Online Political Discourse in the Trump Era

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We identify general trends in the (in)civility and complexity of political discussions occurring on Reddit between January 2007 and May 2017 – a period spanning both terms of Barack Obama’s presidency and the first 100 days of Donald Trump’s presidency.

We then investigate four factors that are frequently hypothesized as having contributed to the declining quality of American political discourse – (1) the rising popularity of Donald Trump, (2) increasing polarization and negative partisanship, (3) the democratization of news media and the rise of fake news, and (4) merging of fringe groups into mainstream political discussions.

1 INTRODUCTION

The 2016 election featured the two most disliked candidates in modern US presidential election history competing in the context of decades of increasing partisan polarization [23]. In this paper we explore how online political discourse during the election differed from discourse occurring prior to it, in terms of incivility and linguistic complexity. We find that incivility in online political discourse, even in non-partisan forums, is at an all time high and linguistic complexity of discourse in partisan forums has declined from a seventh-grade level to a first-grade level (Section 3).

The election was noteworthy for the high levels of incivility and declining complexity of discourse among political elites, particularly Donald Trump [24]. Research has shown that when people are exposed to incivility from political elites that they themselves will respond by using more offensive rhetoric [10, 17]. We explore how Trump’s increasing popularity impacted the civility and complexity of discourse in partisan forums. Our work uncovers a strong correlation between Trump’s rise in popularity and the increasing incivility observed in Republican forums on Reddit (Section 4).

In many ways, the 2016 campaign was the logical culmination of two decades of affective polarization that witnessed Democrats and Republicans grow increasingly negative in their feelings about the opposing party. Political scientists have documented the increasing polarization among Americans for quite some time [5]; however, more recent work has emphasized the emotion-based (affective) nature of this polarization. Drawing on social identity theory [26], studies have found that one of the defining features of partisan polarization is the increasingly negative feelings that members of one party have for the other party [16]. We measure the incidence of negative partisanship in political forums and find a strong correlation with incivility, supporting the theory that partisan identity leads people to experience emotions of both enthusiasm and anger [14, 18]. Anger, in particular, is likely to give rise to incivility due to its ability to motivate political action [11, 14, 27]. Thus as Americans experience political anger more frequently they are likely to be motivated to go online to engage in political discussions [22]. While we see that the 2016 election was not very dissimilar to 2012 (in terms of incidence of negative partisanship), we find that negative partisanship has shown an upward trend even after inauguration day (unlike 2012). We also find that hatred towards political entities of both parties was at an all time high during the 2016 elections, reinforcing the theory that 2016 was the ideal year for a non-establishment candidate (Section 5).
The 2016 campaign also witnessed unprecedented rhetoric from a major presidential candidate regarding the credibility of the news media. Additionally, during this time, public distrust of and anger at the political establishment and traditional news media was at an all time high [25]. Taken together, these conditions can lead individuals to engage in partisan motivated reasoning [28], which can fuel the spread and belief of “fake news”. We explore how frequently misinformation was shared and discussed online. We find that during the elections, Republican forums shared and discussed articles from outlets known to spread conspiracy theories, heavily biased news, and fake news at a rate 16 times higher than prior to the election – and more than any other time in the past decade. Our study shows that this misinformation fuels the uncivil nature of discourse (Section 6).

The racism (Trump’s statements concerning Mexicans, Muslims, and other broad groups), sexism (the Access Hollywood recordings), and general incivility exhibited by the Trump campaign did not have any significant impact on his presidential run. In fact, recent events (e.g., Charlottesville and other Unite the Right rallies) have shown that these actions have emboldened and brought fringe groups into the mainstream. We investigate partisan forums and find a significant overlap between participants in mainstream Republican and extremist forums. We uncover a strong correlation between the rise in offensive discourse and discourse participation from extremists (Section 7).

2 REDDIT AND THE REDDIT DATASET

Reddit is the fourth most visited site in the United States and ninth most visited site in the world [3]. At a high-level, Reddit is a social platform which enables its users to post content to individual forums called subreddits. Reddit democratizes the creation and moderation of these subreddits – i.e., any user may create a new subreddit and most content moderation decisions are left to moderators chosen by the individual subreddit. Subscribers of a subreddit are allowed to up-vote and down-vote posts made by other users. These votes determine which posts are visible on the front page of the subreddit (and, even the front-page of Reddit). Reddit also allows its users to discuss and have conversations about each post through the use of comments. Specifically, subscribers of a subreddit can make and also reply to comments on posts made within the subreddit. Like posts, the comments may also be up-voted and down-voted. These votes determine which comments are visible to users reading the discussion.

Reddit is an attractive platform for analyzing political behaviour for three main reasons: First, the democratization of content moderation and discussion combined with the ability of participants to use pseudonymous identities has resulted in a strong online disinhibition effect and free-speech culture on Reddit [8]. This is unlike Facebook which has stronger moderation policies and requires accounts to register with their email addresses and real names (although the enforcement of both are questionable). Second, Reddit enables users to participate in long conversations and complex discussions which are not limited by length. This is unlike Twitter which limits posts and replies to 280 characters (prior to Sep 26, 2017 this limit was 140 characters [21]). Finally, Reddit allows scraping of its content and discussions. This has enabled the community to build a dataset 1 including every comment and post made since the site was made public in 2005.

As of October 2017, the Reddit dataset includes a total of 3.5 billion comments from 25.3 million authors made on 398 million posts. We categorize the posts and comments in the dataset into two categories: political and non-political. Posts and comments made in subreddits categorized by r/politics moderators as “related” subreddits 2 are tagged as political. We also tag the subreddits dedicated to all past Democratic, Libertarian, and Republican presidential candidates as political. All other subreddits are tagged as non-political. In total our political dataset contained comments and posts

1 https://bigquery.cloud.google.com/dataset/fh-bigquery:reddit_comments
2 https://www.reddit.com/r/politics/wiki/relatedsubs

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from 124 subreddits – each individually categorized as general-interest, democratic, libertarian, republican, international, and election-related. In our study we focus on comments and posts made between December 1st, 2005 and May 1st, 2017 – 100 days into Donald Trump’s presidency. We analyze every comment and post made in our set of political subreddits during this period – 130 million comments in 3 million posts – and contrast these with a random (10%) sample of non-political comments made during the same period – a total of 332 million comments in 12 million posts.

Figure 1 shows the number of political and non-political comments analyzed during each month of from December 2005 to May 2017. It should be noted that the first political subreddit appeared only in January 2007 – therefore we have no political content to analyze before this period.

Fig. 1. (log-scale) Number of comments analyzed during each month from December 2005 to June 2017. For each election year, P indicates the start of the primaries, R/DNom indicates the month when the Republican/Democrat candidate became the presumptive nominee, R/DNC indicates the month of the Republican/Democratic National Conventions, E indicates the election month, and I indicates the Presidential Inauguration.

3 CIVILITY AND COMPLEXITY OF DISCOURSE

In order to understand how online political discourse has evolved, we focus on two concepts: (in)civility and complexity of discourse.

3.1 Incivility in political discourse

We use the prevalence of offensive speech in political discussions on Reddit as a metric for incivility. Previous work [19] has defined uncivil discourse as “communication that violates the norms of politeness” – a definition that clearly includes offensive speech.

Identifying offensive speech. In order to identify if a Reddit comment contains offensive speech, we make use of the offensive speech classifier proposed by Nithyanand et al.[20]. At a high-level, the classifier uses a Random Forest model built upon the cosine similarities between a “hate vector” and annotated training data, both embedded within a 100-dimensional word embedding constructed from every Reddit comment. The approach yields an accuracy between 89-96% on testing data. The complete specification and evaluation are described in [20]. We note that the classifier is unable to differentiate between offensive comments and comments which quote offensive content – e.g., comments quoting Donald Trump’s candidacy announcement speech, which included derogatory remarks about Mexican immigrants [1], were also classified as offensive. To identify the entities in offensive comments, we use the SpaCy [13] entity recognition toolkit augmented with a custom dictionary of political entities.
Figure 2a shows how the incidence of offensiveness has changed over time for subreddits in our political and non-political datasets. We find that offensive comments in political subreddits have always been at least as frequently occurring as offensive comments in non-political subreddits. Figure 2b shows the fraction of all authors that posted at least one offensive comment during each month. We find that authors of comments in political subreddits are much more (nearly 35%, on average) likely to be offensive than authors not participating in political discussions.

Our data shows that the difference in incidence rates of offensive comments between political and non-political subreddits has dramatically increased since the start of the 2016 US presidential elections. In fact, we see that prior to 2014, there is only one month – June 2011, during the debt-ceiling crisis in congress and after Obama’s announcement to withdraw large numbers of American forces from Afghanistan – where political comments were over 20% more likely to be offensive than non-political comments. Since then, we notice this to be true for short periods of time in 2014 and 2015, and for the entire period from July 2016 until May 2017. Inspecting the offensive comments made during these periods, we find that large fractions (over 35%) of offensive comments were targeted at law enforcement authorities and the Black Lives Matter movement for the events surrounding the deaths of James Boyd (2014), Michael Brown (2014), and Freddie Gray (2015). The increase in incivility of discourse since July 2016 is attributed to the start of the US Presidential elections and the conclusions of the Democratic and Republican National Conventions – with over 80% of all offensive comments targeted at the two political parties and politicians including Hillary Clinton, Bernie Sanders,
and Donald Trump. Worryingly, even after the elections and inauguration, the incidence of offensiveness in political comments and the fraction of offensive political comment authors has continued to grow. As of May 2017, we find that (1) approximately 10% of all political comments are classified as offensive, nearly 30% higher than for non-political comments and (2) nearly one-third of all political comment authors made offensive comments, over 70% higher than for non-political comment authors.

**Take-away:** Our results show that political discourse from May 2016 to May 2017 has been more offensive (and by our definition, uncivil) than any other 12-month period in Reddit’s 12 year history.

**Subreddits responsible for offensive political discourse.** Figure 2c shows how the incidence of offensiveness has changed over time in subreddits categorized as Democratic, Libertarian, and Republican. We find several interesting long-term trends – until 2015 the comments on Democratic subreddits were on average 23% and 15% more likely to be offensive than comments on Republican and Libertarian subreddits, respectively. However, since 2015, comments on Republican subreddits were on average 46% and 7% more offensive than Democratic and Libertarian subreddits. We find similar trends in Figure 2d which shows the fraction of all authors that posted at least one offensive comment in a Democratic, Libertarian, and Republican subreddit during each month. The incidence of offensiveness in Libertarian subreddits on the other hand remains fairly stable through the entire period of the study with only one spike over the 10% mark in June 2015 – the month Donald Trump announced his candidacy.

Looking closer at specific events responsible for spikes in offensive discourse reveals that prior to the start of the 2016 election season, comments in the Republican subreddits were most offensive (12% incidence rate) during early 2011 and 2014 – the period during Barack Obama’s 2011/2014 State of the Union addresses and the attempts to repeal (2011) and expand (2014) the Affordable Care Act. We see a large spike in the incidence of offensive comments starting from Donald Trump’s candidacy announcement in June 2015 (5.1% of comments and 12% of authors) to Trump’s victory of the Republican nomination in May 2016 (12.8% of comments and 35% of authors). Further, in spite of a drop in incidence of offensiveness in comments to 11.6% after the elections, the fraction of offensive comment authors has continued to grow to 38% as of May 2017. On the Democratic side, 2015 was the least offensive period in Democratic subreddits with incidence of offensive comments varying between 7% and 4.8%. Further, despite the growing rate of offensiveness during the 2016 primaries and general election – peaking between the election in November 2016 (6.3% of comments) and inauguration in January 2017 (8.5% of comments), this period remained the least offensive election cycle in Democratic subreddits – even compared to 2012 when Barack Obama was uncontested in the primaries. It is interesting to note that in spite of the low incidence of offensiveness, this period saw the highest number of offensive comment authors in the Democratic subreddits – peaking at 25% in October 2016.

**Takeaway:** Offensive political discourse has grown at a high rate in Republican subreddits. As of May 2017, comments in Republican subreddits were 55% more likely to be offensive than comments in Democratic subreddits and with nearly twice as many authors of offensive comments.

### 3.2 Complexity of political discourse

We focus on linguistic complexity and use the Flesch-Kincaid readability grade-level [9] as a metric. The Flesch-Kincaid metric assigns higher scores to text containing longer words and sentences (Equation (1)) – which generally tend to be more complex. This approach has been used in the past to understand the complexity of political speeches and is used...
Fig. 3. Average Flesch-Kincaid grade level of comments.

Grade = \frac{0.39 \times \text{words}}{\text{sentences}} + 11.8 \times \frac{\text{syllables}}{\text{words}} - 15.59 \quad (1)

Trends in linguistic complexity of discourse. Figure 3 shows the linguistic complexity of comments made for each month in political and non-political subreddits (Figure 3a) and also broken down by Democratic, Libertarian, and Republican subreddits (Figure 3b). We see that discourse in political subreddits is generally more complex than in non-political subreddits, despite being highly variable over time. Deeper analysis shows that this variability is introduced by inclusion of the large “general-interest” political subreddit communities (e.g., r/politics and r/worldnews) which have over 1 million comment authors.

Considering only the partisan subreddits (Figure 3b), we see that comments had an average readability grade-level between 7.8 (Democratic subreddits) and 7.5 (Republican and Libertarian subreddits) until December 2015, with only marginal variations throughout. During the 2016 Democratic and Republican primaries (January - June 2016), however, there were significant drops in complexity – Democratic and Republican subreddits had an average reading grade-level of 2.6 and 1.9, respectively. Complexity of discourse on Libertarian subreddits, on the other hand, improved to a 7.6 grade. These results suggest that the highly contested intra-party primaries on both sides led to much lower quality of discourse even on partisan subreddits. Since the end of the primaries (June 2016 - May 2017), complexity of discourse in Democratic subreddits improved to a 6.9 grade-level while discourse in Republican subreddits further declined to a 1.1 grade-level. During this same time, discourse in Libertarian subreddits also slightly declined to a 6.6 grade-level.

Takeaway: The complexity of discourse in partisan subreddits was at its historical lowest during the 2016 primaries and presidential elections. While the complexity of discourse has recovered in the Democratic subreddits since the election, it has continued to decline to a first grade-level in Republican subreddits.

4 THE TRUMP EFFECT

Anecdotal evidence has suggested that the rise in Donald Trump’s popularity resulted in more offensive political discourse. This has been referred to as the “Trump Effect” [7]. Since we cannot prove or disprove the causal nature of the Trump Effect, we instead study the linear correlation between Donald Trump’s popularity and the offensiveness and complexity of political discourse (measured in Section 3).
As a metric for Trump’s popularity, we use poll data aggregated by Real Clear Politics during the 2016 elections [2] and approval/disapproval data aggregated by 538 since the start of the Trump presidency [4]. We split the poll data from Real Clear Politics into two categories: primary and general-election related polls. From the period between Trump’s candidacy announcement speech and his clinching of the Republican nomination (June 2015 - May 2016), we only focus on his weekly average vote share in polls related to the Republican primaries. Similarly, from July 2016 (the conclusion of the Democratic and Republican National Conventions) until November 8, 2016 (Election day) we only focus on Trump’s weekly average vote share in polls related to the general election and for the period following the presidential inauguration (Jan 2017 - May 2017), we only focus on Trump’s average approval and disapproval ratings as reported by 538.

The Republican primaries (June 2015 - May 2016). During the primaries, we find that Trump’s rise in popularity was strongly positively correlated with the rise of offensive discourse in Republican subreddits (Pearson correlation coefficient: .84, p-value < .0001) and strongly negatively correlated with the complexity of discourse in Republican subreddits (Pearson correlation coefficient: -.65, p-value < .0001). We do not find statistically significant correlations between Trump’s rise in popularity and political discourse in the Democratic or Libertarian subreddits.

The general election (July 2016 - November 2016). Trump’s popularity during the general election did not have a significant correlation with the complexity of discourse in any subreddits. However, his popularity was moderately correlated with offensiveness in Democratic subreddits (Pearson correlation coefficient: .49, p-value < .005). Interestingly, Hillary Clinton’s popularity during this period was also moderately correlated with the offensiveness in Republican subreddits (Pearson correlation coefficient: .54, p-value < .005). This points to the change in the nature of discourse from intra- to inter-party elections – i.e., that offensive discourse in inter-party elections are correlated to the success of the “other”. This supports recent scholarship noting the rise of negative partisanship and the fact that individuals are generally motivated to engage in political discourse due to anger with the opposition [14].

Donald Trump’s Presidency (January 2017 - May 2017). During the first 100 days of Trump’s presidency, we find that there is only a statistically significant correlation between his approval (and disapproval) ratings and the offensiveness in Republican subreddits. As was the case during the general elections, there is no statistically significant correlation between Trump’s popularity and complexity of discourse. We find a moderate negative correlation between Trump’s approval rating and offensive discourse in Republican subreddits (Pearson correlation coefficient: -.59, p-value: < .05) and a moderate positive correlation between Trump’s disapproval rating and offensiveness in Republican subreddits (Pearson correlation coefficient: .55, p-value < .05). It is unclear if this rise in offensiveness occurs due to attempts to “double down” in support of Trump or due to displeasure with the course of Trump’s presidency.

Takeaway: We find that Donald Trump’s popularity is always, at least moderately, correlated with the offensiveness of political discourse. During the primaries, Trump’s popularity was strongly correlated with the rise of offensiveness in Republican subreddits. During the general election, Trump’s popularity was moderately correlated with offensiveness in Democratic subreddits and during his presidency, there is a moderate negative correlation between his approval ratings and offensiveness in Republican subreddits.

5 NEGATIVE PARTISANSHIP

Recent work [6] has suggested that “persistent and durable repulsion from a political party”, defined as negative partisanship, has an effect on voting decisions and election turnout. We explore the incidence of negative partisanship on Reddit and seek to understand how it relates to the decline of civility and complexity of discourse.
We use two metrics as a measure of negative partisanship: (1) the fraction of political comments in a partisan subreddit that express strong negative sentiments towards the opposition party – e.g., fraction of all comments in the Democratic subreddits which express negative sentiments towards the Republican party, and (2) the number of political entities that are most commonly featured in comments classified as offensive (i.e., considering all subreddits). While the first metric captures the traditional definition of negative partisanship, the second captures the trend of a growing hatred towards all political entities (or, the establishment).

We use NLTK’s Vader [15] sentiment analysis method to identify the sentiment of a comment. Vader returns a compound sentiment score in the [-1, +1] range, where -1 is the most negative sentiment and +1 is the most positive sentiment. We only consider comments with a compound sentiment $\leq -0.70$ – i.e., strongly negative comments. To identify political entities in comments, we use the SpaCy entity recognition method [13] with a custom dictionary of political entities (manually curated from the common nouns that occur close to the words “Democrats”, “Republicans”, and “Libertarians” in our Reddit word embedding). When there are multiple political entities in a comment, it is unclear how to properly associate the sentiment of the comment with each entity – i.e., our sentiment analysis is at the comment-level, not entity-level – therefore we discard these comments. The same approach is used to identify entities that are the targets of offensive comments.

Figure 4 shows the fraction of comments referencing opposition parties that have strong negative sentiments (vs. comments that refer to opposition parties and have other sentiments). We find that Libertarians are most likely to refer to the Democratic and Republican party with strong negative sentiments – on average over 45% of all references to these parties is strongly negative and only 7% are positive. While the Democratic subreddits have generally expressed negative sentiments against opposition parties – the trend declined in the period prior to and during the early phase of Democratic primaries, suggesting that intra-party elections shift the focus away from the inter-party dynamics. Between Super Tuesday III (April 2016) and Election night, negative partisanship on the Democratic subreddits nearly doubled from 19% to 37%. We see a similar trend in the Republican subreddits. This is possibly explained by the fact that Hillary Clinton and Donald Trump had all but clinched their parties nominations after Super Tuesday III and focus of their supporters was shifted to the general election. Between Trump’s clinching of the nomination and May 2017, negative partisanship on the Republican subreddits grew from 20% to 39% (a 30-month high) displaying signs of continuing the upward trend. In contrast, since the conclusion of the 2016 elections, negative partisanship on the Democratic subreddits declined to 28% in May 2017. When considering only data since June 2015 – the start of the primary campaign season, we find that there are statistically significant correlations between the incidence of negative
partisanship and the decline of civility in political discourse, suggesting that incivility in political subreddits is frequently targeted at opposition parties. The observed correlation is found to be much stronger in Democratic subreddits (Pearson correlation co-efficient: .75, p-value < .0005) than in Republican subreddits (Pearson correlation co-efficient: .39, p-value < .001). We also find a moderately negative correlation between complexity of discourse on Republican subreddits and the incidence of negative partisanship (Pearson correlation co-efficient: -.40, p-value < .01).

![Figure 5](image.jpg)

**Fig. 5. Number of Democratic and Republican entities in Reddit’s 100 most commonly offended entities.**

To gain a general sense of how political entities are viewed by Reddit (all subreddits, including non-political), we ranked (all) entities by the number of times they were the sole entity in a comment classified as offensive. The results are illustrated in Figure 5. We find that political entities have always been amongst Reddit’s top 100 most offended entities since 2006, peaking during the 2008, 2012, and 2016 presidential elections. The number of political entities making an appearance in the 100 most offended entities was at an all time high (of nine entities) during the months leading up to the 2016 elections. Interestingly, we also find that the sitting President and other “establishment” figures such as the speaker and majority leader always rank in the Top 20 most offended entities.

**Takeaway:** Although negative partisanship was at a 30-month high on Republican subreddits, it was comparable to the 2012 election season. However, the hatred shown towards specific political “establishment” entities was unprecedented – suggesting that 2016 was indeed the year of the outsider.

### 6 FAKE NEWS AND THE DEMOCRATIZATION OF MEDIA

In this section we explore the impact of news media consumption habits on the quality of political discourse. Specifically we focus on the impact of media from controversial outlets (known for peddling conspiracy theories, etc.) and democratized social platforms (YouTube and Twitter) that are increasingly being repurposed for dissemination of “news.”

**Rise of controversial media outlets.** In our study we focus on the impact of conspiracy theory peddling, heavily biased, fake, and foreign state-sponsored news outlets on political discourse on Reddit. We use tags assigned by the OpenSources project[^3] to identify when a news outlet falls in the above categories. We broadly categorize these outlets as *controversial*. We observe that of the 833 outlets identified by the OpenSources project, 487 domains were active prior to May 2015, 219 domains made their first appearance on Reddit after June 2015, and 127 domains did not appear on Reddit.

[^3]: [http://www.opensources.co/](http://www.opensources.co/)
Figure 6 shows the amount of activity (in terms of posts and comments) surrounding all controversial outlets. We find that Republican subreddits were orders of magnitude more likely to be exposed to articles associated with these outlets than any other group - accounting for over 80% of all posting and commenting activity on links to controversial outlets, during and after the 2016 election cycle. Interestingly, we see that this was not the case prior to the elections. Links to controversial media outlets were up to 600% and 1600% more likely during the Republican primaries and the general election than in the months prior to the start of the 2015 Republican primaries. Since the start of Trump’s presidency, the activity surrounding links to controversial outlets continues to remain high. Upon further investigation, we find that the subreddits \textit{r/The_Donald} and \textit{r/conservative} were the most commonly targeted subreddits. Although we do not perform a thorough investigation of this anomalous behaviour in this paper, we use this as evidence in our ongoing investigation of a coordinated misinformation campaign targeted at Republican subreddits.

In general (across all political subreddits), the incidence of offensiveness is nearly 30% higher in comments associated with controversial posts (compared to all non-controversial posts). This provides a possible explanation for why discourse was much more offensive in Republican subreddits. This hypothesis is supported by a reasonably strong positive and statistically significant correlation between the incidence of controversial posts and fraction of offensive comments (Pearson correlation co-efficient: .59, p-value < .0001). We do not find statistically significant correlations between the complexity of discourse in Republican subreddits and incidence of posts from controversial outlets, however. In the Democratic subreddits, we find that a majority of posts (64%) from controversial outlets had no comment activity.
suggesting that these were removed by subreddit moderators or ignored by the community. There were no statistically significant correlations between the incidence of controversial posts and political discourse in the Democratic subreddits.

**Takeaway:** Republican subreddits experienced a 1600% increase in links to controversial media outlets during the general elections. Combined with the inflammatory nature typical of these articles, this offers an explanation for the drastic growth of offensiveness in Republican subreddits. In Democratic subreddits, there is little to no activity on posts from controversial media outlets, suggesting more effective moderation and community policing.

![Fig. 7. Ranking (by number of comments generated) of YouTube, Twitter, and Facebook among posts from all media platforms in partisan subreddits.](image)

**Social platforms as news sources.** Recent polls by Gallup [25] have shown that trust in traditional media sources is at an all time low and is continuing to decline. Simultaneously, the 2016 US presidential election witnessed an explosion
of political discourse on social and democratized media platforms—particularly YouTube, Twitter, and Facebook. This is confirmed by Figure 7 which shows how YouTube, Twitter, and Facebook have risen to prominence as top sources of discussion and information in political subreddits. The changing landscape of media consumption for politics is apparent. When ranked by amount of discussion generated (in terms of comments posted), we find that each category of subreddits has a preferred social media platform. Republican subreddits have used YouTube as their top information source since the 2008 US presidential elections. Since this time, YouTube has been ranked in the top 10 media outlets for all but five months. In fact, it remained ranked number one all through the period since the conclusion of the Republican National Convention until May 2017. On the Democratic and Libertarian subreddits, we see that YouTube only occasionally appears within the top 10 media outlets. Instead we see that Twitter was the top source of discussion on the Democratic subreddits for the period since Super Tuesday I until Election day. Interestingly, unlike the Republican affinity for YouTube which has been constantly high since 2009, the Democratic affinity for Twitter increased drastically during the primaries. We find that Republican subreddits are also increasingly using Twitter as a source of information with the site moving into and staying in the top 5 ranks since February 2017. Facebook does not appear to have a major impact in Democratic and Republican subreddits—only occasionally entering the top 20 ranks. However, Libertarian subreddits have consistently had Facebook amongst their top 15 media outlets since the start of the 2012 election cycle. Since the conclusion of the 2016 elections, Facebook has become the top information source for Libertarian subreddits.

In terms of impact on political discourse, we find statistically significant negative correlations between the incidence of posts from social platforms and the complexity of discourse, both in the Democratic (Pearson correlation co-efficient: -0.32, p-value < .0005) and Republican (Pearson correlation co-efficient: -0.64, p-value < .0001) subreddits. When considering all political subreddits, a similar negative correlation was found (Pearson correlation co-efficient: -0.31, p-value: < .001). No statistically significant correlations were found when considering the offensiveness of political discourse.

**Takeaway:** Posts linking to social media platforms generated significant amounts of activity in subreddits associated with all parties during the 2016 elections—Democratic subreddit engagement with posts from Twitter reached a historical high, Republican subreddits continued to show strong preference for posts linking to videos on YouTube, and Libertarian affinity for posts linking to Facebook pages continued to grow. Social media posts have a moderate negative correlation on the complexity of discourse.

### 7 FRINGE GROUPS IN THE MAINSTREAM

Recent events—e.g., Unite the Right and White Nationalist rallies across the country and the Anti-Fascist rallies in response to them—have shown that fringe groups and extremists have now infiltrated mainstream political discourse in the real world. In this section we investigate their participation in mainstream political subreddits. To measure of influence of an extremist group we identify redditors that are simultaneously active in at least one hate subreddit and one political subreddit. We say that a redditor is active in a subreddit for a given month if they have at least (1) 10% of their monthly total of comments or posts or (2) at least 10 posts or comments in a subreddit for a given month.

Our list of hate subreddits include 274 (banned, quarantined, and still open) subreddits associated with racism—e.g., r/coontown and r/nazi, sexism—e.g., r/TheRedPill and r/mensrights, violence—e.g., r/killingwomen and r/beatingtrannies, and peddling conspiracy theories and fake news—e.g., r/conspiracy and r/blackcrime. The list of subreddits was gathered through mining comments from r/againsthatesubreddits and announcements of subreddit bans and quarantines. We note that 87 of our 274 hate subreddits have been active for over 5 years and that 218 were active even prior to the start of the 2016 US presidential election season (May 2015).
Figure 8 shows the number of posts and comments made on mainstream (partisan and non-partisan) political subreddits by redditors who were, by our definition, active in an extremist subreddit. We see a startling rise in the number of posts made by members of extremist subreddits in the partisan and non-partisan political subreddits. From the period starting in December 2015 and continuing to Election day, there was a 200% increase in the number of posts made by fringe authors in Democratic subreddits and a 6600% increase in the number of posts made by these authors in Republican subreddits! At their peak in November 2016, these authors accounted for over 9% and 14% of all posts in Democratic and Republican subreddits, respectively. Since November, however, we see that both have
declined. As of May 2017, activity of fringe authors on Democratic subreddits has returned to the pre-election levels, while Republican subreddits continue to experience 3900% more posting activity from fringe redditors (compared to December 2015). Further analysis reveals that the fringe subreddits contributing the most to Republican subreddits, in terms of posting and comment activity, are r/conspiracy, r/TheRedPill, r/KotakuInAction, and r/mensrights. During November 2016, we found that over 40% of all active posters in the following subreddits were simultaneously active on r/The_Donald – r/metacanada (a right-wing extremist Canadian subreddit), r/whiterights, r/physical_removal (a recently banned subreddit promoting violence against “liberals”) and r/new_right. We observe similar overlaps even in non-partial general-interest political subreddits.

We find strong statistically significant correlations between the number of comments and posts by fringe authors and the levels of offensiveness in political discourse for partisan and non-partisan subreddits. On the Democratic subreddits there was a very strong positive correlation (Pearson correlation co-efficient: .81, p-value < .0001), while there correlation was slightly weaker on the Republican (Pearson correlation co-efficient: .58, p-value < .0001) and non-partisan (Pearson correlation co-efficient: .73, p-value < .0001) subreddits. We found that on Republican subreddits experienced a reduction in complexity of discourse that was moderately correlated with the increasing participation from fringe authors (Pearson correlation co-efficient: -.56, p-value < .0001).

Takeaway: At the height of the 2016 presidential elections, Republican subreddits saw an order of magnitude more activity from active members of extremist subreddits, while Democratic subreddits saw activity from these authors double. Since the election, these authors have continued to participate heavily in Republican subreddits. This infiltration is positively correlated with the rise of offensiveness in all political discourse.

8 DISCUSSION

Our investigation of the nature of discourse on Reddit over the past decade has yielded important insights about how increasing affective partisanship has influenced the civility of online political discussions.

First, political discussions have become substantially more offensive in nature since the launch of the general election campaign for president in July 2016. Notably, this rise in incivility is overwhelmingly located on Republican (rather than Democratic) subreddits. This pattern is consistent with other research that suggests that polarization has largely been asymmetric, with Republicans exhibiting much more extremity than Democrats [12]. Second, our analysis suggests that the substantial increase in incivility on reddit was strongly correlated to the rise of Donald Trump, negative partisanship, and the mainstreaming of fringe groups. When Trump was performing well in the polls, incivility also increased, suggesting that his ascendancy either (1) elicited strong negative reactions from his opponents or (2) emboldened his supporters, even emboldening holders of extremist ideologies. Negative partisanship was especially evident during the general election campaign, as Trump’s increasing success elicited more offensive rhetoric in Democratic subreddits, while increasing poll results for Clinton were associated with more offensive remarks on the Republican side. Research on negative partisanship predicts that anger will increase when the opposing party is doing well [14, 18], something we see play out clearly on reddit during the general election campaign. Third, to further analyze the role of negative partisanship, we examined the sentiments of comments that targeted either party. We find that negative partisanship continues to grow on Republican subreddits but that it has ebbed a bit on Democratic subreddits since the 2016 election. On one hand, this runs counter to what we might expect, as it is usually partisans from the losing party who react to an election outcome with anger. On the other hand, this fits with the research suggesting that Republicans generally express higher levels of negative partisanship than Democrats [16]. Furthermore, it may signal the unique nature of
Trump’s presidency. Specifically, as Trump took office without winning the popular vote and has constantly been under criticism since his inauguration, it may not be particularly surprising that the Republican base feels that their party’s status (and the legitimacy of Trump’s presidency) is under threat. This would explain why negative partisanship has remained high, even as Republicans control both branches of the federal government.

Ultimately, we are able to demonstrate another unfortunate consequence of America’s political polarization – namely, the fact that online political discussions have become remarkably less civil and complex. While these trends are disturbing, we do provide some reason for hope that the situation can improve. After all, much of our evidence suggests that the degradation in discourse is tied to the rise of Trump. Thus, it is possible that our political discussions may become less offensive when his presence in the limelight fades.

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