Public Spheres in Twitter- and Blogosphere. Evidence from the US.

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Introduction

A major part of politics is the conveying of ideas. This is the function of political communication. Of the multitude of ways this conveying can take place, deliberation in a public sphere is one that Habermas (1994) termed optimal. Both public spheres and deliberative democracy presuppose an equality of all participants in a debate and the superiority of good arguments. Presently, both features are not evident.

Large debates with many participants require a mediator to relay messages from one participant to the next. To some extent, mass media tries to fulfill that role. However, the use of mass media as mediator comes at a cost: under the impression of the sheer volume of messages to deliver, mass media needs to prioritize and select messages (Strömbäck 2008). This selection heuristic, however, is far from Habermas' ideal: not all participants are equal and arguments not always rule (Meyer and Hinchman 2002).

In contrast to mass media, social media—by definition—implements equality of all users from the start and also places the selection of messages under their control. It therefore has the potential to deliver on both: fulfilling a role as a public sphere and promoting the qualities of deliberative debate. In this contribution I establish a baseline of social media’s role as a public sphere, using recent Twitter data.

This paper is organized as follows. I will first review the literature pertaining to public spheres and their interaction with media, mass or otherwise. I will then turn to describe the used data set and the employed analytical methods. The next section will present the results of my analysis. Thereafter I will discuss these results in light of the theory reviewed above and close with some concluding remarks.
Public Spheres & Media

The original function of political communication was to facilitate the finding of agreeable positions. Informed citizens were to exchange and discuss ideas in order to discover these ideas’ applicability to reality. As societies quickly—quite literally—outgrew the practicality of round tables and forum discussions, something Habermas termed the public sphere (Habermas 1991; Habermas 2006) took over.

The concept of a public sphere is embedded in the wider framework of deliberative democracy. If the public sphere is the location where political debates take place, deliberative democracy describes the mode of these debates (Habermas 1994). Cohen (2003) extends Habermas when identifying the common good as the aim of all deliberation in deliberative democracy. His formal definition entails five points: independence of association, self-referencing, equality of ideas, rooted in reality, and reciprocal respect.

In his in-depth study of traces of deliberative democracy on the Internet, Dahlberg (2001) uses a similar list but adds a sixth point to it: reflexivity, that is the requirement to question one’s own standpoints.

From this list it becomes clear, that deliberative democracy not only describes a practice, but a form of institution. Obviously, it is not a role that a medium can fulfill. Even Dahlberg (2001) had to concede, that the technology of that time simply was not up to providing for institutionalized deliberative democracy on the Internet. However, it is still possible to carve out the term of deliberative practices: exchanging ideas and objective, reasonable, Dahlberg (2001) calls them rational–critical, arguments in their support.

Thinking deliberative practices in concert with a public sphere makes the sensible, fact-based argument its communicative hallmark feature. In his introduction to a collection of essays on deliberative democracy, Elster (1998) distills a common ground of contemporary definitions of the deliberative practices part of deliberative democracy:

“decision making by means of arguments offered by and to participants who are committed to the values of rationality and impartiality”

(p. 8, emphasis in the original).

It is this definition of deliberative practices that I will use here. Deliberative practices serve to instill life into the hollowness of a public sphere by describing the mode of communication that is conducive to the functioning of a public sphere. This requires reasonable arguments. As we shall see in the next section, they are to be found in specific kinds of news stories. News stories, that are not always of the prevailing kind.

1Common features of public spheres identified in the literature are a mutual mode of communication and equally reciprocal acceptance of each other as legitimate participants (Koopmans and Erbe 2004; Risse and Steeg 2003).
Media

In the modern public sphere, or spheres (Dahlren 2005), it is still citizens directly exchanging ideas and engaging in political debate. However, Habermas’ conception was an idealized one from the beginning. Neither did citizens have the interest nor the talent or time to be constantly engaged in debates. Rather, a mediator and a caste of professional citizens emerged, the former distilling political messages of the latter into a format that allowed even part-time citizens to—at least on some level—partake in the debate. While this extends the accessibility of the public sphere’s debates to a larger crowd, there is also another side to that bargain: the mediator might transform the messages sent by other participants in a debate. And once there are more messages fed into the mediator than can reasonably be processed and relayed to others, the mediator will start selecting messages according to its own rules. And this is, where trouble starts.

Schulz (2004) and Strömbäck (2008) summarize these troubles under the term of mediatization. Here, mass media acts as the mediator and in that role tampers with the political system in a number of ways. Foremost, it selects messages to relay to others by its own media logic: newspaper circulation figures and TV ratings, for example. Mass media uses these numbers to gauge the profitability of any message. Will any given message contribute to these figures and therefore increase the medium’s income, or not? Based on the answer to that question, a message will be relayed, or not.

To further increase the value of a message, mass media will restyle the message and potentially cripple its original meaning. This media logic becomes internalized by politicians seeking to maximize their mass media presence. This leads to the interesting phenomenon of shifting political communication’s attention from conveying ideas to reformulating ideas to concur with this specific media logic.

The regime of mediatization is not necessarily detrimental to the functioning of a democracy or even the bare exchange of ideas. As long as the media logic captures the idea correctly and does not penalize the complexity of ideas nor favor simplistic solutions, mediatization has the potential of actually enriching public sphere debates. For example, consider data journalism or fact-checking politicians’ claims. Both methods comply with a media logic that favors truth over simplicity, therefore enticing politicians to communicate ideas truthfully and as complex as necessary.

On the other hand, the vast majority of mass media follows a different logic: here, shortness, entertainment and drama are elements that are of greater importance than an idea’s foundation in facts or civic vision (Iyengar and Simon 2000; Iyengar, Luskin, and Fishkin 2004; Iyengar and Kinder 2010; Strömbäck 2008). This media logic leads politicians to offer populist solutions—quick and dirty, sellable to a broad audience with short attention spans (Strömbäck and Esser 2009; Meyer and Hinchman 2002; Hjarvard 2008; Strömbäck 2008). This media logic cannot aptly capture ideas anymore, and therefore leads to an erosion of the public sphere.
Iyengar and Kinder (2010) argue that due to the advent of cable TV in the 1990s, mass media is subjected to an heightened state of competition. While up to the 1980s, only three networks supplied largely identical news to a large audience, the exponential growth of media outlets enabled citizens to opt-out of news. Or, if they still actively listen to news, they can now choose which news they subscribe to. This leads to media outlets producing news that is targeted specifically at their (remaining) share of customers: highly partisan and appealing to them.

In a political context, what exactly is appealing to consumers of news? Iyengar, Norpoth, and Hahn (2004) answer this question clearly with “horse race” or episodic news, that is news that cover the current state of the campaign, and not thematic content on the candidates’ positions. They understand episodicity and thematicity as opposing concepts: the more episodic a piece of news is, the less thematic it can be. While their contribution has numerous methodological flaws, they convincingly put forth their argument of a decline of thematic content due to competitive pressure among media outlets. This argument is also in line with theory (Traugott and Lavrakas 2008), that would predict these market effects to occur along with intrinsic journalistic self-selection.

Considering the thematic–episodic content rift in terms of deliberative practices allows for additional insights. If mass media function as a mediator in Habermasian public spheres, then their debate contributions should be based on reason and impartiality. Iyengar, Norpoth, and Hahn (2004) give a textbook example for both kinds of contributions: a story about a homeless woman and her plight; a story intended to serve as a proxy for the fates of countless others. Touching as the story might be, it is void of reason and does not serve to contribute to a rational debate based on facts and impartial arguments. This episodic news story is contrasted by a thematic one: thorough research of facts, causes and consequences of homelessness; founded in reason and instructive in any search for solutions, abstracting away individual stories for the sake of the bigger picture.

As noted above, competition among media outlets has grown to tremendous proportions. Since all competitors in the mass media game are commercial enterprises and therefore immanently seeking to maximize their profit, the dominant factor for selecting news is its market value. However, this value does not refer to the amount a customer is willing to pay for any particular piece of news. Rather, this figure correlates directly with circulation figures or ratings as they govern the ad premiums a media outlet can charge.

A factor that is not to be underestimated is the vicious circle this mass media mediatization can lead to. Politicians vying for media presence become then tempted to style their own messages in a media compatible way. An example might be the Team Stronach’s campaign for the 2013 general election in Austria; more specifically its reaction to a high-profile international custody battle over a child. There, an industrial magnate offered his private jet to the Austrian mother to facilitate her legal struggle in Denmark. This episodic news story worked very well and secured nationwide (tabloid) headlines for his party and
the generous offer. However, any political ideas on how international custody disputes should be resolved in the future, any abstract argument, was either not sent by Stronach’s spokespersons or not relayed by mass media. Therefore, the entire message did not contribute to any deliberative practice.

In summary, there are several clues that point towards mass media communication not always being true to its envisioned role in public spheres and deliberative debates. The pressure from competition leads to mass media selecting and transforming news to adhere to a style that maximizes its market value (Blumler and Kavanagh 1999).

Social media is potentially different. There, users seek to maximize their own value by providing content their respective audiences find useful (Raymond 1999; Rheingold 1993; Pettersson and Karlström 2011). Therefore, users would be expected to propagate content they themselves believe their followers will find interesting. In an arena free from traditional market pressures, this could lead to users selecting thematic over episodic content.

Data & Method

In order to test the hypothesis put forth above, the last 3200 (the maximum the Twitter API would allow) tweets emanating from the Republican and Democratic party accounts, respectively, were harvested on May 25th, 2014. As not both parties generate tweets at the same rate, coverage is provided starting from 2013-02-13 for Democrats and 2013-07-31 for Republicans. Apparently, Democrats use their account much more sparingly than Republicans. Given that @BarrackObama can also be attributed to Democratic party control, this is of little surprise.

In general, Democrats enjoy more popularity on Twitter than Democrats. This leads to Democrat’s tweets being more often retweeted than their Republican counterparts. On average, Democratic tweets were retweeted 60 times, while Republican ones only score half as many retweets on average: 28. Since the range of retweets in enormous, with the most popular tweet in the data set being retweeted 24,352 times, the top 1 percent of retweeted tweets were considered singular and therefore excluded from all analysis. Figure 1 describes the development of tweet popularity over time.

Of the 6,336 tweets that remained in the data set, 3,592 pointed to resolvable websites. Those were harvested as well. The texts on those websites were extracted, cleaned, normalized and fed into an LDA topic model algorithm. The number of topics, 10, was empirically established. Figure 2 gives an overview of topic distribution among tweets.

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2 This tweet was a retweet itself of a message that Wendy Davis of Texas initially posted thanking Texans for support in stopping controversial Senate Bill 5 on abortions.

3 The top 1 percent of tweets range from 534 to above 24,000 retweets. 64 tweets fell into that range and were excluded.
Figure 1: Development of retweets over time for both parties with GAM-based trend line and elections to House or Senate indicated by dotted verticals.
Figure 2: Heatmap depicting the distribution of topics across all tweets for both parties. The darker the spike, the stronger the topic occurs in the tweet.
The extracted topics were classified according to their aspect as either episodic or thematic. A third “aspect” was necessitated by websites that contained unparsable content, like pictures or content hidden by AJAX techniques. These topics were then not considered any further. Tables [1] and [2] give an overview over the extracted topics and their rating as thematic or episodic.

| Topic | Content                        | Aspect |
|-------|--------------------------------|--------|
| 1     | candidate, announcement        | episodic|
| 2     | health insurance               | thematic|
| 3     | republican party politics      | episodic|
| 4     | (unparsable)                   | NA     |
| 5     | democratic call to action      | episodic|
| 6     | democratic call for donations  | episodic|
| 7     | (unparsable)                   | NA     |
| 8     | church and state separation    | thematic|
| 9     | democratic party politics      | episodic|
| 10    | (unparseable)                  | NA     |

Table 1: Topics on websites tweeted by Democrats.

| Number | Content                          | Aspect |
|--------|----------------------------------|--------|
| 1      | republican call to action        | episodic|
| 2      | national unemployment            | thematic|
| 3      | candidate, announcement          | episodic|
| 4      | obama care is unpopular          | thematic|
| 5      | republican call to action        | episodic|
| 6      | obama care is expensive          | thematic|
| 7      | republican call for donations    | episodic|
| 8      | (unparsable)                     | NA     |
| 9      | arguments against obamacare      | thematic|
| 10     | republican call for support      | episodic|

Table 2: Topics on websites tweeted by Republicans.
As LDA provides posterior probabilities of belonging to each topic for each website ($M$), as depicted in Figure 2, thematicity and episodicity scores were computed for each tweet linking to a website. This episodicity (thematicity) score was obtained by summing up those elements $m_{ik}$ of $M$ where $k$ is an element of the set of all episodic (thematic) topics $K$:

$$e_i = \sum_{k \in K} m_{ik}$$

Therefore, episodicity (thematicity) scores range from 0 to 1 with 0 being a website without any episodic (thematic) topics and 1 a website containing solely episodic (thematic) topics. The development of episodicity and thematicity over time for both parties is given in Figure 3. It becomes evident that party strategies with respect to the prevalence of are not only divergent but also changing over time.

Starting from these descriptive observations, I will now present a model linking episodicity and thematicity with the reshare count.

**Results**

In order to establish any association between episodicity, thematicity and the reshare count of a message, a generalized linear model is considered. Based on the findings in Hochreiter and Waldhauser (2013), the model contains control variables for time of day and message length. An additional control variable relating to the distance from a tweet’s posting to the closest election is also included in the model. As count-based models require constant observational frames, an offset term computed from the number of followers for the respective party account ($n_p$) times the age of the message ($a$) was included as well:

$$o = n_p \times a$$

The initial model contained the first order terms for party membership, episodicity, thematicity, time of day, message length and the election proximity. All these terms were complemented with interactions with the party variable. Finally, thematicity and episodicity interactions with party were included as well.

Starting with this complete model, insignificant interactions were removed, one at a time. This led to the removal of the party—message length and party—thematicity interactions. Table 3 contains the test results from the model selection step.

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4In order to stabilize the variance in that distance, the square root of the term was considered.
Figure 3: The development of the prevalence of episodic and thematic content over time for both parties. Trend lines are GAM-based and elections to House or Senate are indicated by dotted verticals.
Table 3: Likelihood ratio tests confirming dropping of party—message length and party—thematicity interactions from the model.

| 2 x log-lik. | Test | df | LR stat. | Pr($\chi^2$) |
|-------------|------|----|----------|--------------|
| -33964      | 1 vs 2 | 1  | 1.95     | 0.1626       |
| -33963      | 2 vs 3 | 1  | 0.8676   | 0.3516       |

Owing to the count nature of the dependent variable, Poisson regression or a negative-binomial model must be used. Based on a likelihood-ratio test comparing the Poisson and negative binomial versions of the model, $\chi^2(14, N = 3592) = 138,045.92, p = 0$, equality of conditional mean and variance cannot be assumed and a negative binomial model is therefore more appropriate.

The final model’s estimates, standard errors and p-values are given in Table 4.

|                | $\beta_i$ | SE  | p-value |
|----------------|-----------|-----|---------|
| (Intercept)    | -14.45    | 0.139 | 0       |
| Party (1=R)    | -0.142    | 0.095 | 0.136   |
| Episodicity    | -1.132    | 0.125 | 0       |
| Thematicity    | -0.73     | 0.134 | 0       |
| Retweet (1=Yes)| 1.526     | 0.164 | 0       |
| Time of Day    | 0.039     | 0.009 | 0       |
| Message Length | 0.003     | 0.001 | 0       |
| $\sqrt{Proxi.}$| 0.229     | 0.02  | 0       |
| Episodicity (Rep) | 0.241    | 0.089 | 0.007   |
| Retweet (Rep)  | -1.104    | 0.218 | 0       |
| Time of Day (Rep)| -0.029   | 0.012 | 0.017   |
| Episodicity $\times \sqrt{Proxi.}$ | -0.079 | 0.024 | 0.001   |
| Thematicity $\times \sqrt{Proxi.}$ | -0.11    | 0.026 | 0       |

Table 4: Final model coefficients.
Discussion

Akin to the more familiar odds ratios from logistic regression, count data sports incidence rate ratios as interpretation of its exponentiated coefficients. These IRRs can be found in Table 5.

|                      | \( \exp \beta_i \) |
|----------------------|---------------------|
| (Intercept)          | 0                   |
| Party (1=R)          | 0.867               |
| Episodicity          | 0.322               |
| Thematicity          | 0.482               |
| Retweet (1=Yes)      | 4.599               |
| Time of Day          | 1.04                |
| Message Length       | 1.003               |
| \( \sqrt{\text{Proxi.}} \) | 1.257 |
| Episodicity (Rep)    | 1.272               |
| Retweet (Rep)        | 0.332               |
| Time of Day (Rep)    | 0.972               |
| Episodicity \( \times \sqrt{\text{Proxi.}} \) | 0.924 |
| Thematicity \( \times \sqrt{\text{Proxi.}} \) | 0.896 |

Table 5: Incidence rate ratios for the model coefficients reflecting the expected change in retweet rates for one unit increases.

From these results, I am going to discuss the more remarkable ones here.

1. There is a quite strong difference between reshares Republican and Democrats can expect, even when controlling for different user base sizes: for a tweet that would have generated 100 reshares if it had originated with the Democrats, the Republicans can only expect 87.

   Obviously, Democrats lead social media usage not only by the number of followers but also by their (the followers’) dedication to the medium.

2. Episodic and thematic content enjoy virtually the same popularity. It is also evident, that the less thematic or episodic a message is, the higher the expected reshare count. While surprising at first, this is an artifact introduced by unparsable content on the websites. It is entirely conceivable
that images – for their simplicity and easy to understand punchlines – are more popular all together than textual content.

When comparing textual content directly, it becomes evident that thematic content is almost 150 percent as popular as episodic content. Interestingly, this difference is only to be found in Democratic tweets and all but disappears for tweets sent from the Republican account. These differences are contrary to the predictions of Iyengar, Norpoth, and Hahn (2004). There, consumers would want episodic, horserace news. In this data set, however, users in general don’t like textual content. Among textual content they do prefer thematic over episodic news.

3. Finally, there are interesting effects dependent on the proximity of a message to election day. In general, the expected reshare count increases by 25 percent for every additional square root day away from an election. This effect is toned done somewhat for episodic or thematic content.

Conclusion

In this paper I have been looking at the way both US political parties make use of social media. The example case for this study was Twitter and I analyzed the last 3,200 tweets that originated from the main party accounts along with any websites they might point to. I’ve concentrated on tracing how thematic and episodic content is being distributed (differently) via Twitter. To that end, I’ve text-mined any websites that were mentioned in those tweets and used LDA topic models to extract the topics that occur in these websites. Using Iyengar’s definition of episodic or horserace news, I classified all (parsable) topics to be either episodic or thematic. Finally, generalized linear models are used to model the relationship between the retweets a message receives and episodicity, thematicity and some controlling covariates.

The results in parts contradict what theory would have predicted, in that thematic news is more popular than episodic one. Iyengar, Norpoth, and Hahn (2004) argue that mass media focuses on episodic news, because that is what consumers demand. I, therefore, tentatively conclude that social media would have a potential as a public sphere, supporting arguments in political deliberation.

While these results are only preliminary and from a very limited data set, they are informative in the sense that they lead us to question the long-held assumption that market forces lead to episodic news coverage. Clearly, more in-depth and broader analysis is needed to grow confidence in this challenge.
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