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The Logic of Political Coverage on Twitter: Temporal Dynamics and Content

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Abstract

Social media services have become areas of political communication. Politicians integrate them in their campaigns, journalists use them as sources and topics, and the public uses them for the discussion of politics. In this, political activities on social media are clearly interconnected with the coverage of politics by traditional media. This article analyzes Twitter messages commenting on politics during the campaign for the 2009 federal election in Germany. It will be shown that the temporal dynamics and content of Twitter messages follow a hybrid logic of political coverage; sometimes following the same logic as the coverage of political actors in traditional news media, while in other cases following a logic specific to political expression on the internet.

Keywords: political communication, election campaigns, hybrid media system, Twitter, Germany

The Logic of Political Coverage on Twitter: Temporal Dynamics and Content

In recent years various social media services—such as Facebook, Twitter or YouTube—have become areas of political communication. Political actors integrate these services into their campaigns, journalists use them as sources and topics of political news coverage, and the public uses them to comment on political events and to discuss politics. In this, political activity on social media platforms parallels traditional news media coverage of politics. Media expose most people to political candidates as well as the core issues of a campaign. And yet, not everything that receives media attention leads to equal attention online. The logic of political coverage on Twitter is not well understood. What are the topics that generate high activity? Does this process follow a fixed set of rules? This article will address this research gap by analyzing Twitter messages posted in the months leading up to the federal election 2009 in Germany.

Political communication in a hybrid media system

One of the fundamental ways the advent of social media services has changed political communication is that social media services have become additional channels in the political communication space. Users share their reactions to political events and their coverage in traditional media online. Up until now, these reactions were confined to personal exchanges between audience members. Today, reactions to political events and campaign items are immediately available—and public. Tweets become public record and are increasingly incorporated into traditional journalistic coverage of political events, be it as anecdotal evidence serving as indicator of public sentiment or as basis for ad hoc quantitative analyses of public reactions online (Anstead & O’Loughlin, 2012). Even more significantly, political actors and journalists become increasingly skilled in influencing political coverage by strategically releasing information on their social media profiles (Chadwick, 2011). Andrew Chadwick has called this phenomenon the “hybrid media system” (Chadwick, 2013). He emphasizes that we have to move beyond treating political communication in traditional and in social media as inherently different and start treating them as interconnected and mutually dependent. In this article, I will expound on Chadwick’s theory by analyzing Twitter messages that were posted during the run up to the federal election 2009 in Germany and examine whether different elements of these messages speak of their being governed by a traditional media logic or by a logic specific to political communication on the internet.

Different media allow for different modes of information production and consumption, that depend on the technology and the institutions producing and disseminating those media. The constraints of the technology underlying television broadcasts historically influenced the way political events were covered by journalists (Lang & Lang, 1953) and watched by audiences (Prior, 2007), while the realities of news as a commercial product shaped the coverage of politics (McManus, 1992). The advent of the internet introduced different technological capabilities for the production and consumption of news in general, while laying siege to the financial basis of traditional media, advertising. Thus, the logics of the two environments, if you will, call for a basic differentiation between the laws and dynamics dominating the coverage of politics in traditional and online media.

The logic of digital tools for the work of political organizations has received increasing scholarly attention of late. For instance, the questions how do political organizations cope with a communication environment dominated by drastically lowered costs for publication and information retrieval and how do these organizations position themselves in an environment shaped by the dramatic lowering of transaction costs for political coordination have been central.

In various detailed case studies, researchers have shown how digital tools have been incorporated by and in turn transformative for political organizations in both respects (Bennett & Segerberg, 2013; Bimber, 2003; Bimber et al., 2012; Earl & Kimport, 2011; Karpf, 2012; Kreiss, 2012; Nielsen, 2012). The difference between coverage of politics in traditional media and online, however, has not received the same level of attention.

The coverage of politics: the logic of traditional media

There is a clear normative expectation for traditional media to inform the public of political processes, events, issues and the positions held by political actors (McQuail, 2013). Thus, mass media function as gatekeepers that select the elements of political reality that reach the public (Shoemaker & Vos, 2009). By their decisions to cover specific elements of political reality while excluding others, media are also understood to contribute to the public agenda, topics the public thinks of as important (McCombs & Shaw, 1993). The media's agenda-setting function broaches the question after the governing principles behind the selection processes that lead to the in- and exclusion of specific political topics or events in news coverage. Researchers have put considerate effort into determining systematic criteria by which traditional media include political items in their coverage. Three of these criteria, or news values, are personalization, contest and negative coverage (Barnhurst & Nerone, 2002; Semetko et al., 1991; Takens et al., 2013).

These items already make obvious the point, that the criteria involved in the selection of political coverage are not necessarily aligned with the aforementioned expected normative function of media. There are further processes amplifying the gap between normative expectations and empirical functions. For example, Bennett identifies the tendency of media in their coverage to mirror the proportion specific positions get in the political discourse; media outlets, thus systematically favor the topics and interpretations put forward by government officials and frequently neglect the other voices in the political spectrum (Bennett, 1990; Bennett et al., 2007). Other authors have identified the high dependency of media on scheduled events, organized by political actors, as a potential source of bias, because political actors become increasingly skilled in producing events that correspond with the temporal 'needs' of media news cycles and thus manage to position their candidates, topics and positions prominently in the public eye (Boorstin, 1961; Lang & Lang, 1984; Molotch & Lester, 1974). The tendency of media to focus during election campaigns on so-called horserace coverage—the coverage of often small shifts in easy quantifiable metrics, such as polling results or reports on incoming donations, the fluctuations of which might be used to determine which candidate has momentarily a factual or even hypothetical advantage—has also been heavily criticized by media scholars (Iyengar et al., 2004). Also important for the coverage of politics in traditional media are media events. Dayan and Katz define media events as exceptional occasions of high social relevance in which the audience participates through media coverage from their homes (Dayan & Katz, 1992). In politics televised candidate debates and election night coverage are obvious cases of such events.

Based on these observations, it is possible to identify a rational within traditional media as to their coverage of political events. This logic includes the coverage of items that allow the personalization of politics, the illustration, staging and dramatization of political contest (for example through horserace coverage) and negativity. Also, it is sensible to expect media to index positions of the leading candidates, to respond to events organized by the campaigns (such as party conventions), and to prominently cover media events.

The coverage of politics: the logic of Twitter

For the discussion of political topics on Twitter, it is much harder to formulate such clear-cut expectations. The public discussion of Twitter focuses on its role as a medium for self-expression and public interactions between users. These discussions often circle around the apparent frivolousness of these interactions, a perception that stands in stark contrast to research documenting the use of Twitter in collective action and during protests. Various studies have shown that Twitter is a medium used by political activists and the public to inform, to mobilize and to create media attention for their topics (Bennett & Segerberg, 2013; Jungherr & Jürgens, 2013; Papacharissi & de Fatima Oliveira, 2012; Poell & Borra, 2013; Tufekci & Wilson, 2012). The strategic use of Twitter during political campaigns, however, is less understood. There are studies that document the use of Twitter by political candidates (Jackson & Lilleker, 2011), measure potential effects the exposure to tweets by politicians might have on individuals (Lee & Jang, 2013) and examine the interaction networks between political elites (Ausserhofer & Maireder, 2013; Jürgens et al., 2011). The use of Twitter during election campaigns—the political events tweets are referring to and the content of tweets referring to politics—has surprisingly received less attention. Still, this is an important topic, if we want to understand the dynamics of political communication in the hybrid media system.

Research into the motives of users following politicians on Twitter indicates that Twitter serves as a channel for getting political information, interacting with political elites, as well as a platform for expressing political convictions as well as the exchange about political topics (Parmelee & Bichard, 2012). Additionally, Andrew Chadwick has shown how journalists working for traditional media routinely integrate Twitter messages in the coverage of political events and scandals. Thus non-traditional actors have the possibility of becoming part of the political discourse. Although, Chadwick's caveat is important, this process is far from deterministic (Chadwick, 2011). Also, Twitter users heavily link from their messages to content on the websites of traditional media (Kwak et al., 2010). At least part of political discussions on Twitter should therefore naturally emerge in reaction to traditional media coverage. Still, it has been shown that events covered on Twitter are reported differently than in traditional media: Zizi Papacharissi and Maria de Fatima Oliveira have used the term "affective news" to describe these differences. For them, news on Twitter is constructed based on subjective experiences, opinions, and emotions (Papacharissi & de Fatima Oliveira, 2012).

Based on these observations we can develop a rational for political coverage on Twitter. The volume of comments on Twitter should rise when the volume of traditional news-media coverage of political actors rises. The content of these messages should contain subjective observations, opinions and even emotional commentary. We should expect to see a mix between voices new to the political discourse and traditional political actors rise to prominence on Twitter. We should also expect non-traditional political actors and supporters of new parties to use Twitter for mobilization purposes.

Research questions

In the following section I will examine whether two characteristics of Twitter messages, referring to political actors during the campaign for the federal election 2009 in Germany, corresponded with the logic of political coverage in traditional media or with a logic specific to Twitter. I will check whether the volume of Twitter messages increased in parallel to increases in media coverage of political actors or if fluctuations of political Twitter messages followed another rhythm. Then, I will analyze the content of the 100 most often retweeted messages on the day of the televised debate and on election day, to determine whether their contents correspond with traditional media logic or the logic of Twitter proposed above.

Data Set/Method

For the analyses, I use three data sets: the German Longitudinal Election Study (GLES) 2009 Campaign Media Content Analysis: Printmedia (Rattinger et al., 2012a), the GLES 2009 Campaign Media Content Analysis: TV (Rattinger et al., 2012b) and a data set collected by Pascal Jürgens and I during the campaign for the federal election in Germany 2009, documenting all messages by politically vocal Twitter users in Germany. These data sets enable the direct comparison of daily mentions of political actors during the three months directly preceding the election. Thus, the data offer a unique window into the dynamics of coverage of political actors in traditional media and on Twitter.

The Campaign Media Content Analysis: Printmedia (Rattinger et al., 2012a) documents the coverage of the campaign in six major newspapers in Germany (BILD, FAZ, FR, SZ, TAZ and Die Welt). The elements of the data set that are of interest to this article are: the date an article commenting on politics was published, the political actor (be it a politician or one of the five established parties) mentioned in it, and the title and topic of the article. Using these data, I built daily sums of mentions of Angela Merkel, Frank-Walter Steinmeier, CDU/CSU, SPD, FDP, Bündnis 90/Die Grünen, Die LINKE. In the sums of party mentions, I also included mentions of politicians associated with the respective party. The data set includes all mentions of these actors in major German newspapers between June 29 and September 26. Since Sunday editions of the papers were not included in the original data set, this makes for 78 observations.[1] The Campaign

Media Content Analysis: TV (Rattinger et al., 2012b) documents the coverage in the evening newscasts of four major TV stations in Germany (ARD, ZDF, RTL, SAT1). Items used for this analysis are: the original broadcast date of a segment in a news program, the political actor (be it a politician or one of the five established parties) mentioned, and the topic of the segment. In preparing the data, I built daily sums of mentions of the two leading candidates and the five major parties, and included in the sums of party mentions the mentions of prominent politicians associated with the respective party, except for Angela Merkel and Frank-Walter Steinmeier. The data set includes all mentions of these actors in segments in the evening newscasts of four major TV stations between June 28 and September 26. This makes for 91 observations.

The data used to document the mentions of political actors on Twitter were collected in cooperation with Pascal Jürgens during the run up to the 2009 federal election (Jürgens et al., 2011; Jürgens & Jungherr, 2014). We regularly queried the Twitter application programming interface (API) during the months directly preceding the 2009 federal election in Germany (mid-June to early October 2009) and collected all messages of a sample of politically vocal Twitter users. Qualifying users had all used one of 19 pre-determined politically relevant hashtags (e.g. names of parties and candidates or campaign related hashtags) at least once during the run-up to the election. Once users had posted a message with one of these hashtags, we collected all her previous and future messages. In the following analysis, I will focus exclusively on those messages in which a political actor was named explicitly in a hashtag (e.g. #cdu, #spd, #grüne, #piraten, #merkel, #steinmeier). The decision to only collect the messages of users who posted messages with politically relevant hashtags might introduce a bias in the data collection. The active use of hashtags presupposes a certain level of Twitter proficiency; users below this level are thus excluded from the analysis. This might exclude potentially relevant messages contributing to interactions on Twitter centered on politics. However, simply including all messages mentioning politically relevant keywords offers no obvious remedy. Using hashtags as a discriminatory device allows to filter messages that users posted with the clear intention of contributing to the political discourse. Alternatively, including messages based on keywords would lead to the inclusion of significant noise in the analysis (i.e. false positives, spam and automated links to political coverage on websites). So, while the focus on hashtags might potentially lead to an underestimation of the total volume of political coverage on Twitter, this approach is most likely to prevent data dilution by noise. Since there was significant variation in the spelling of political actors, I collected the most prominent hashtag variations referring to each actor in encompassing concepts (e.g. #grüne, #gruene, #bündnis, #buendnis et al.). These concepts sum up all appearances of relevant hashtags commenting on the respective political actor.[2] For this analysis, I summed up the occurrence of all hashtags collected in these concepts for each day between June 27 and October 1, 2009. Between June 27 and October 1, 2009, 18,832 users posted at least one message with one or more of the hashtags that were collected in the party concept. During this time, a total of 194,425 messages contained one or more of said hashtags.

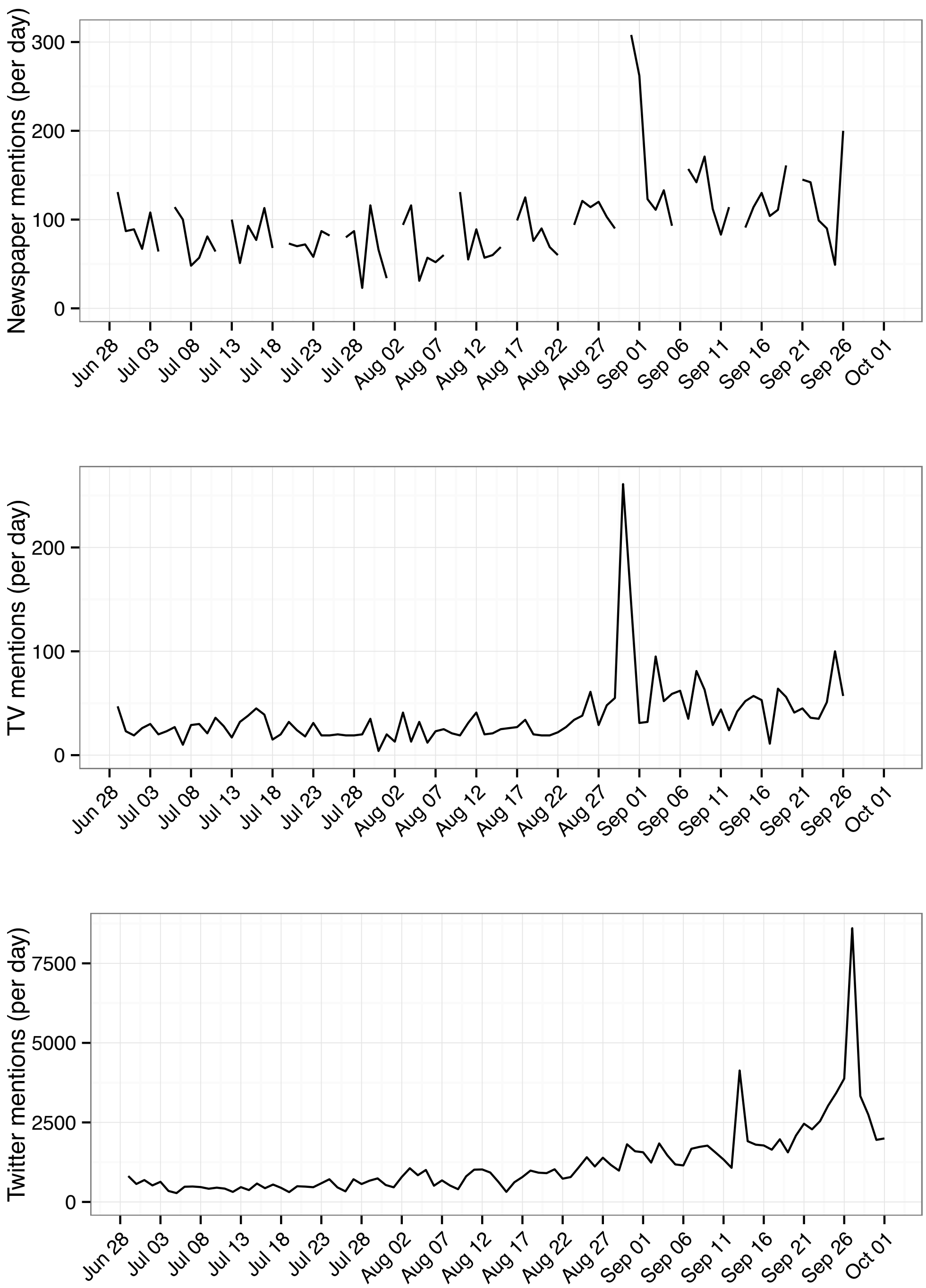
Results

The campaign for the German federal election 2009 was fought rather reluctantly. The two biggest parties CDU/CSU and SPD governed Germany from 2005 to 2009 in a grand coalition. Both leading candidates, Angela Merkel and Frank-Walter Steinmeier, had to campaign against the other in the context of four years of cooperation. This led to a campaign lacking in drama, in which the main political actors did not polarize the electorate (Krewel et al., 2011). Although, the financial crisis was an ongoing topic, neither CDU/CSU nor SPD used the crisis as a polarizing issue during the campaign. Traditional media covered ongoing efforts by the government to address the crisis. Angel Merkel managed to focus most of this coverage on her efforts while it was tougher for Frank-Walter Steinmeier, to display substantial contributions to the rescue efforts. Besides the financial crisis, the campaign was dominated by two events. First, on August 30, roughly a month before the federal election on September 27, state elections were held in Saarland, Saxony, and Thuringia, three states widely considered indicators of the upcoming federal election results. Second, on September 13 there was a widely promoted televised debate between the two leading candidates.

The temporal dynamics of political coverage in traditional media and on Twitter

The first question here addressed is whether the dynamics of mentions of political actors in different media follow the same temporal patterns or if different media react with different intensity to political events. To answer this question, I will perform a principle component analysis (PCA) on twenty-one time series documenting the mentions of political actors in newspapers, on TV and on Twitter. This analysis allows for the identification of groups of variables that correlate strongly and thus might be influenced by the same underlying process. But let us start with a visual inspection of the time series. Figure 1 shows three time series documenting the aggregates of mentions of the political actors included in the analysis in newspapers, on TV and on Twitter.

Figure 1: Aggregated time series of candidate and party mentions in newspapers, on TV and on Twitter[3]



The figures document all mentions of the leading candidates of CDU/CSU and SPD (Angela Merkel and Frank-Walter Steinmeier) and the mentions of the five major political parties (CDU/CSU, SPD, FDP, Bündnis 90/Die Grünen and Die LINKE) in six major newspapers (BILD, FAZ, FR, SZ, TAZ and Die Welt), in evening newscasts of Germany's four leading TV stations (ARD, ZDF, RTL and Sat1), and in hashtags on Twitter during the campaign for the federal election 2009. All time series start on June 29. The time series for mentions in newspapers and on TV end on September 26, the day before the federal election. Although, the GLES data do not extend beyond this date, for Twitter more data are available. This time series ends on October 1, four days after the election. As the GLES analysis did not include Sunday editions of newspapers, the first of the three figures contains a missing value for each Sunday in the time period under examination.

A cursory glance at the diagrams in Figure 1 shows that the mentions of political actors across all media types were highly fluctuating, during the campaign. For all media types, there seems to be a normal level of coverage, around which the daily mention counts of political actors fluctuate. Repeatedly, this baseline is broken by outliers, i.e. days during which the mention count of a political actor rises well beyond the level of the normal fluctuations in the respective medium. These fluctuations are not random, however; mentions of political actors across all media types appear to be highly event sensitive. Newspaper and TV mentions of political actors rise in reaction to specific events (such as the state elections on August 30). We also see, the baseline of mentions rise as the time series approaches election day. This pattern manifests even more distinctly in the mentions of political actors in hashtags on Twitter. Through much of July and August the mentions of political actors on Twitter fluctuate in the low hundreds. This baseline rises steadily from the end of August onwards. Although these basic patterns are common to the mentions of political actors in all three media types, there are also marked differences. Once we compare the dates that brought spikes in the mentions of political actors, we see significant differences between traditional media and Twitter. Media coverage of political actors spikes in reaction to the state elections on August 30; in contrast, mentions of political actors on Twitter spike in reaction to the televised debate between Angela Merkel and Frank-Walter Steinmeier (September 13) as well as on the day of the federal election.

In total, Twitter activity did not reliably shadow the political coverage of traditional media. Instead, Twitter mentions spiked in reaction to media events that allowed for the public discussion and negotiation of meaning. The mentions of political actors on Twitter rose steadily following the televised debate between Angela Merkel and Frank-Walter Steinmeier. From this day on the level of political discussion on Twitter rises irrespective of political events. Once, politics has been established by a widely discussed media event, Twitter users comment on politics much more heavily than before. This increase culminates in the mention volume on election day, only to fall again rapidly after this. The differences between the aggregated time series are an early indicator that the mentions of political actors in different media types might follow different dynamics. This hypothesis can be tested formally by a PCA of the disaggregated time series, documenting the mentions of each political actor separately.

A PCA transforms correlated variables in a data set into a smaller set of new variables. These new variables are called principle components, which in turn are often interpreted as processes driving the values of manifest variables. These processes are in itself difficult to measure and thus called latent variables. In this analysis, PCA helps us to identify latent variables (i.e. dynamics in political coverage following the same temporal patterns across various media or dynamics specific to different media channels) by grouping correlated manifest variables (i.e. the mentions of political actors in different media channels) in principle components. Based on the composition of these components an interpretation of the underlying dominating coverage logic becomes possible.[4]

Consider our data set X = $(X_1, X_2, \dots X_n)$ where $X_1, X_2, \dots X_n$ are the vectors containing the t observations of the time series documenting the mentions of political actors in newspapers, on TV and on Twitter. Assume now that we are looking for m principle components. We can represent the jth principle component by a simple linear equation:

$$Y_i^j = b_1^j X_{1i} + b_2^j X_{2i} + \dots + b_n^j X_{ni}, \qquad \text{for } i = 1, \dots, t \text{ and } j = 1, \dots, m$$

Here, Y^j is a time series representing a latent variable driving the realizations of X, i.e. the daily mentions of political actors across the different media types. The aim is to map the information contained in $X_1, X_2, \dots X_n$ onto the principle component scores $Y^1, Y^2, \dots, Y^m$, such that these successively inherit the maximum possible variance from X. The factor loadings corresponding to the jth principle component are given by $b_1^j, b_2^j, \dots, b_n^j$. They measure how strongly the respective variables correlate with, or load onto, the jth principle component.

Consider now the first principal component, i.e. j=1. The corresponding factor loadings $b^1 = (b_1^1, b_2^1, \dots, b_n^1)$ are defined as:

$$b^1 = \arg max_b \sum_{i=1}^{t} (b_1 * X_{1i} + b_2 * X_{2i} + \dots + b_n * X_{ni})^2,$$

where b is constrained to be an n-dimensional unit vector.

The second principle component can be found by subtracting the first principle component from the data set X and the finding the loading vector which extracts the maximum variance from this new data matrix.

If all media would be covering political actors following the same logic we should identify seven principle components, one for each political actor (e.g. Y^1 = Merkel_n, Y^2 =

Steinmeier$_n$, Y^3 = CDU/CSU$_n$, Y^4 = SPD$_n$ etc.), onto which the mentions of political actors in different media would have to load. If media would follow different dynamics in covering political actors we would expect a different set of principle components. Here we would expect to find three components, one for each media type (i.e. Y^1 = Newspapers$_n$, Y^2 = TV$_n$, Y^3 = Twitter$_n$).

To build a basis for this analysis, I disaggregated the time series shown in Figure 1 into the daily mentions of seven political actors (i.e. Angela Merkel, Frank-Walter Steinmeier, CDU/CSU, SPD, FDP, Bündnis 90/Die Grünen and Die LINKE) in each media type. The data set includes 90 observations for the mentions of political actors on TV and Twitter (every day between June 29 and September 26). Since the data set does not include Sunday editions of newspapers, newspaper mentions of political actors are only documented for 78 observations (weekdays and Saturdays between June 29 and September 26). This makes for a total of 21 variables and 78 observations.

Before performing the PCA, I had to transform the time series documenting mentions of political actors on TV and on Twitter. First, I had to eliminate the observations for mentions on Sundays, as to make the data set compatible with the data on newspaper mentions. Second, I lagged the time series of TV and Twitter mentions by one day. The goal of this PCA is to show if different media types are reacting to the same political events with comparable intensity. TV newscasts and Twitter mentions react to events of the same day; newspaper mentions react to the events of the preceding day. By lagging the observed time series it is possible to compare the reactions of newspapers, TV and Twitter to the same event.[5] This data set of 21 variables and 78 observations is somewhat below the ideal observation count for a PCA. Still, two statistical tests, which check for the appropriateness of a given data set for PCA, indicate that we can proceed.[6]

In a next step, it is important to establish how many components can be reliably identified in the data. There are two criteria for this choice. Both aim to assess how much variance any given component adds to the analysis. They both are based on the eigenvalue, which is associated with b^j as the eigenvector of the symmetric matrix $X^T X$. In this way, each principle component j = 1, … n corresponds to an unique eigenvalue. Kaiser advocates including all components with eigenvalues above one, thus contributing more variance to an analysis than the average component (Kaiser, 1960). As an additional criterion, Cattel argues one should plot the eigenvalues of each component against its component number. According to this method, the analysis should include all components that lie before the inflexion point in the plot (Cattel, 1966). A first analysis showed that four components had eigenvalues over Kaiser's criterion of 1 and in combination explained 74% of variance. Based on the fact that one component showed an eigenvalue just above the Kaiser's criterion of 1 and after inspecting the scree plot, I decided to include only three components in the analysis. The consistency of components can be assed by Cronbach's α (Cronbach, 1951), a coefficient that shows how closely a set of items in a group are related. As shown in Table 1 Cronbach's α for components one and two indicate strong internal consistency while component three shows acceptable consistency. The final step of the PCA is a rotation of the coordination system to facilitate the interpretation of the identified components by increasing the component loadings of the variables. Following the assumption that components are correlated, we may perform an oblique rotation. Since it is sensible in our case to assume that the components are correlated, I rotated the components obliquely using the "oblimin" method in the R package "psych" (Revelle, 2013). Table 1 documents the results.

Table 1: Summary of principle component analysis results for the mentions of political actors in newspapers, on TV & on Twitter (n = 78)

	Rotated Component Loadings		
	Component 1: Newspaper & TV mentions parties	Component 2: Twitter mentions parties	Component 3: Newspaper, TV & Twitter mentions Steinmeier, and Newspaper & Twitter mentions Merkel
Merkel (newspaper)	0.32	0.13	**0.42**
Steinmeier (newspaper)	0.1	-0.1	**0.73**
CDU/CSU (newspaper)	**0.81**	-0.15	0.12
SPD (newspaper)	**0.76**	-0.23	-0.04
FDP (newspaper)	**0.77**	0.16	-0.02
Bündnis 90/Die Grünen (newspaper)	**0.87**	0.11	-0.1
Die LINKE (newspaper)	**0.89**	0.05	0.02
Merkel (TV) - lagged	0.35	0.26	0.28
Steinmeier (TV) - lagged	0.15	0.01	**0.78**
CDU/CSU (TV) - lagged	**0.92**	-0.07	0.01
SPD (TV) - lagged	**0.83**	0.02	-0.02
FDP (TV) - lagged	**0.88**	0.13	-0.03
Bündnis 90/Die Grünen (TV) - lagged	**0.88**	0.08	0
Die LINKE (TV) - lagged	**0.93**	-0.02	0.02
Merkel (Twitter) - lagged	-0.1	0.13	**0.81**
Steinmeier (Twitter) - lagged	-0.13	0	**0.9**
CDU/CSU (Twitter) - lagged	0.08	**0.87**	0.08
SPD (Twitter) - lagged	0.01	**0.87**	0.13
FDP (Twitter) - lagged	-0.05	**0.98**	-0.02
Bündnis 90/Die Grünen (Twitter) - lagged	-0.03	**0.99**	-0.12
Die LINKE (Twitter) - lagged	0.18	**0.83**	0.09
Eigenvalues	7.84	4.64	3.05
% of variance	37	22	15
α	0.95	0.92	0.65

Notes: Factor loadings over .4 appear in bold.

The variables loading on the three components suggest the following interpretation of the latent variables driving their volume: Component 1 represents the mentions of political parties in traditional media (e.g. newspapers and TV). The driving force of this component seems to be a common logic of traditional media of covering political parties. Component 2 represents mentions of political parties on Twitter. The driving force behind this component seems to be a special dynamic, which determines the discussion of political parties on Twitter. Component 3 represents the TV mentions of Frank-Walter Steinmeier and the newspaper and Twitter mentions of both leading candidates (i.e. Y^1 = Newspaper & TV mentions parties_i; Y^2 = Twitter mentions parties_i; Y^3 = Newspaper, TV and Twitter mentions Steinmeier, and Newspaper and Twitter mentions Merkel). The mentions of Angela Merkel on TV do not load on any component. This could be an indicator that her official role as Chancellor introduced a different dynamic in the coverage setting her apart. This appears not to be the case for her mentions on Twitter, though. The comparably weak factor loading of newspaper mentions of Angela Merkel indicates that also on this medium her official role led to a different coverage dynamic but less so than on TV. Besides this, Twitter mentions of the leading candidates seem to follow the same logic as their mentions in traditional media.[7]

While one is well advised to not over-interpret the results of exploratory data analysis, the results of this PCA speak remarkably well to the question driving this analysis: does the political coverage across various media types follow similar dynamics or are there differences? The PCA shows two patterns: First, the mentions of political parties in traditional media (i.e. newspapers and TV) and on Twitter follow different dynamics. It seems fair to assess that both media types, traditional and new, follow different logics when it comes to the coverage of political events regarding parties. The second observation is not so clear-cut. We see that the coverage of Angela Merkel on TV follows a pattern independent of the mentions of political parties, her challenger Frank-Walter Steinmeier and even her own mentions in newspapers and on Twitter. As has been shown, this is probably due to the coverage she received in official role as Chancellor. Thus, creating news coverage independent of the campaign. This part of her activities during the campaign did not seem to have influenced her mentions on Twitter. We also see that the coverage of Frank-Walter Steinmeier on TV follows similar patterns as his and Angela Merkel's mentions in newspapers and on Twitter. Thus, the analysis shows that in the coverage of political parties Twitter messages follow different temporal dynamics, a different logic, than traditional media. With regard to the coverage of the two leading candidates, Twitter and traditional media show similar temporal patterns, thus they are following the same logic.

The content of popular tweets

Focusing on the content of Twitter messages commenting on political events promises further insights into which media logic dominates Twitter use. For this step of the analysis, I focused on messages posted during the two days in the run of the campaign that saw the strongest activity on Twitter—September 13, 2009, the day of the televised debate; and September 27, 2009, election day. For both days, I analyzed messages containing one or more hashtags of relevance to the events of these days.[8] For each day, I identified the 100 most retweeted messages containing one or more of the hashtags mentioned above.

What drives this selection is the assumption that users' interactions on Twitter—be it in form of retweets, @messages or linked websites—work as a collective curating process. By retweeting messages, for instance, users indicate that they deem the message important. By analyzing the tweets that were retweeted the most during a specific time interval researchers thus can focus on those messages that users deemed most important (Jungherr & Jürgens, 2013).

On September 13, the day of the televised debate, 4,341 users posted 25,444 messages on Twitter containing one or more topically relevant hashtag. If we compare this number with the total number of messages that were posted using one or more of these hashtags between June 28 and October 1, on the day of the TV debate fall 20% of all messages while 25% of all users were active on this day. On September 27, election day, 10,323 users posted 46,221 messages mentioning one or more topically relevant hashtag. Compared with the volume of messages containing the same hashtags over the whole time span, on election day fall 16% of all messages while 43% of all users were active.

On both days, users clearly diverged from their usual behavior. From June 28 to October 1 in the hashtagset referring to the televised debate on average 23% of all messages were retweets, 12% were @messages while 66% contained links. This is comparable to the hashtagset referring to election day. Here 22% of all messages were retweets, 16% were @messages while 66% contained links. This was markedly different on the two days of interest. Of all tweets referring to the televised debate on September 13, 17% were retweets, 8% @messages and only 10% contained links. Again, the numbers on election day are similar. Of all tweets referring to the election on September 27, 21% of all messages were retweets, 9% @messages and 26% contained links. Especially telling is the difference in the percentage of messages containing links. On normal days, a large amount of Twitter messages appears to be posted in reaction to information on the internet, shown by the links posted in the messages. On the two days in question, two media events—the televised debate and the election coverage on TV—the media coverage served as stimulus for most messages. Thus, Twitter users receive a common stimulus by watching the same event on TV and use Twitter to comment on it. Linking to other content on the internet or even interacting with other Twitter users—be it by @message or by retweet—

becomes less prominent in this time span. Thus, Twitter seems to become a digital backchannel for public reactions to media events. Reactions, which up until now, had been confined to the private sphere of audiences' living rooms (Dayan & Katz 1992).

To get an idea of what content users thought to be of importance on the day of the televised debate and on election day, I performed a content analysis of the 100 most often retweeted messages on both days. For September 13, this included messages that were retweeted between 46 and 4 times. For September 27 the numbers were slightly higher. Here, all tweets with between 92 and 14 retweets were included. Table 2 documents the results.

Table 2: Usage patterns in the 100 Top RTs on the day of the TV debate and on election day

Use	Topic	TV-Debate	Election Day
Commentary (factual)		17	3
	Candidates	13	-
	Journalists	3	-
	TV debate	1	-
Commentary (ironic)		26	12
	Candidates	12	-
	Journalists	5	-
	TV debate	9	-
Hashtag hijacking		8	-
Horserace Coverage		21	31
	Official projections	-	16
	Online polls	11	10
	Traditional polls	3	5
	User comments on who won debate	7	-
Indexing		9	-
	Affirming	2	-
	Contesting	7	-
Information		19	7
	TV debate (digital backchannel)	13	-
	TV debate (procedure)	5	-
	TV debate (review)	1	-
Mobilization		-	47

I grouped the messages by identifying categories inductively. On the day of the televised debate most messages in the top 100 retweets contained comments, either factual or ironic, on the performance of the candidates, the journalists or the progress of the televised debate itself. On election day, comments on the election results are also prominent, but have a much smaller share of the top 100 retweets, whereas tweets trying to mobilize users to vote on that day make up for nearly half of the top 100 retweets. It is interesting to note that all mobilizing tweets were posted in favor of the Pirate Party and not one of the established parties. Both, on the day of the televised debate and election day, quite a few tweets either mention results of traditional polls and electoral projections or try to get people to participate in online polls. On September 13, users were also commenting on who won the debate in their view. These uses are grouped under horserace coverage. Also, users were retweeting messages containing information on how to participate in tweeting about the televised debate, the procedure and schedule of the debate and a link to a review of the debate. Two other interesting types of retweeted messages were apparent on the day of the televised debate. First, supporters of the Pirate Party and the Social Democrats used the hashtag #tvduell to post messages not referring to the televised debate but linking to campaign material. These political actors thus used the public attention on the hashtag to distribute their information. This use is collected under the heading hashtag hijacking. Second, users also retweeted quotes by candidates, either with approving or disapproving comments. Thus, they were indexing the debate contributions of the candidates.

Thus, popular retweets show evidence of a hybrid media logic. Prominent retweets correspond with the traditional news values personalization and contest. They contain comments on the performance of politicians and journalists and assessments of who won the debate. Also, the prominence of polling results and requests to participate in online polls show that traditional horserace coverage is mirrored in online discourse. Finally, prominent retweets also index statements of the candidates, albeit most of the time while contesting the validity of their statements. But there is also evidence of a new logic. The prominence of hashtag hijacking or mobilizing for the Pirate Party shows that new political actors aim to use the attention on a popular hashtag on Twitter to get their message out and to gain public recognition by piggy-backing on prominent discussion topics. Also, most messages that were quoting candidates during the televised debate did so to contest the statements of the politicians. Twitter thus offers normal users and opposing political actors the chance to contest public statements of leading politicians. Also, most tweets commenting on the political events in question did so ironically, thus being indicative of what Papacharissi & de Fatima Oliveira termed ‘affective news’ (Papacharissi & de Fatima Oliveira, 2012). Thus, the content of popular retweets shows that Twitter was used in a mix of old and new media logics.

Conclusions and Implications for Further Research

In this paper, I examined Twitter messages using hashtags to comment on politics during the run up to the federal election 2009 in Germany to establish whether Twitter followed a traditional logic of political coverage or if there was evidence of a new logic. I showed that Twitter messages commenting on political parties followed different temporal dynamics as the coverage of the same actors in traditional media. This is evidence of what I, based on existing literature, termed Twitter’s logic of political coverage. Still, the coverage of the leading candidates, Angela Merkel and Frank-Walter Steinmeier, on Twitter and traditional media followed largely similar dynamics. In the coverage of politicians, Twitter coverage seems to follow similar queues as the coverage of traditional media. The analysis of the content of messages that were highly retweeted during the day of the televised debate and election day also shows mixed results. On one hand the content of the messages followed the logic of traditional media: personalization, contest, horserace coverage and indexing. In contrast, many popular messages also showed evidence of new uses: mobilization of non-traditional parties, the public contesting of positions and statements of traditional political actors and high levels of ironic commentary. These results are clearly supporting what Andrew Chadwick has called a hybrid media system, a media system in which logics of various technological and social media systems mix (Chadwick, 2013). This serves to show once more that the debate about political communication has to abandon the demarcations of communication in traditional and new media systems but instead move on to map how these systems interact.

On a more fundamental level, the intensity of Twitter coverage seems to follow the established dramaturgy of political campaigns. The volume of political messages rises sharply in reaction to a scheduled and highly advertised media event, the televised debate of the leading candidates. Following this event the daily volume of messages commenting on politics keeps on rising until it cumulates on election day. In this, Twitter becomes a digital backchannel on which the increased social attention to the campaign is mirrored by the steadily increasing volume of messages. Also, Twitter seems very receptive to media events. The televised debate and election coverage led to an increase in Twitter messages commenting on politics. As has been shown, these messages were part of a public discussion and negotiating of meaning of both events. Thus, Twitter seems to become channel for a social process that was formerly restricted to the direct environment of audience members and thereby feed back into the coverage of these socially relevant media events by traditional media.

The analysis presented here is obviously limited by its scope. Most fundamentally, this paper focused on political Twitter messages that were posted during an election campaign. A time where media and public focus on traditional political actors and their highly structured and ritualized competition for votes. During this time, there is little room in the public attention for non-traditional actors. Given the premise, future studies may examine whether non-traditional actors rise to greater prominence during other times. It will be also interesting to see if the results of this study can be replicated in other elections, when the use of Twitter has somewhat matured and in other cultural contexts. Also, this analysis looked at the messages of all users posting selected hashtags. A study focusing on specific demographics might find stronger relationship between Twitter mentions and news coverage or signals of political elites (i.e. Twitter use by political elites, supporters, or journalists). There is also substantive research potential in expanding the analysis to political coverage in other social media channels (i.e. political blogs, Facebook or YouTube) and to map the interactions between these channels and traditional media. Through its relative open and well documented data access policy, Twitter might be an obvious choice to begin the analysis of the logics governing the hybrid media system. Still, it would be a mistake to ignore other channels of political communication on the internet only because there data is more difficult to gather. Finally, the analysis of longer time series would allow for more advanced techniques in modeling of the temporal dynamics in the mention counts of political actors in various media channels. Thereby, potentially allowing more robust inferences on the drivers of these dynamics. Ultimately, the mapping of the emerging hybrid media system is still in its very early stages. It will be interesting to see if the patterns in evidence in this early stage in the development of the hybrid media system will prove to be constants of the new media system or merely temporal phenomena connected with an early, experimental phase.

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Endnotes

[1] For more information on the data sets including descriptive metrics and the validity of the coding see Rattinger et al., 2012a and Rattinger et al., 2012b.

[2] The following hashtags were collected in concepts: CDU/CSU: #cdu, #cducsu, #csu; SPD: #spd; FDP: #fdp; Bündnis 90/Die Grünen: #buendnis90, #bündnis, #bündnis90, #bündnis90diegrünen, #bündnis90grüne, #bündnisgrüne, #bündnisgrünen, #die_gruenen, #die_grünen, #diegrünen, #gruene, #grüne, #grünen; Die LINKE: #die_linke, #dielinke, #linke, #linkspartei; Piratenpartei: #piraten, #piratenpartei; Angela Merkel: #angie, #merkel, #angie_merkel, #angelamerkel, #angela_merkel; Frank-Walter Steinmeier: #steinmeier, #fws, #frank_walter_steinmeier, #steini, #frankwaltersteinmeier, #frank_steinmeier. This collection might still exclude some more exotic or more ambiguous spelling variations of the political actors in question. Still, this should account for the majority of hashtags referring to the political actors in question and thus should offer a comprehensive view on the dynamics between them.

[3] The figure was produced using R (R core team, 2013), ggplot2 (Wickham, 2009), gridExtra (Auguie, 2012), Hmisc (Harrell, 2013), scales (Wickham, 2012) and zoo (Zeileis, & Grothendieck, 2005).

[4] To perform the PCA, I used the R package "psych" (Revelle, 2013) and followed the instructions for performing and reporting PCA by Blunch (2008) and Field, Miles & Field (2012).

[5] To check the validity of this assumption, I also performed a PCA with the original unlagged values. The results were statistically less satisfactory and produced factors that did not lend themselves as successfully for interpretation.

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[6] The Bartlett's test checks if the correlation matrix of the variables included in a PCA shows enough common variance to allow for a meaningful analysis. In this case the Bartlett's test is highly significant X^2 (210) = 1958, $p < .001$. This indicates that the correlations in the data set were sufficiently large for a PCA (Bartlett, 1937). The Kaiser-Meyer-Olkin measure (KMO) verified the sampling adequacy for the analysis, KMO = 0.83. This value indicates that patterns in the correlation matrix of the variables is compact enough as to yield the identification of distinct and reliable components. Also, the KMO values of only five variables fell below 0.8 (Merkel, newspaper mentions = 0.79; Steinmeier, newspaper mentions = 0.65; Steinmeier, TV mentions lagged = 0.76; Merkel, Twitter mentions lagged = 0.59; Steinmeier, Twitter mentions lagged = 0.54), which means all values lie above the acceptable level of 0.5 (Kaiser, 1974). Thus, the results of both tests indicate that the data set offers an appropriate base for a PCA.

[7] One could argue that the time series show a trend component. This means that any given value dependents on its preceding value. Performing a PCA, ignoring this trend component might result in skewed results. To check the robustness of the PCA performed above, I also calculated a PCA for the first differences of the time series. The analysis identified the same components onto which the same variables load. For simplicity reasons I decided to present the results of the original time series.

[8] For September 13 all messages were collected which contained at least one of the hashtags mentioning a candidate or one of the following hashtags: #btw, #btw09, #bundestagswahl, #duell09, #kanzlerduell, #kanzlerduell09, #kd09, #tv_duell, #tvbtw, #tvbtw09, #tvduell, #tvduell09. For September 27 all messages were collected which contained one of the hashtags collected in footnote two or one of the following hashtags: #btw, #btw09.