113th to the 115th Congress (2013-2018) on Twitter. Tweets are posted frequently and written in a homogeneous format which facilitates comparisons across and within parties and representatives, over time. A plot of the monthly frequency of all tweets by representatives is shown in Figure 1. Though the overall number of tweets has increased since 2013, MCs have consistently tweeted thousands of times per month.

Figure 1: Plot of all congressional tweets in the 113th–115th Congresses, by month.
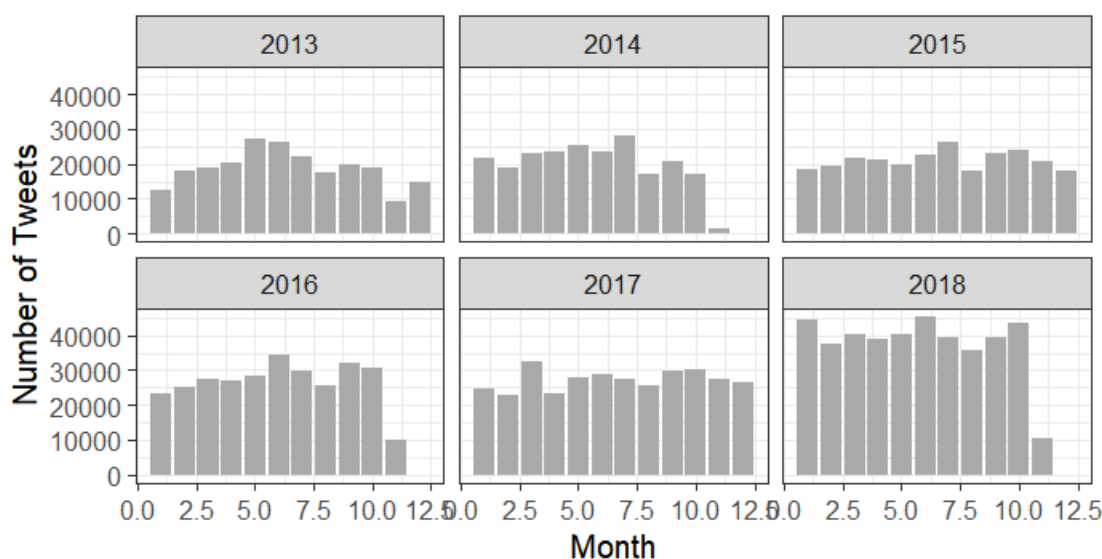
We collected all available tweets (both office and campaign accounts when applicable) from all House members of the 113th Congress (2013-2015)[6], 114th Congress (2015-2017), and 115th Congress (2017-2019)[7]. To offer a more detailed overview of this data over time, we subset the full tweet data into two time periods of interest: (1) the governing period (first year of governing after being elected when MCs are less focused on campaigning (e.g. Russell 2018); and (2) the campaign period (following year leading up to each session's general election day). As was outlined previously, some of our expectations vary between these two time periods. Table 1 outlines

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[6]We are grateful to Pablo Barberá for sharing this data.

[7]114th and 115th tweets were captured through Twitter's REST API. Tweets beginning Jan. 1, 2018 were scraped from https://github.com/alexlitel/congresstweets.

the governing and campaigning time frames for each Congress, as well as the number of tweets within each period and Congress (N = 1,736,595 total). We also added demographic information (e.g. party; gender; incumbency, etc.) to the tweet data.[8] Table 2 displays the final distribution of tweets by party and period in each Congress.

Table 1: Overview of governing and campaigning time frames for 113th to 115th congresses

	113th Congress	114th Congress	115th Congress
Governing	1/3/2013 to 12/31/2013 (N = 226,100)	1/3/2015 to 12/31/2015 (N = 252,678)	1/3/2017 to 12/31/2017 (N = 416,017)
Campaign	1/1/2014 to 11/4/2014 (N = 220,494)	1/1/2016 to 11/8/2016 (N = 293,574)	1/1/2018 to 11/6/2018 (N = 327,732)

Table 2: Number of tweets, by congress and party

	113th Congress	114th Congress	115th Congress
Democrats	203,394	268,910	421,557
Republicans	243,200	277,342	322,192
Total	446,594 tweets	546,252 tweets	743,749 tweets

Note: Independents coded as Democrats. Total N = 1,736,595 tweets.

4.1 Classifying Negative Tweets

In previous work, we classified each of the over 1.7 million tweets by representatives as negative or non-negative using the NRC Emoticon dictionary which we modified for our political context. The dictionary assigned a frequency score for the negative emotive category, as described in greater detail in the Appendix, for each unique tweet. About 600,000 of the posts, over one third, contain at least one negative word from the modified dictionary; it is these that we will label in greater detail, to better understand how and when MCs strategically chose to use negative language in their tweets. In this iteration of the project we will first provide more of an overview of the tweets and their negativity, before outlining our plans to classify the negative-labelled tweets in greater

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[8]The incumbency variable deserves additional explanation. This has a value of 1 if it is not the representative's first term (i.e. they have been elected at least once previously). In this data, a representative is not an incumbent, with a value of 0, if they are a freshman for that term; for every term after, if they are re-elected, they are then considered an incumbent. As our data cover three terms, and soon to be four, there is some change over time as new members were elected and then re-elected two years later.

detail, which we will use in future analyses to test our expectations of representative negativity.

The examples below are illustrative of political tweets with high levels of negative sentiment from both Democratic and Republican representatives. The Democratic representatives are Pramila Jayapal (WA-7) and Eric Swalwell (CA-15) in Figure 2; the Republican representatives are Dana Rohrabacher (CA-48) and Matt Gaetz (FL-1) in Figure 3.

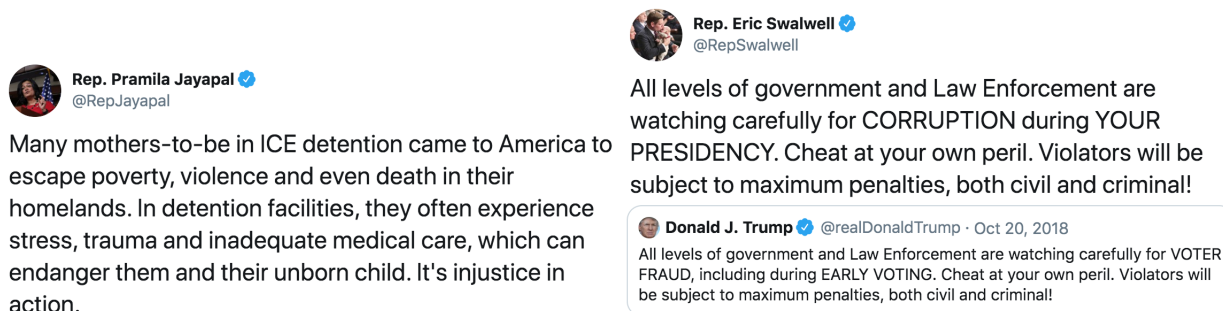Figure 2: Examples of Democratic tweets with high negative sentiment.

Rep. Pramila Jayapal ✔
@RepJayapal

Many mothers-to-be in ICE detention came to America to escape poverty, violence and even death in their homelands. In detention facilities, they often experience stress, trauma and inadequate medical care, which can endanger them and their unborn child. It's injustice in action.

Rep. Eric Swalwell ✔
@RepSwalwell

All levels of government and Law Enforcement are watching carefully for CORRUPTION during YOUR PRESIDENCY. Cheat at your own peril. Violators will be subject to maximum penalties, both civil and criminal!

Donald J. Trump ✔ @realDonaldTrump · Oct 20, 2018
All levels of government and Law Enforcement are watching carefully for VOTER FRAUD, including during EARLY VOTING. Cheat at your own peril. Violators will be subject to maximum penalties, both civil and criminal!

Figure 3: Examples of Republican tweets with high negative sentiment.

Dana Rohrabacher ✔
@DanaRohrabacher

This is why I support President Trump. He's a leader that will protect us rather than let criminals and illegal aliens go to maraud around our neighborhoods.
#EndSanctuaryState #NoAmnesty #CA48

Donald J. Trump ✔ @realDonaldTrump · Mar 31, 2018
Governor Jerry "Moonbeam" Brown pardoned 5 criminal illegal aliens whose crimes include (1) Kidnapping and Robbery (2) Badly beating wife and threatening a crime with intent to terrorize (3) Dealing drugs. Is this really what the great people of California want? @FoxNews

Matt Gaetz ✔
@mattgaetz

Quit trolling my staff. You made this argument in the campaign. Voters rejected it because it's absurd. If you have a problem with my record, run against me again. We'll be ready to hand you your third loss.
twitter.com/crisdosev/stat...

As seen in Rep. Jayapal's tweet in Figure 2, many negative messages highlight issues and policy positions, such as immigration. Additionally, several tweets with high negative sentiment were in response to President Trump's own tweets (see: Rep. Swalwall's post in Figure 2 and Rep. Rohrbacher's post in Figure 3). Though both of these mention President Trump, only Rep. Swalwall's tweet contains an attack against him. The tweet by Rep. Gaetz, also from Figure 3, is representative of an attack message against an opponent in his district. Just in these few examples, we can see the variation in content of these negative tweets.

From our theoretical expectations, we predict that several institutional features of the House will shape candidate negativity. These include their status in the minority or majority party and

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Figure 4: Monthly mean negativity per tweet by whether MC is in opposing party to the president.


whether they are a member of the same party as the president. During the 113th Congress, from January 2013 to January 2015, Barack Obama was president and the Republicans had a majority in the House with 233 seats at the start of the term, compared to the Democrats' 200 (33 seat difference). In the 114th Congress, from January 2015 to January 2017, Barack Obama was still president and the Republicans started with an even larger majority in the House with 247 seats, compared to the Democrats 188 (a 59 seat difference). In the 115th Congress, from January 2017 to January 2019, Donald Trump was president and the Republicans held onto their majority in the House, though they lost some seats. They started the term with 241 representatives compared to the Democrats' 194 (a 47 seat difference). As we add in updates from representatives in the 116th Congress from January 2019 to January 2021, we will similarly add in increased variation of majority party. Donald Trump has remained in office as president, though from the 2018 midterms Democrats took back control of the House and started the term with 235 seats compared to the Republicans' 199 (a 36 seat difference).

We plot the overall trends across all tweets for these two features of a representative's (and her party's) status in the House— in the minority (or not) and in the party opposing the president (or not). Figure 4 illustrates how frequently MCs used negative language in their tweets, on average, for each month and year of our data. The years in the left panel (2013, 2015, and 2017) represent the governing period while the right panel years (2014, 2016, 2018) represent the campaigning period, or the year leading up to the election. This figure shows a steady increase overall in the mean use of negative language during the 113th to 114th Congress, with a drastic increase in the 115th. Democrats opposing President Trump in the year leading up to the 2018 midterms were particularly negative hitting a peak of about 1 negative word per tweet on average in February 2018. This is over twice the amount of negative language Republicans used during this month (0.45 negative words per tweet on average). Figure 5 compares the monthly average use of negative language per tweet from MCs in the minority party of the House versus those in the majority party. Particularly in the 115th Congress (2017 to 2018), we see that members in the minority party consistently used more negativity per tweet every month, reaching a peak of 1.07 mean negative words per tweet in February 2018. In contrast, majority party MCs used 0.64 negative words per tweet during the same month.

In previous work, we estimated several several OLS models where the dependent variable was the average frequency of negative words per Representative-day, and the independent variable was one of two variables– opposing party to the president or minority party. The purpose of these analyses was to estimate the relationship between the power (or lack thereof) held by a representative and their overall level of negativity on Twitter. These results are provided in the Appendix.

Though informative of broad patterns of behavior that support the idea that negativity is a tool most frequently used by those in positions of (relatively) lesser power, these results do not provide a full picture of the more nuanced content of these congressional tweets. For the rest of this draft, we will outline our future steps moving forwards. As stated previously, we just received funding to hire coders on Mechanical Turk to hand-label thousands of negative tweets by type of language used; we want to be as careful and thoughtful as possible with our coding choices and priorities before we do so.

Figure 5: Monthly mean negativity per tweet by whether MC is in minority party.
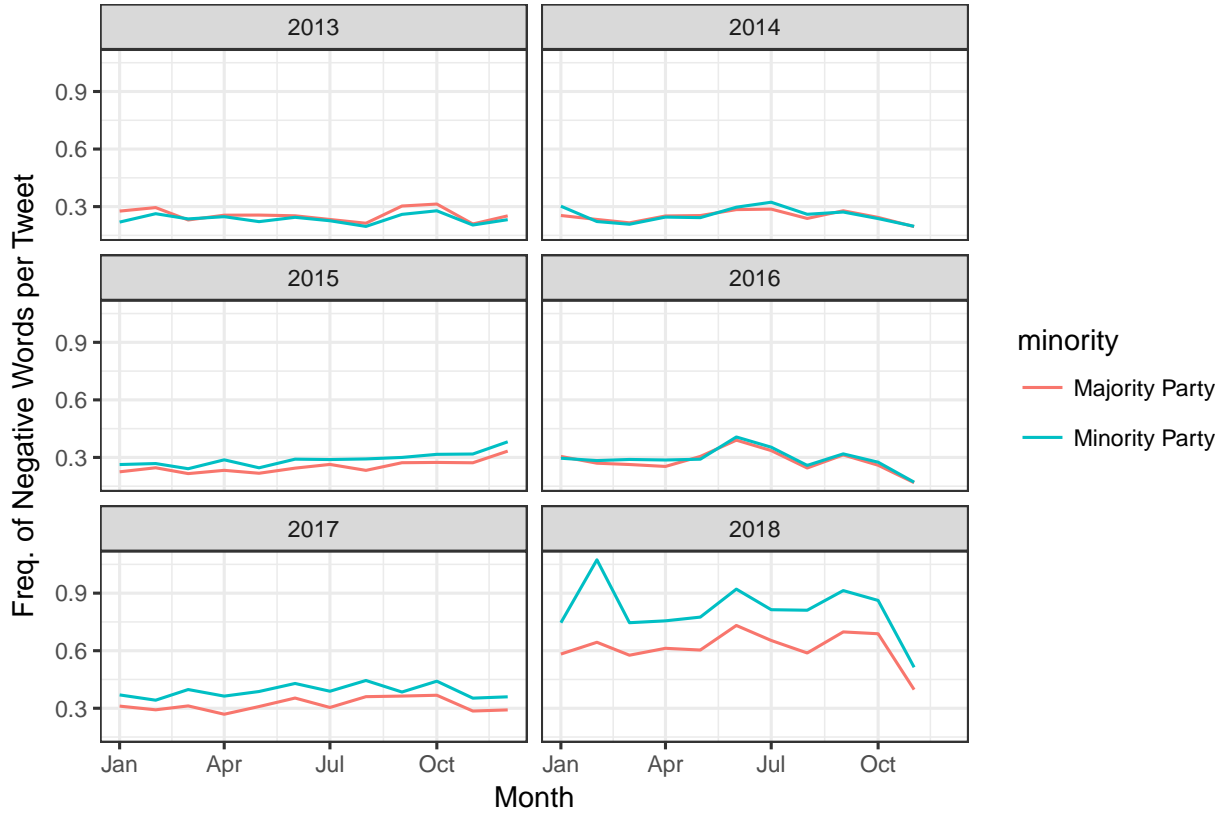
4.2 A More Nuanced Classification of Negativity

In order to test the hypotheses outlined previously, as well as for use in future projects, we will soon more fully classify negative tweets by their type. We aim to use hand-coded tweets to train supervised topic models, which we will use to further dive deeper into the content of these tweets than our existing broad dictionary measure of negativity. Of the original dataset of 1.7 million congressional tweets, to be expanded, about 600,000 of them include at least one negative word; it is these tweets that we will label in greater detail.

We have received funding which will enable us to recruit crowd-sourced annotators to label each of a random sample of tweets into one (or more, as applicable) categories. We will use these hand-labeled tweets to train a supervised topic model which we will use to predict the label(s) of the remaining tweets by negative sub-category. The texts to be handcoded will be a 10% random sample of the 600,000 negative tweets. We will use Amazon's Mechanical Turk to hire coders to

assist us in labeling the 60,000 tweets.[9]

There are several potential categories that a coder can choose to place a tweet into— is it referring to a policy or political position the representative is opposed to, or attacking another politician or branch of government? Is it not political in nature (e.g. complaining about the weather)? We anticipate that most policy issues and individuals and groups mentioned or targeted by the representatives will be political and of national salience. As a complement to this future labeling, we will go a step further and extract and label who leaders and representatives mention in their attack tweets as a complementary component of who a representative is targeting in a post. An overview of their mention and retweet behavior follows. These are not necessarily all attacks or critical of the named user, but show the magnitude of how frequently this behavior is done by MCs on Twitter.

4.2.1   Mentions & Retweets

Mentioning and retweeting other users are one commonly used way that a Twitter user can engage with another. In our tweets, this is something that was used in over one half of all posts by the MCs. Of course, this current overview does not yet consider referring to another individual, such as another representative or the president at the time, by name rather than handle (e.g. "Pres. Trump", "Rep. Jayapal"). Thus, what we present here is likely to an under count of all of the references of other users which occurs in the tweets. However, it is still valuable and informative; what we are able to capture and show here includes all references to other users which led to that user receiving a notification that they were tagged in a tweet, and which similarly were (theoretically) spread to the followers of the original tweet-er and the account that was mentioned or retweeted. Mentions and retweets, more than simply referring to the text of someone's name, is more likely to result in the outcomes which the previous literature suggests are benefits which lead political figures to be negative in the first place, such as increased attention or news coverage.

When a user is mentioned, their handle is referenced by the string "@mentioned.user". When one user retweets another on Twitter, the tweet text always contains the string "RT @retweeted.user".

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[9]To improve the accuracy of the labels, we aim to have each post labeled at least 3 times and we will calculate inter coder reliability. This means that there are a minimum of 180,000 texts to be labeled.

A retweet is a type of mention, but not all mentions are retweets; we distinguish between the two theoretically and practically in the following description. Of the 1,736,595 unique tweets made by representatives from 2013 to 2018, 541,588 contained a mention (that is not also a retweet) and an additional 428,355 were re-tweets. Overall, a majority, about 56% of all posts, contained a mention or a retweet.

An overview of mention and retweet frequency is shown in Table 3. The first two rows provide summary statistics of the number of mentions made by each MC and the frequency with which individual, unique users were mentioned by the MCs, respectively. Rows three and four show the same information for retweets.

We consider the top two rows of Table 3, MC mention behavior, first. During our time period of interest there were 552 different MCs— almost all of them, 547, made at least one tweet with a mention during their time in office. Most of them made hundreds, if not thousands, of mention tweets; the 25th percentile number of mention posts was 309 and the median 694. Rep. Ileana Ros-Lehtinen made the most tweets with mentions (9,316); the second highest was Rep. Dana Rohrbacher (7,938); the third highest was Rep. James Langevin (6,828); the fourth highest was Rep. Ted Lieu (5,364); and, the fifth highest was Rep. Eric Swalwall (5,249). Though there is much variation among the MCs, mentioning other users by handle is a strategic behavior that most of them engage in.

Most tweets (371,172 of all those that contained a mention) contained only a single mention, but a sizable minority contained multiple. Across the 541,588 tweets containing at least one mention, 811,509 total mentions were made of 147,773 unique Twitter users. Most of these users were mentioned only a small number of times, though a minority were mentioned thousands of times. The top ten most mentioned Twitters users were: @realDonald Trump (17,162), @POTUS (14,732), @HouseGOP (9,714), @SpeakerRyan (4,415), @FoxNews (4,082), @HouseDemocrats (3,925), @WhiteHouse (3,002), @HouseCommerce (2,853), @HillaryClinton (2,566), and @BarackObama (2,533). These frequently mentioned users include current and past presidents and presidential candidates, the official Twitter account for each political party in the House, then Speaker Paul Ryan, the House Commerce Committee, and Fox News. MCs seem to be focusing this type of behavior on nationally prominent party leaders, both inside and outside of Congress.

Table 3: Mention and retweet summary statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Median	Pctl(75)	Max
MC Mentions	547	990.1	1,023	1	309	694	1,419.5	9,316
Mentioned Users	147,773	5.5	77.9	1	1	1	2	17,162
MC Retweets	544	787.4	1,132.5	1	182	490.5	989.2	17,745
Retweeted Users	82,506	5.2	45.1	1	1	1	2	5,146

Next, we turn to the last two rows of Table 3. Of the 552 MCs in our Twitter data, a slightly lower (but still very high) number of them re-tweeted at least one other post by another user— 544. There is more variation in the frequency with which a MC retweeted compared to how frequently they mentioned other users. Most made over 180 retweets; about a quarter made over one thousand retweets. The most active re-tweeters were Rep. Billy Long (17,745), William Lacy Clay, Jr. (7,460), Joaquin Castro (7,114), Donald Beyer (4,690), and Elijah Cummings (4,665).

From the 428,355 retweets, 82,506 unique users were retweeted by the MCs. This includes other members of Congress, candidates for Congress, executive branch officials, and journalists and media organizations regionally and nationally. The 'Retweeted Users' row shows the summary statistics for the frequency with which these thousands of Twitter users were retweeted by MCs. There is a long left tail; the median number of retweets is 1 and the 75% percentile is 2, but the maximum is over 5,000. The top ten most retweeted accounts are: @HouseGOP (5,146), @HouseCommerce (3,648), @SpeakerRyan (3,587), @WaysandMeansGOP (3,046), @NancyPelosi (2,800), @OversightDems (2,681), @FoxNews (2,463), @SpeakerBoehner (2,338), @HouseAppropsGOP (1,959), and @HouseDemocrats (1,850). @realDonaldTrump is number 11 with 1,793 retweets; we expect that his account's ranking will increase when we update the tweets to include those made since the 2018 mid-terms. The accounts in the top ten include the leader of each party in the House during this time, the official accounts of each political party in the House as well as several prominent committees, and Fox News.

As we refine our classification of negativity in the MCs tweets, we will be able to systematically determine whether they mention these users as an attack against the mentioned user, or as a part

of an argument against a policy like Rep. Rohrbacher's tweet in Figure 3. We will also consider different types of users to attack or critique— party leader, other MC, president, committee, and media organization.

5   Conclusions

Social media has now become an integral component of campaign and legislative messages, offering an important and vast data source for study. While prior research has broadly examined the extent to which negativity is present in political messages (particularly in the campaign context), we know less about how and when elected representatives may be using negative language strategically. This paper will add to our understanding of congressional social media use by investigating the determinants of negativity in representatives' messages on Twitter, and how negative sentiment may be adopted strategically as a function of party competition for power. Through the content analysis of a comprehensive dataset of over 1.7 million tweets from all House members during the 113th to 115th Congress, we will be able to explore the factors that drive negativity online across varying institutional contexts.

In previous work, we demonstrated that representatives strategically use more negative sentiment in response to lack of institutional legislative and political power. In other words, representative's online behavior, particularly in "going negative", is driven by their party's position of power, or lack of power, in government. Through Twitter and other social media platforms, representatives have a new political arena in which they can broaden their influence and seek more power by directly appealing to the public. As a rhetorical weapon of the weak, MCs in disadvantaged positions may use negativity strategically in their political messages as a way to attract more public attention and greater electoral advantages than they would otherwise hold.

In this paper, we have presented a plan for the next step in this avenue of research, to assess the different types of messages containing negative sentiment (e.g. issue-based; attacks on opponents; criticism of president, etc.). We have generated theoretical expectations about when and how we expect MCs, both rank and and files as well as party leadership, to be more negative in their tweets. With a guaranteed source of funding, in the very near future we will hand-label thousands

of tweets for different types of negative language using coders on Mechanical Turk which we will then use to train supervised topic models to fully classify all tweets made by representatives from 2013 to 2020.

This project will shed light on the extent to which congressional tweets with negative sentiment actually contain conflictual or divisive rhetoric as is oftentimes assumed, and if so, who or what the target of it is. By including the next layer of classification of the types of negativity, we are able to systematically analyze over time how MCs with varying individual-level characteristics may have different strategic incentives and therefore behave differently in their public use of negative language. Race, for example, importantly impacts Black MCs' legislative behavior in distinct ways (e.g. Grose 2011), which suggests that race should also affect how MCs communicate. Our preliminary findings show that White and BIPOC (Black, Indigenous, and People of Color) MCs rely on negative language at similar levels on average, which notably does not account for the possible contextual variation of how negativity is used within and between groups.

While negativity is notably a more prominent feature of messages sent during campaign periods, negative sentiment is still strategically used in governing messages. This suggests that campaign negativity may indeed be bleeding into governing messages, lending support to "permanent campaign" arguments. This may be normatively problematic for representation if strategic negative sentiment in congressional messages inadvertently misleads or misinforms the public by obscuring information in favor of evoking emotion. Particularly on a platform like Twitter where characters are limited, political elites can choose to convey more emotion at the expense of being thorough or factual in order to make their tweets more catchy or newsworthy. Given that messages and posts with greater negativity are more widely circulated and liked (Pew Research Center 2017), representatives may similarly benefit by posting and sharing more negativity online.

Elected officials from the local level to the presidential office are seemingly turning to negativity online more frequently as a strategy to rile up their partisan bases and improve their perceived disadvantaged position. Our data also reveal that the use of negative sentiment in tweets has increased over time with the 115th Congress displaying the highest average of negativity for both parties in comparison to the previous congresses. We don't anticipate that the levels of negativity have decreased during the 116th Congress. The extended repercussions this may have on political

participation and information-seeking make the study and increased understanding of this topic

a relevant and important goal.

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