

Understanding the Usage of Polarizing Rhetoric in the X Posts Sent by American Senators in 2023: A Directed Content Analysis

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ABSTRACT

Political polarization has been gradually increasing, particularly among political elites like politicians, in a process known as elite polarization that has been linked to numerous undesirable political phenomena like political disunity, legislative gridlock, public disengagement with the political system, and ineffective policy making. Political elites engage in polarizing behavior through their social media messaging, politically their communications on X, formerly Twitter. One of the most concerning types of this polarizing behavior is the usage of polarizing rhetoric, or language meant to draw distinctions between group identities in order to affirm one message while subverting another. Research has already been done on the usage of polarizing rhetoric in the X posts, formerly tweets, of all members of Congress. However, research has yet to be done on the usage of polarizing rhetoric in the X posts of senators specifically, as well as on whether political party affects this usage. This paper uses a directed content analysis to study this topic, and finds that polarizing rhetoric is used to a very limited extent in the X posts of senators in 2023, and that the political party of senators has no statistically significant impact on their likelihood of using polarizing rhetoric in their X posts. This has implications for the structure of the House of Representatives and its proceedings, voter advocacy for bipartisan activity, and the current understanding of differences in polarization between the House and the Senate.

Literature Review

Elite Polarization

American politicians are becoming increasingly polarized (Hare 2014, Jacobson 2013). Polarization has been defined by Heltzel and Laurin (2020) as the adoption of increasingly dissimilar attitudes towards political parties and party members among subsets of a population, and by Garimella and Weber (2017) as a tendency to be restricted in engaging with political information on either side of the liberal-conservative political spectrum. In the context of elite polarization, or polarization among politicians, this means that Democratic politicians are becoming more ideologically distant from Republican politicians, and vice versa, and both groups are becoming less willing to engage with information that could support the other side. Democrats are becoming more and more liberal, and Republicans are becoming more and more conservative (DeSilver 2022). The Senate was once thought to be above partisan politics—a beacon of stability in contrast to the volatility of the House of Representatives—but partisanship is now present in the Senate as well (Lee 2013; Russell 2017). In both the House and the Senate, the Democrats have lost their conservative wing and the Republicans have lost their liberal wing, resulting in no overlap in their political ideologies (Kleinfeld 2023). In fact, by using the DW-NOMINATE method for scoring the ideological polarization of politicians, DeSilver (2022) found that the Senate has become even more polarized than the House of Representatives, with Republican senators being more conservative than their counterparts in the House.

Farina (2015) believes that the threat of this increase in polarization has been greatly exaggerated, as after reviewing standard metrics of congressional polarization, looking at historical trends in these metrics, and considering the many theories put forth to explain the phenomenon of elite polarization, she did not find much evidence for polarization being a vehicle for increases in undesirable political trends like division and gridlock. However, other researchers have found that increasing polarization does have detrimental effects like these, among others. Polarization has been found to encourage disunity between the Democratic and Republican parties, bringing with it a wide range of adverse effects which include legislative gridlock, public disengagement with politics, and ineffective policymaking (Heltzel and Laurin 2020; Lupu 2014). Druckman et. Al. (2013) found that it increases the impact of partisan endorsements on opinions while decreasing the impact of relevant information, stimulating greater confidence on opinions that are not based in substantive fact.

It also results in politicians that are more extreme than their constituents, meaning that voters are not being properly represented (Bafumi and Herron 2010). Polarization is now considered second only to climate change as humanity's most concerning existential threat by the World Economic Forum's Global Risk Report (Goldsworthy and Huppert 2020). This is in contrast to Neihelsel (2016), who notes that elite polarization can be considered to have allowed voters to participate more effectively in politics, as it makes political issues more visible and accessible. Senators exacerbate these political divisions through refusals to compromise, personal attacks on each other, and ad hominem tactics to serve their own policy interests (Lee 2013).

The Role of Social Media, Specifically X

Social media outlets, especially X, formerly known as Twitter, have become an increasingly common tool for elite polarization; by 2013, every current member of the United States Senate had a verified X account and many maintained separate campaign accounts (Russell 2018). Russell 2018 also found that, while the frequency of X posts (formerly tweets) varies from senator to senator, with some senators sending more than ten posts a day while others send only one or two, all senators send regular messages from their X accounts. The average senator's X account makes about 1,000 posts per year while the average senate office issues less than 250 press releases each year (Grimmer 2010), showing that informal X posts have become a more common source of rhetoric than official press releases.

X does not necessarily alter the polarized behavior of politicians, nor does it create such behavior, as party polarization has existed since long before the creation of X. However, X does extend the reach of the polarized political climate by creating an easily accessible and transparent record of party polarization. Some early studies of X analyzed the platform as an important part of campaign communications (Evans, et. Al. 2014), and increasingly how X is used in governance (Hong and Kim 2016), establishing scholarly research on its use as a political tool. As political elites, senators have substantial influence over people's view of politics, which can have severe consequences if that influence is polarized. Heltzel and Laurin (2020) found that perceiving increasing polarization, for example by seeing polarized X posts from senators, causes the general public to become more polarized in reality, which results in increasing perceptions of polarization, resulting in increased actual polarization, and so on. This creates a feedback loop of polarization, exacerbating its adverse effects of societal division.

Lassen and Brown (2011) explores the factors that determine when and why members of Congress start to use X, finding that many of the variables they thought would have an effect, such as constituency or electoral success, were not influential. They did find that Republicans were more likely to adopt X, suggesting that their minority-party status during the 111th Congress led them to deemphasize traditional communication outlets in favor of social media (Lassen & Brown, 2011).

Straus et al. (2013) compile data from this same session of Congress and find that variables such as incumbency, gender, and race have less influence on X adoption than more significant variables such as urban districts and ideology. Cook (2016) looks at both X adoption and activity across all 50 states legislatures, and finds that variables including gender, chamber, and role are positively associated with X activity, while majority status and partisan in-

stability are not factors (Cook, 2016). Hong et. Al. (2019) and Ballard et. Al. (2023) found that more extreme politicians are more likely to adopt and benefit from social media, as they are free from the censorship imposed by traditional media such as major news networks. This previous research opens the door for additional research that looks beyond X adoption and more specifically at the patterns of polarizing rhetoric used by politicians on X.

Polarizing Rhetoric

This research explores how senators perpetuate party polarization in the rhetoric used in their congressional communications on X. Partisan communications are common, but senators will systematically differ in how they communicate their partisan interests. This research draws on previous studies by Gainous and Wagner (2014) and Evans et al. (2014) who find partisan patterns in campaign messages, to determine whether these same patterns are present in X posts as well. It also draws on previous studies by Hong and Kim (2016), who found evidence of polarizing rhetoric in X posts from members of the House of Representatives, and Ballard et. Al. (2023), which found evidence of polarizing rhetoric in X posts from all members of Congress from 2009-2020.

Ballard et. Al. (2023) defines polarizing rhetoric as language meant to draw distinctions between group identities in order to affirm one message while subverting another, turning in-group loyalty against a common out-group. Polarized language used by politicians in one party results in adverse reactions from politicians in the other (Ballard et. al. 2023), strengthening elite polarization and reinforcing the partisan divides that have left Congress in disarray. If such rhetoric can be found in X posts from House Representatives, then given the polarization shared by both Houses of Congress, it is possible that such rhetoric can also be found in X posts from senators. Russell (2018) studied this very topic, and she indeed found evidence of polarizing rhetoric in X posts from senators from 2013 to 2017. She also found evidence that Republican senators are more likely to use polarizing rhetoric in their X posts than Democratic senators are, in support of the findings of Lassen and Brown (2011). However, it is unclear if that is still the case six years later, given how fast-changing the worlds of politics and technology are, adding to the gap in the literature that this work addresses.

Differences Between Polarization in the Senate and the House

Despite these prior findings, there is still a gap in the literature, as polarizing rhetoric in the X posts of senators specifically has never been studied, only polarizing rhetoric in the X posts of House representatives (Hong and Kim 2016) and of Congress as a whole (Ballard et. Al. 2023). This is despite the fact that the Senate and the House are characterized differently in terms of the likelihood that their members will engage in polarizing behavior. House representatives have shorter terms and a higher turnover rate than senators (DeSilver 2022), and must also depend more heavily on partisan allegiances, making the House a more volatile environment where partisan differences have great influence. In fact, it has been described as being “defined by dysfunction” (Desjardins 2024), with the current session of the House being particularly singled out for partisan in-fighting.

The Senate, on the other hand, is extolled as the greatest lawmaking body in the world (Volden and Wiseman 2018). Its members have six-year-long terms and typically serve in their positions for longer (DeSilver 2022), and this relative stability has led the Senate to be perceived as a beacon of egalitarian stability where party allegiances have less influence (MacNeil and Baker 2013). Therefore, it is possible that polarizing rhetoric, rhetoric that highlights a divide between political or ideological groups, is used to a lesser extent in the Senate than in Congress as a whole. However, this possibility has gone unexplored, as senators’ tweets have not been isolated, so it cannot be determined if their usage rates for polarizing rhetoric are less than the rates for Congress overall found by Ballard et. al. Also, it is unclear whether the differences in usage of polarizing rhetoric in X posts between Democrats and Republicans found by Russell 2018 are still present in 2023.

Thus, a study of polarizing rhetoric in senators' X posts is needed to determine whether the extent of polarized rhetoric usage in the X posts of senators is different than in the X posts of all members of Congress, and whether political party still has an effect. Ultimately, this paper asks and answers three key questions: 1) To what extent is polarizing rhetoric used in the X posts sent by American senators in 2023? 2) What is the effect of political party on the extent to which polarizing rhetoric is used in the X posts sent by American senators in 2023? 3) Are senators using polarizing rhetoric in their X posts to a greater extent than all members of Congress?

Methods

To answer these questions, a directed content analysis of the X posts from twenty-five Democratic and twenty-five Republican senators was conducted—fifty senators in total, or half of the Senate—using the theories of polarizing rhetoric found in Ballard et. al. 2023 and Russell 2018 as codes. It contained three major steps: data collection, coding, and data analysis.

Data Collection

There were three steps to the data collection process used for this research: identify the X pages to code, gather the posts to be coded, then code the posts themselves. The X pages to code were identified by selecting fifty senators using a stratified random sample of the entire Senate; twenty-five from one strata including every Republican, and twenty-five from another strata including every Democrat. Independent senators, including those who caucus with a particular party while remaining independent, were not included in any strata since the dynamics of polarizing rhetoric among independents may be different from those among partisans. The fifty senators were selected by listing every Republican senator, labeling each of them with a unique number, using a random number generator to select twenty-five senators from this list, then repeating this process for every Democrat senator.

Once all fifty senators are identified, the number of tweets sent by each of them per month was counted, then a random number generator was used to randomly pick a number. The first tweet sent that month is coded if the number is one, the second tweet sent that month is coded if the number is two, and so on. In this way, one post from each of the first six months of 2023 from each senator's official government X page was randomly selected to minimize selection bias, for a total of three hundred X posts selected. X uses a gray checkmark to verify official government accounts, so all of these pages were checked to make sure the gray checkmark was present. In the event that a senator has multiple official accounts, the most active account is chosen for coding; an account is most active if it has sent the highest number of posts relative to the other official accounts.

Coding Scheme

To illustrate the coding scheme used for this research, the following sample X post sent by Senator Sheldon Whitehouse (D-RI) on March 3, 2023 will be analyzed: "House Republican budget proposals only work for the tax cheats, the polluters, and the wealthy few — NOT hardworking Americans" (See Cell F10 in the March sheet of Appendix A). X posts are first categorized according to whether or not they contain any polarizing rhetoric. The operational definition of polarizing rhetoric used in this paper was developed in Ballard et. al. 2023, which defines polarizing rhetoric as "language meant to create division between the speaker—via identification with an in-group—and an out-group." Attacks directed at an individual politician or specific policy are not considered polarized unless a political party or ideology is also attacked, as there is no in-group out-group divide in these kinds of X posts; individual politicians and specific policies are single entities, not out-groups. In the sample tweet from Senator Whitehouse, a Democratic senator attacks the Republicans by accusing them of working for unsavory characters like tax cheats and polluters, so a division is drawn between an in-group, in this case the Democratic party to which Senator Whitehouse

belongs, and an out-group, in this case the Republican party. Therefore, this X post is a textbook example of polarizing rhetoric.

Then, any posts identified as containing polarizing rhetoric are categorized as containing rhetoric related to partisan polarization, in which a divide is created between political parties like the Democrat and Republican parties, containing rhetoric related to ideological polarization, in which a divide is created between ideological groups like liberals and conservatives, or containing both of these kinds of polarizing rhetoric. These two kinds of polarizing rhetoric were defined in Ballard et. al. 2023. This sample X post is an example of a X post containing polarizing rhetoric related to partisan polarization, as no ideological groups are mentioned, only political groups, in this case the Republicans.

X-posts are finally categorized according to tone, which can be either positive or negative given the difference in motivation between attacking a political opponent and supporting one’s own party. Negative polarizing rhetoric is used to criticize the other party or ideology, while positive polarizing rhetoric is used to support the other party ideology. These operationalized definitions were developed by Russell 2018. This sample X post is negative towards the Republicans, so this is an X post containing polarizing rhetoric relating to partisan polarization that has a negative tone towards Republicans. If an X post is categorized as non-polarized, then no further coding is done to it. A non-polarized post is one that creates no ingroup-outgroup divide. An example of such an X post was sent by Senator Thom Tillis (R-NC) on May 14, 2023. It reads “Wishing a Happy Mother’s Day to all moms, especially my mom, my mother-in-law, my wife and my daughter. Thank you for all that you do! #MothersDay” (See Cell F27 in the May sheet of Appendix A), and is a simple Mother’s Day message that creates no divides between an ingroup and an outgroup. Figure 1 summarizes all the possible code categories involved in this coding scheme.

Table 1: All Code Categories

Polarizing							Non Polarizing	
Partisan				Ideological				
Positive Tone		Negative Tone		Positive Tone		Negative Tone		
Positive Towards Democrats	Positive Towards GOP	Negative Towards Democrats	Negative Towards GOP	Positive Towards Liberals	Positive Towards Conservatives	Negative Towards Liberals	Negative Towards Conservatives	

These categories and their definitions were derived from the previous research in Ballard et. al 2023 and Russell 2018, making this content analysis directed rather than conventional. This provides an informed and reliable method of coding to decrease bias in category creation that may have arisen if categories were created myself. Coding each X post into one of these categories allows the present study to identify differences in the types of polarizing rhetoric being used in senators’ X posts, providing a nuanced understanding of their usage of polarized rhetoric. This method was chosen over other possible methods like the DW-NOMINATE method for quantifying polarization, as this method is very complex and requires a level of access to powerful computer algorithms that is beyond the scope of this project. This makes it much less feasible for a single researcher than a directed content analysis, which requires only access to public X data, access that can be gained simply by creating a free X account.

Data Analysis

After content analysis was completed, all three hundred X posts were categorized based on these codes and sorted into a Google Sheets spreadsheet by month (see Appendix A). To answer the first question that this study asks—to what extent is polarizing rhetoric used in the X posts sent by American senators in 2023—the number of polarizing X posts was counted, then divided by the total number of X posts to determine the proportion of X posts that were polarized. This proportion was then converted to a percentage. A confidence interval for the population proportion was then calculated to generalize the data from the three hundred X posts coded in this study and estimate the true proportion of all senators' X posts sent in 2023 that contain polarizing rhetoric.

To answer the second question that this study asks—what is the effect of political party on the extent to which polarizing rhetoric is used in the X posts sent by American senators in 2023—a frequency chart was made using this data, and a Chi-squared test was conducted using the data within it to determine the statistical significance of any differences between Democratic and Republican senators in their usage of polarized rhetoric. To answer the third question that this question asks—are senators using polarizing rhetoric in their X posts to a greater extent than all members of Congress—the estimated true proportion of X posts sent by senators in 2023 that contain polarizing rhetoric was compared to the proportions of polarizing X posts sent by all members of Congress that were found in Ballard et. al. 2023.

Exclusion Criteria

Posts that consist solely of a news headline were excluded from this analysis, because the rhetoric contained within these headlines is not from the senators themselves, but rather from journalists. Posts that contain any language other than English were also excluded, as the online tools required to translate these posts into English may not be accurate enough to communicate precise meanings, so they cannot be analyzed well.

Results, Products, and Findings

A total of 311 X posts were collected from the X accounts of fifty senators over a six month period, from January 2023 to June 2023. After applying the exclusion criteria, eleven X posts were excluded and a total of 300 X posts were analyzed, one from each month for every senator.

The Extent of the Usage of Polarizing Rhetoric

Only twelve X posts out of three hundred were polarizing (see the All Polarizing X Posts sheet of Appendix A). The proportion of selected X posts that were polarizing was 0.04, or 4%, and the proportion of selected X posts that were non-polarizing was 0.96, or 96%, all of which is shown in Figure 2. Therefore, in this sample, polarizing rhetoric was used to a very small extent. Of these twelve, three included polarizing rhetoric related to ideological polarization, eight included polarizing rhetoric related to partisan polarization, and one included polarizing rhetoric related to both ideological and partisan polarization. This data is displayed in Figure 3 in percentage form, which shows that 66.7% polarizing X posts were related to partisan polarization, 25% to ideological polarization, and 8.3% to both partisan and ideological polarization. Figure 4 contains all twelve polarizing X posts, along with the name of each senator who sent a polarizing X post as well as the type of polarization and tone of each X post, in the order that they were sent. The phrases most indicative of polarizing rhetoric are highlighted, partisan polarization in yellow and ideological polarization in blue. See the All Polarizing X Posts sheet of Appendix A for a more detailed chart.

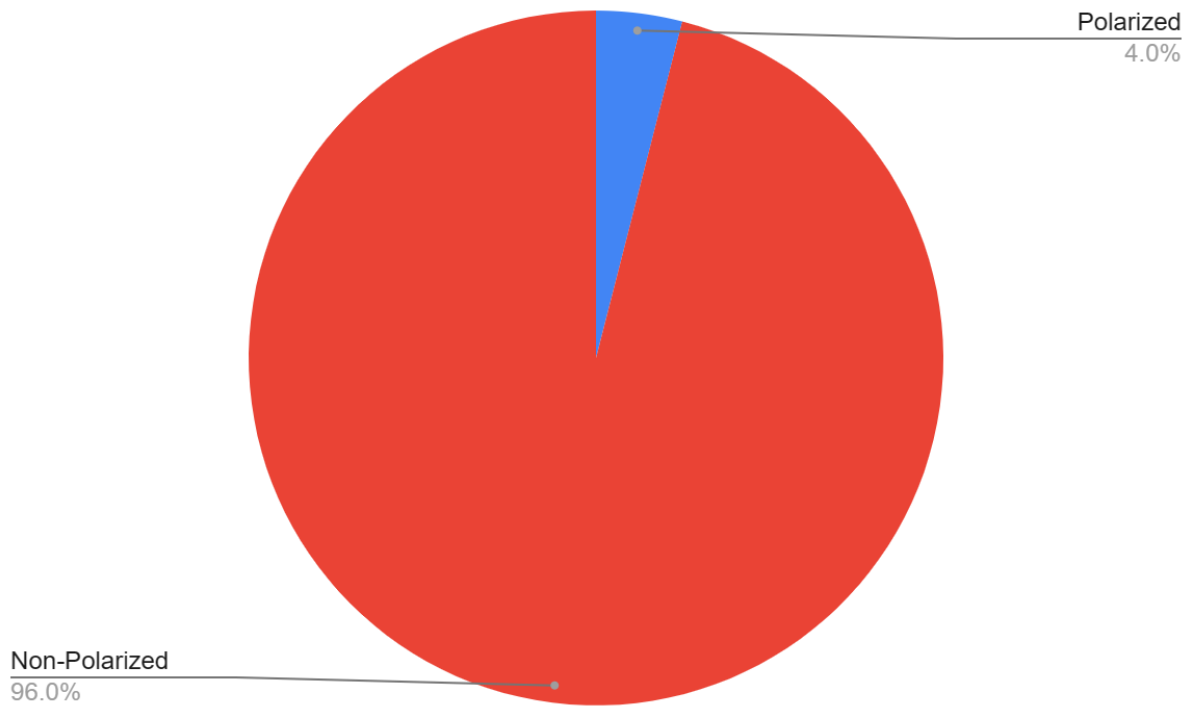


Figure 1: Percentage of X Posts that used Polarizing Rhetoric

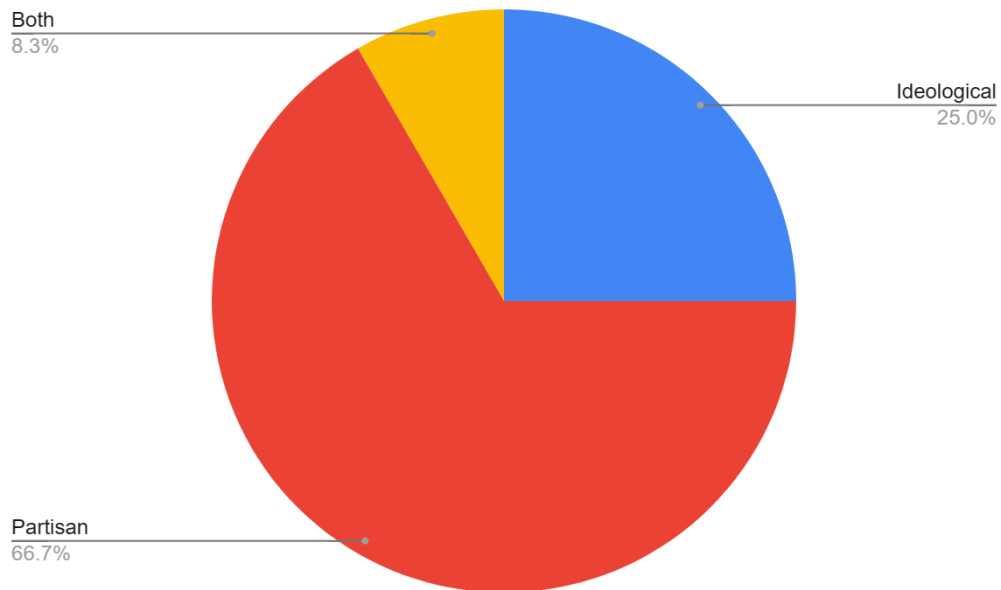


Figure 2: Polarizing X Posts by Type of Polarization

Table 2: All Polarizing X Posts

Senator's Name	Polarizing X Post	Polarization Type	Tone
Kevin Cramer	Never has it been more important for the people of light and life to stand against the forces of darkness and death than now. Thank you to all who @March_for_Life! #WhyWeMarch	Ideological	Positive Towards Conservatives
Chris Van Hollen	🔥 Have you heard House Republicans' latest bright idea? A 30% NATIONAL sales tax. This 100% backwards approach will raise taxes on everyday Americans while giving a huge break to the ultra-wealthy. Another 🗳️ reminder of where their priorities lie and who they really work for.	Partisan	Negative Towards Republicans
Mazie Hirono	If you're concerned about inflation, just know that the Republican economic plan is to create a 30% national sales tax on...everything.	Partisan	Negative Towards Republicans
James Lankford	Oklahomans don't want the country to be a test-drive for a radical, woke agenda. #SOTU	Ideological	Negative Towards Liberals
Chris Van Hollen	Congress is on the clock: if we don't raise the debt ceiling so the US can pay our existing bills on time, our economy will grind to a halt — and it could happen as soon as July. Republicans need to get on board or get out of the way.	Partisan	Negative Towards Republicans
Sheldon Whitehouse	House Republican budget proposals only work for the tax cheats, the polluters, and the wealthy few — NOT hardworking Americans.	Partisan	Negative Towards Republicans
John Cornyn	70 Democrats ask for more funding, without reforms, to facilitate Biden's open border policies. Almost 5 million migrants at our southern border isn't enough, apparently. So too, the 108 thousand Americans dead of drug overdoses. #BidenBorderCrisis	Partisan	Negative Towards Democrats
Sheldon Whitehouse	Speaker McCarthy and his MAGA extremists should put the pin back in the hand grenade — they are dangerous.	Partisan	Negative Towards Republicans
Josh Hawley	The modern left attacks the Bible at the same time it attacks traditional masculinity. But we need the Bible to understand what manhood and womanhood mean. It remains the bedrock of our culture, and the West	Ideological	Negative Towards Liberals
Markwayne Mullin	FACT: Prices have risen more than 16% since Biden took office. To stop inflation, we must spend less, reduce red tape, and unleash American energy. Unfortunately, Washington Democrats are more concerned with appeasing the radical Left than getting America back on track.	Partisan and Ideological	Negative Towards Democrats and Liberals
John Kennedy	The Biden admin's pistol brace rule turns law-abiding gunowners into felons overnight. Senate Democrats just blocked	Partisan	Negative Towards

	my effort to protect your Second Amendment rights.		Democrats
Roger Wicker	Democrats in Congress used to assert that abortion should be “safe, legal, and rare.” Today, the party regularly embraces positions on the issue that encourage the destruction of innocent life. #WickerReport	Partisan	Negative Towards Democrats

The statistical test used to generalize this data beyond this sample size is a one sample z interval for population proportion. The confidence level is 95%, the point estimate is 0.04, the sample size is 300, and the parameter is the true proportion of polarizing X posts sent by senators in 2023. Using this information, it was calculated that we are 95% confident that the interval from 0.0178 to 0.0622 captures the true proportion of X posts sent by all one hundred senators in every month of 2023. Therefore, the estimated percentage of all polarizing X posts sent by every senator in the entirety of 2023 ranges from 1.78% to 6.22%, so the extent to which senators used polarizing rhetoric in the X posts they sent in 2023 was very small. Many X posts were either about legislative goals, legislative accomplishments, supporting colleagues, or community engagement, not attacking opposing ideological or political groups, so not much polarizing rhetoric was used. Even so, 0% is not a possible percentage given this confidence interval, so polarizing rhetoric is definitely being used to at least some extent.

The Impact of Political Parties

Seven of the one hundred and fifty X posts sent by Republican senators contained polarizing rhetoric, while five were sent by Democrats (see the All Polarizing X Posts sheet of Appendix A). Figure 5 shows the frequency chart of the polarizing X posts according to political party, and Figure 6 shows a bar graph of the percentage of polarizing X sent according to political party with error bars at 5% error.

Table 3: Frequency Counts for Polarizing X Posts by Political Party

	Polarizing	Non-Polarizing	Row Totals
Democrat	5	145	150
Republican	7	143	150
Column Totals	12	288	300

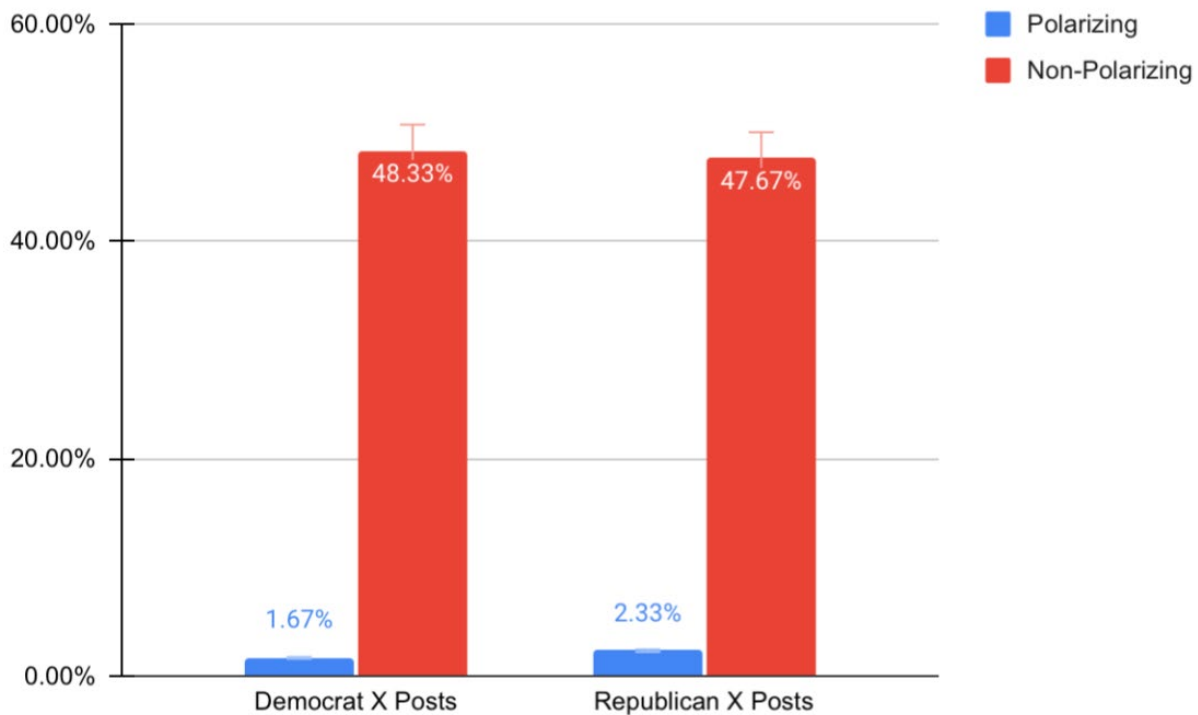


Figure 3: Polarizing X Posts by Political Party

Using the frequency table, a chi-squared test for homogeneity can be used to determine whether the difference in polarized X posts between Democrat and Republican senators is statistically significant. The significance level is 0.05, the null hypothesis is that there is no difference between the numbers of polarizing X posts sent by Democrats and by Republicans, and the alternate hypothesis is that there is a difference in the numbers of polarizing X posts sent by Democrats and by Republicans. Upon running the test, the Chi-squared statistic was 0.347 with one degree of freedom, and the p-value was 0.5557. This p-value is greater than 0.05, so we fail to reject the null hypothesis and find no evidence that there is a statistically significant difference in the number of polarizing X posts sent by Democrats and the number of polarizing X posts sent by Republicans. Therefore, there is no evidence that a senator's political party has a significant impact on their likelihood of sending polarizing X posts.

Comparison to All Members of Congress

Ballard et. al. 2023 found that between 13% and 15.8% of all X posts sent by every member of Congress from 2009 to 2015 contained polarizing rhetoric, and that between 24.4% and 26.3% of all X posts sent by every member of Congress from 2016 to 2020 contained polarized rhetoric, with the mean percentage of polarizing tweets sent by members of Congress between 2009 and 2020 being 17.37%. This research found that between 1.78% and 6.22% of the X posts sent by senators in 2023 were polarized, which is much less than the percentages found by Ballard et. al. 2023 for all members of Congress. Therefore, senators in 2023 are sending less polarized X posts than all members of Congress in previous years.

Discussion

This paper asks three key questions; firstly, to what extent is polarizing rhetoric used in the X posts sent by American senators in 2023; secondly, what is the effect of political party on the extent to which polarizing rhetoric is used in the X posts sent by American senators in 2023, and lastly, are senators using polarizing rhetoric in their X posts to a greater extent than all members of Congress. The first two of these questions will be discussed here, while the third will be discussed in the Conclusions and Implications section since it has a wider relevance than the first two, given that it relates to dynamics of polarizing rhetoric usage among all members of Congress, not just among senators as do the first two questions.

The Extent of the Usage of Polarizing Rhetoric

This research answers the first of these questions by finding that polarized rhetoric is used in 1.78% to 6.22% of all X posts sent by every American senator in 2023, so polarizing rhetoric is being used to a very limited extent in the X posts sent by American senators in 2023. This contradicts previous literature such as Goldworthy and Huppert 2020, which predicted increases in elite polarization and the usage of polarizing rhetoric by political elites such as senators. However, the limited extent of polarizing X posts used by senators in 2023 suggests that elite polarization may not be as high as they feared. It also expands upon Heltzel and Laurin 2020, which detailed two possible futures for polarization: a self-sustaining cycle in which greater perceptions of polarization lead to greater actual polarization, which leads to greater perception of polarization, and so on, and a plateau, in which polarization rates level off or begin to decline. This research supports the second future, as senators used a limited amount of polarizing rhetoric in their X posts in 2023, so the public will not perceive that they are highly polarized in the same way that they would if they used a large amount of polarizing rhetoric in their X posts. Therefore, the self-sustaining cycle may not be happening, and the limited usage of polarizing rhetoric could indicate that elite polarization is not too severe in the modern day, at least in the Senate. This extends on Lee 2013 and Russell 2017 which both found that partisan polarization does have an impact in the Senate as well, by suggesting that though this may be the case, it may be to a lesser extent in 2023 than in previous years.

The Impact of Political Parties

This research answers the second of these questions by finding that political party had no statistically significant effect on their usage of polarizing rhetoric in the X posts they sent in 2023. This suggests that Democratic senators and Republican senators have a similar likelihood of using polarizing rhetoric in their X posts, which contradicts previous research suggesting that Republican senators are more polarized than Democratic senators are (Russell 2018, Drew 2022). This also expands upon Volden and Wiseman 2018, which states that partisan allegiances have long been considered to be less important in the Senate than they are in the House of Representatives. This research supports this belief, as partisan allegiances had no significant impact on the extent to which senators used polarizing X posts in 2023, suggesting that senators are less beholden to these allegiances. This research also found that only eight out of three hundred X posts contained polarizing rhetoric related to partisan polarization, but if partisanship had large influence in the Senate, there would likely be much more partisan polarization than that.

Conclusions and Future Directions

Implications

This is the first study to analyze polarizing rhetoric in the tweets sent by American senators in the year 2023. While there has been previous research on the rhetoric in the tweets sent by senators specifically as opposed to Congress overall, this research focused on partisan rhetoric, which is not the same as polarizing rhetoric (Russell 2017, Russell 2021). The previously published papers that are most similar to my work are Ballard et. al. 2023 and Rafail et. al. 2024, which also analyzed polarizing rhetoric in the tweets of American members of Congress. Both of these papers analyzed tweets sent by both senators and members of the House of Representatives without isolating those sent by senators, which means that there is no information on polarizing rhetoric usage for senators specifically, only for members of Congress in general, including members of the House of Representatives.

This is significant because, as mentioned in the literature review, the Senate and the House are characterized differently in terms of the likelihood that their members will engage in polarizing behavior, where Senators have long been expected to be less polarized and volatile than the House (Volden and Wiseman 2018). Therefore, it is possible that polarizing rhetoric, rhetoric that highlights a divide between political or ideological groups, is used to a lesser extent in the Senate than in Congress as a whole. However, this possibility has gone unexplored, as senators' tweets have not been isolated, so it cannot be determined if their usage rates for polarizing rhetoric are less than the rates for Congress overall found by Ballard et. al. 2023.

This research fills this gap by analyzing polarizing rhetoric in the tweets from American senators specifically, not Congress as a whole. It was found that senators do indeed use a lesser percentage of polarizing rhetoric in their X posts than all members of Congress have in recent years (between 1.78% and 6.22% for senators compared to 17.37% for all members of Congress), answering the third question that this research asks and suggesting that House members may use more polarizing rhetoric than senators do. This supports the idea that the Senate is more egalitarian than the House and is less driven by partisan allegiances, suggesting that the structure of the Senate makes it less prone to polarization than the House (Volden and Wiseman 2018). Perhaps the House could benefit from some structural changes to make it more like the Senate in matters of procedure, to decrease its polarization and make it a more effective legislative body.

A study that expands analysis of polarizing rhetoric in tweets that compares all tweets sent from 2021 to 2023 by all one hundred senators to all tweets sent from 2021 to 2023 by all four hundred and thirty five House representatives would shed more light on this topic. If senators are found to use less polarizing rhetoric than House members, and if this difference is found to be statistically significant, then there will be more evidence to support the idea that the Senate is still more egalitarian than the House. If they are found to use just as much polarizing rhetoric as House members or more, and if this difference is statistically significant, then it may be necessary to view the Senate, not as the egalitarian body that it may have been in the past, but as a body just as if not more polarized than the House. This would mean that the entirety of Congress must find a way to find more stability, not just the House but the Senate as well, changing the ways in which the two houses are compared.

Additionally, if polarization in the Senate is indeed at a lower rate than in previous years, then it would be worthwhile for voters to make a concerted push for greater bipartisan activity. Lesser polarization in the Senate should make it easier for senators to work together across party lines, allowing for more efficient policymaking involving bipartisan compromise (Lee 2013). Therefore, voters should vote for politicians and policies that support bipartisanship to take advantage of this less polarized atmosphere. Politicians have become more polarized than the constituents who voted for them (Kleinfeld 2023), so the time has come for the public to vote for more moderate politicians who better support their less extreme views.

Limitations

This study utilized a predetermined framework for deciding whether a tweet is polarized or not, which was found in Ballard's in-depth description of the coding scheme he used to code for polarization (Ballard et. al. 2023). While using an existing model for coding aimed to decrease bias in the coding process, all coding was manually performed by one coder, suggesting a degree of subjectivity due to the coder's cognitive biases and perceived context. However, steps were taken to decrease the possibility of coder bias, such as completely randomizing the process of choosing senators and choosing which tweets would be coded. This study also only analyzes senator's rhetoric on X, excluding any other sources of rhetoric such as official press releases, speeches, and posts on other social media platforms, limiting its findings to their rhetoric in X posts only, not in any other form of communication.

Additionally, the current study utilized a very small sample size of 300 tweets, six for fifty senators, which is only half of the Senate. The usage of automated scrapers to gather more tweets was considered, but was ultimately rejected due to the difficulties in finding one that was suitable for this research. Before Elon Musk's acquisition of Twitter, Twitter's API was easily accessible, so there existed many free Twitter scraping sites that could be used to scrape and analyze thousands of tweets using its API. However, following this acquisition, Twitter's API was made accessible only by a paid subscription service. There is a free version, but it is extremely limited in its analysis tools and is "for write-only use cases." The Basic access tier costs one hundred dollars a month, while the Pro access tier, which would be most useful for this kind of intensive analysis, costs five thousand dollars a month. Therefore, neither of these options were feasible. Any free third-party Twitter scraping sites also ceased to function due to this pricing change, and the third-party scrapers that remain are also hidden behind paywalls. Therefore, no appropriate scraper could be found that would serve the purposes of this research, which is a limitation since it meant the sample size of this data was smaller than initially planned. This means that my findings must be made at a lower confidence level, and also that it is more difficult to generalize my findings to any other politicians besides Senators.

Future Directions

Ballard et. al. 2023 did not analyze any X posts senators sent after 2020. From 2009 to 2016, the years during which Barack Obama was president, he found that polarizing rhetoric was used to a limited extent in the X posts of members of Congress, with the mean percentage of polarized X posts in this period being 12.575%. However, starting in 2017, the year Donald Trump took office, the percentage of polarized tweets increased significantly, from 13.9% in 2016 to 24.4% in 2017. These rates remained high throughout his presidency; from 2017 to 2020, the mean percentage of polarized tweets was 24.45%, almost twice the mean percentage of polarized tweets during the Obama administration.

This is interesting given that Donald Trump's presidency has been considered to have profoundly polarized the United States along political lines. An average of 86% of Republicans approved of his actions over the course of his tenure, compared with an average of just 6% of Democrats, which is the widest partisan gap in approval for any president in the modern era of polling (Dimock and Gramlich 2021). In 2018, only a year into his presidency, he was already ranked as the most polarizing president in American history by political science experts surveyed by political science professors Brandon Rottinghouse of the University of Houston and Justin S. Vaughn of Boise State University (Eady et. al. 2018). It has also been found that American political discourse became more polarized during his presidency, in large part due to his own divisive rhetoric (Nacos et. al. 2020).

Given all this, the question arises about whether it is possible that his presidency was the main factor for the increase in polarized Congressional tweets from 2017 to 2020 compared to 2009 to 2016. This finding was not made in any previous papers, so there is a gap in the literature here. This opens the door to further research aiming to make a definite finding in regards to this possibility, by expanding the sample size of this research to all tweets sent by all members of Congress from 2021 to 2023 and comparing the polarization rates found in each year to those from 2017 to 2023. If there is a decrease in the number of polarizing X posts sent by members of Congress during 2021 to 2023 compared with 2017 to 2023, and if this decrease is statistically significant, there will be more support for the idea

that his presidency highly polarized the nation's politicians. If not, then his presidency may not have been as polarizing among political elites as it was among the population as whole, suggesting his polarizing impact was more limited than previously believed.

Appendix

Appendix A - Complete Data Set

The Google spreadsheet containing the complete data set used for this research paper, including X posts, timestamps, and codes, is available online at the following URL: <https://tinyurl.com/59pusj7p>

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