NATIONAL POLITICS ON TWITTER

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NATIONAL POLITICS ON TWITTER
Structures and topics of a networked
public sphere

The increasing use of Twitter by politicians, journalists, political strategists and citizens has made it an important part of the networked sphere in which political issues are publicly negotiated. The growing number of studies investigating the relationship between Twitter and politics supports this claim. To the knowledge of the authors, this is the first study that examines the interrelation of individuals on the basis of their professions, their topics and their connection to mass media. Taking the example of Austria, they developed a user-centred method that overcomes the limitations inherent to other approaches in this field. The different types of data they gathered – Twitter user data, 1,375 newspaper articles and manually coded 145,356 tweets – allowed them to perform several analyses which provided insights into the structure and topics of a national public Twittersphere. Their results show that the network formed by Austria's most relevant political Twitter users is dominated by an elite of political professionals but open to outside participation. The topic analysis reveals the emergence of niche authorities and the periodic divergence of the political discourse on Twitter with that of mass media. The article concludes with a summary of how these phenomena relate to political participation.

1.   Introduction

The rapid growth of the Internet and especially of the World Wide Web has led social practices to become increasingly digitized. This digitization has also affected the political sphere by transforming the speed and scope of communication (Castells 2011). Not only has analogue communication become digitized, but many new practices have also become mass phenomena. To name

a few examples: citizens have launched accountability and crowdsourcing plat-forms, politicians have blogged from investigation committees and journalists have published their sources online to increase the transparency of the editorial process. These developments and others flow from the web's unique publishing environment that allows people to both publicize and link to content, thus dif-fusing information to a vast audience. The web also incorporates all forms of traditional media and enables many-to-many communication in realtime.

Twitter is one consequence of the web's unique characteristics. The speed, the public nature of communication and the manifold possibilities to link messages to users (@-mentions), external content (hyperlinks) and topics (hashtags) have attracted many different actors. As the 'second most important social media plat-form' (Bruns 2011, p. 1), it is becoming an increasingly important channel for digital communication and, like other Internet technologies, has lowered barriers to participation (Anduiza et al. 2009). In many countries Twitter is used to cam-paign, to coordinate protests and to disseminate and discuss news. The action of its users may enable the new forms of accountability that Dutton (2009) refers to as the 'Fifth Estate'. On the other hand, tweeting may intensify the relationship between political actors with other stakeholders, as it facilitates an easy and con-tinuous discourse free from the constraints of official (and unofficial) gatherings. So how, exactly, are these new possibilities for participation being used, if at all?

For years, scholars have debated the Internet's impact on politics and what it means for democracy (van de Donk et al. 2004; Benkler 2006; Sunstein 2007; for a current review see Farrell 2012). While the Internet has facilitated broader public discussion, in many regards its 'virtual public sphere' still mirrors existing social structures. Political professionals talk amongst themselves, and the gap between them and the public will not be bridged unless they want it to be (Papacharissi 2002). Work by Davis (2010) on the Internet use by British political professionals has shown that new bridges may have been built between actors within the political network, but rarely did they extend beyond it to engage citizens.

We were interested to see if similar trends would emerge in our study of the Austrian political Twittersphere. To this end, we examined the relations between political actors and citizens using Twitter, how they used the service and the net-works of political communication they formed. In addition, we also examined the issues discussed within the Twittersphere and compared them with those fea-tured by newspapers. In doing so, we aimed to contribute to the discourse on how the Internet's networked public spheres affect political participation.

2.   Related work

2.1   *Twitter as a channel for public conversation*

By providing a means to both diffuse information and interact with others, Twitter creates the possibility of networked conversations unaffected by social

constraints or the physical constraints of space and time (Boyd *et al.* 2010). It is a networked public space incorporating 'networked publics' that Ito (2008) has described as simultaneously bottom-up, top-down as well as side-by-side. Twitter publics are interconnected through fluid conversations, and the ability of tweets to link to other media content and vice versa makes Twitter an integral part of the 'networked public sphere' that emerges alongside the mass-mediated public (Benkler 2006).

While the Twittersphere itself is open-ended, the way people experience it is individually structured. The content of a user's 'window' into the Twittersphere is based on tweets from accounts the user chooses to follow, and is thus bound to the individual networks he/she chooses to maintain. Given the sheer number of accounts, the audience on Twitter is more divided than the audience for mass media, but despite this, it is still highly concentrated (Wu *et al.* 2011), as there are huge differences in the number of followers between accounts. The follower count can be a measure of influence in the Twittersphere because it defines how many users receive a user's messages, but followers can be bought or increased with special scripts. Another indicator for influence is involvement, which can be measured by received addressings (@-replies, @-mentions and retweets). The more people mention or retweet a specific account, the more authority is attributed to it. 'Having a million followers does not always mean much in the Twitter world. Instead, [...] it is more influential to have an active audience who retweets or mentions the user' (Cha *et al.* 2010, p. 11). Therefore, this study also incorporates addressings as a measure of influence.

2.2   *Twitter use in politics and journalism*

Political actors use Twitter to spread information about political events and to state their opinions (Larsson & Moe 2011; Small 2011). Civic projects such as *Tweet Congress* (USA), *Tweetminster* (UK) or *Politwitter* (Canada) follow the accounts of politicians and encourage non-tweeting delegates to use the service. For them, Twitter is a means to establish and foster transparency within the political system. A number of research studies showed that politicians and political institutions predominantly employed Twitter for campaigning, for self-promotion and to spread information rather than to engage in conversations (Golbeck *et al.* 2010; Grant *et al.* 2010; Waters & Williams 2011; Vergeer *et al.* 2011). However, Grant *et al.* (2010, p. 579) showed that those who did interact with other users appeared 'to gain more political benefit from the platform than others'.

In addition to politicians, citizens also make use of Twitter for political purposes. This use has been particularly examined in the context of political events. For elections, Jürgens and Jungherr (2011) as well as Bruns and Burgess (2011) revealed that political tweets are often event-related and that their numbers increase in proximity to those events. Around the 2009 Climate Change Conference in Copenhagen, Twitter attracted a great variety of actors, cutting across

and connecting diverse networks, users and locations (Segerberg & Bennett 2011). Similar trends have been observed around the 2009 student protests in Vienna. In that case, Twitter's transparent boundaries created a situation in which the 'internal' communication between the movement's organizers attracted 'outsiders' who were then integrated into the conversations (Maireder & Schwarzenegger 2012). These types of 'open' debates may expose participants to a diversity of opinions (Yardi & Boyd 2010).

When Twitter is used to spread and comment on the news, it results in a stream of information, opinions and emotions related to current events (Papacharissi & Oliveira 2012). Hermida (2010) refers to this phenomenon as 'ambient journalism' – a journalism derived from the absorption and negotiation of microcontent within complex media environments. These 'broad, asynchronous, lightweight and always-on systems [like Twitter] are enabling citizens to maintain a mental model of news and events' (p. 297). Twitter also helps journalists to research stories, to establish and maintain sources, to connect increasingly with their audiences and, of course, to promote their work; unsurprisingly, journalists use Twitter to a large extent. According to Cision (2011), 25 per cent of German, 41 per cent of Swedish and a staggering 66 per cent of British journalists use Twitter as a source. While the official Twitter channels of most news organizations mainly link to content on the company's website (Armstrong & Gao 2010), journalists use their personal accounts to engage and interact with others. Neuberger et al.'s comprehensive study of Twitter and Journalism (2010) produced similar results. Their content analysis confirmed the findings of Project for Excellence in Journalism (2010) and Bruns and Burgess (2011) that technology topics dominate the agenda on Twitter. As the popularity of the service has increased, this dominance has weakened but still remains, but it is readily apparent, as technology topics receive much more attention than they are given by mass media.

From a macro-perspective, political conversations on Twitter can be viewed as spheres of communication. In these 'Twitterspheres' not only are traditional political actors important, but new influencers also emerge, for instance, bloggers, activists and tech-savvy backbenchers. Furthermore, users are grouped in different subnetworks and clusters that may be connected through very active users acting as hubs (Bruns & Burgess 2011; Larsson & Moe 2011; Paßmann 2012; Schäfer et al. 2012).

2.3   Twitter in Austria

The majority of Twitter users participate in geographically local networks (Quercia et al. 2012). In Austria, which has around 8.5 million inhabitants, the number of Twitter users is small. Only 95,000 registered users list an Austrian city as their location, which amounts to roughly 1 per cent of the population. Less than half of these users have tweeted or updated their profile in

the last 28 days (Digital Affairs 2012). Other countries such as the Netherlands, Ireland and the United States have a notably higher adoption rate and more active Twitter communities (comScore 2011).

Comparing user trends across several countries, the fame of users tends to strongly influence the popularity of Twitter. In the United States, for instance, celebrities who use the service to interact with fans and to promote their careers enjoy huge followings (Socialbakers 2012). This is quite a contrast to Austria, where virtually no celebrities or starlets use the service. Among the 30 Austrian accounts most followed by Austrians, 20 are maintained by journalists or media outlets, while the other 10 belong to politicians or prominent social media personalities (Digital Affairs 2012). However, as of September 2012 no minister and less than 15 per cent of the Members of the National Council had a Twitter account registered under their name. What these trends seem to indicate about the Austrian political Twittersphere is that actors within the political arena are among the most followed users but represent not the centre of political power but its second and third tiers. With this in mind, our analysis of the Austrian political Twittersphere is less concerned with its relationship to power than it is with elucidating the specific 'biotope' of users who use Twitter to participate in the political arena.

3.   Research focus and method

3.1   Research questions

This study focuses on the interactions between users regularly tweeting about Austrian national politics and seeks to answer a series of research questions, which fall into three categories.

3.1.1   *Political actors and usage structure.* The first question is basic but important: Who in Austria is tweeting about domestic politics? Of interest are not only the identities of the individuals and institutions, but also how these accounts can be grouped and categorized in terms of profession, gender or political orientation (among politicians). These categorizations are of additional interest because they could provide a framework for further research and international comparisons. The second important point here is how exactly are political actors using Twitter: Do they use it only as a broadcast medium or do they interact with others? Is there an identifiable style of communication or structure to their interactions?

We distilled these thoughts into two questions:

RQ 1: Who tweets about Austria's national politics and how can they be categorized?
RQ 2: How do political actors in Austria use Twitter?

3.1.2   *Networks within the Twittersphere.* As a network medium, Twitter creates ties between users and establishes status among them – an observation supported by the fact that connections do not have to be reciprocal. If, then, status exists on the service, who are the most important actors in Austria's political Twittersphere, and in which (sub)networks are they embedded? Research in these fields clarifies the general role that Twitter plays in political communication and participation and helps answer the following two questions: First, is Twitter only a new arena for established political authorities or do private citizens share influence with professionals? And, second, how are different professions connected to one another? Research questions 3–5 are thus:

> RQ 3: Who are the most important actors in the Austrian political Twittersphere and how are they connected?
> RQ 4: How do professional actors (journalists, politicians and experts) interact with each other and how do these professionals communicate with private citizens?
> RQ 5: What role, if any, does gender play in these networks?

3.1.3   *Topics and relations to mass media.* A complete picture of a political Twittersphere requires one to know not only who the leading figures are and how they interact, but also which topics preoccupy the whole sphere. Clarifying this larger context may provide concrete insights into the relationship between Twitter and mass media, especially how their agendas and topics influence one another. Consequently, the last research questions are as follows:

> RQ 6: Which issues are discussed within the Austrian political Twittersphere and to what extent?
> RQ 7: Which users are important for particular topics? Are those the same users central to the overall political Twittersphere?
> RQ 8: What is the relationship between topics discussed on Twitter and those featured in newspapers?

3.2   *Research design*

Every act of communication illuminates not only the relationships between humans but also the role that technology plays in uniting them (Knorr-Cetina 1991; Latour 1991, 2005). Therefore, on the web every hyperlink, every thread, every tag or bot is a digital actor that in some small way shapes the environment 'formerly known as the virtual' (Woolgar 2002). This is also true for Twitter, whose technology and users form an open, dockable actor–network created by the actions of human and non-human participants. With

methods employing digital tools, one can study 'culture and society with the Internet' (Rogers 2009, p. 29). How exactly participants co-create this reality can best be discovered using the web's own means. Therefore, we developed special methods to answers our questions.

Twitter's open API, its simply structured social network of non-reciprocal connections and the limited length of its content have made it a focus of research, but until now this research has lacked a standardized approach. While research trends have emerged in the six years since Twitter's launch, every project generates an exploration of methodology.

The methodology employed in this study is influenced by the approach of researchers from Queensland University of Technology who focused on analysing and visualizing account networks around popular Hashtags (Bruns 2011; Bruns & Burgess 2011; Highfield *et al.* 2011). Assuming that '@-mentions' indicated interactions between users and that the count of received '@-mentions' indicated the influence of an actor, they mapped the relative influence of accounts within topical Twitterspheres. Moreover, their visualizations distilled clear phases in the overall discussion, linked these developments to specific users, showed the response of the overall 'hashtag communities' to new participants or new information and highlighted the effect mainstream media reports had on Twitter discussions.

3.2.1   *Data collection.* Instead of only collecting tweets with hashtags, we chose a multi-phase, user-centred approach that addresses two problems of hashtag-based research. The first problem is that most tweets do not contain hashtags; the second is that users often communicate about a range of topics that cannot be represented by single hashtags (Hughes & Palen 2009; Maireder 2010).

Our first goal was to identify the users most actively tweeting about Austrian politics and to compose a list of unique Austrian political keywords, such as political party abbreviations, names of prominent national politicians and words representing current political discussions. In July and August 2011, we collected all tweets that used these keywords, linked these tweets to 1,657 user accounts and retrieved public meta-data about their profiles. Technical restrictions related to Twitter's API forced us to narrow this user base, and to that end, we decided only to include accounts that (a) had more than 100 followers, (b) had 'hit' at least two political keywords or hashtags with their tweets and (c) were listed at least once by others. Spammers, retweeters with no original content and non-Austrian residents were manually removed. This selection procedure resulted in a list of 374 users, who were assumed to play different roles in Austria's political Twittersphere.

For the next phase of our data collection, we used a self-built Twitter tracker to record every tweet sent by these users or addressing them between October 2011 and January 2012.[1] For each month, we chose a sample and analysed tweets

from seven consecutive days during which at least one significant political event had occurred. This selection process left us with 145,356 tweets. To contrast the content of the Twittersphere with that of traditional sources, we collected all articles relating to national politics published in Austria's six largest newspapers during the sample weeks.

3.2.2   *Data coding.* By looking at the public profile data (name, picture and description), we coded the gender of the 374 users and then categorized them as either (1) politicians, (2) journalists, (3) experts or (4) citizens (we summarize categories 1−3 as 'professional actors'). The categorization was conducted by all authors independently, and disagreements were later resolved.

Table 1 presents the definition of each category.

After categorizing the users, we manually classified each of the 145,356 tweets in our sample as relating to one of 16 predefined political topics. The topic list included subjects such as 'education', 'corruption', 'social media in politics', 'collective bargaining' and 'other national politics'. If the tweets did not fit into these categories, they were classified as 'not domestic politics'. We approached the 1,375 articles from daily newspapers in the same way, labelling them as pertaining to one of the 16 topics or as 'non-political'. The coding was conducted by three undergraduate students with specific instructions. An inter-coder reliability test based on 2,136 tweets revealed an average pairwise percentage agreement of 91.8 per cent and a Krippendorff's alpha of 0.712, which we considered sufficient considering the explorative nature of the study.

3.2.3   *Data analysis.* The different types of data we gathered – including Twitter user data, topic-assigned tweets with meta-data, hand-coded articles – allowed us to perform several analyses which provided insights into how the Twittersphere interacts with both national politics and mass media.

TABLE 1 Definitions of the user categories used for annotation.

- Politicians (pink in the figures): Active or former representatives of the people on any level/ members of political parties/employees of political parties or mandatories
- Journalists (green): Professional communicators, who research national politics on behalf of a publishing house and publish their findings through mass media
- Experts (yellow): Political actors who are neither politicians nor journalists but are professionally occupied with politics, for example, political consultants, lobbyists, NGOs, activists, political scientists, etc.
- Citizens (blue): Users who are not professionally active in politics but express political opinions or comment on events. Includes, for example, non-domestic political journalists, social media consultants, bloggers, etc.

For our analyses we used different tools and software. The data preparation was handled with Javascript, while the quantitive analyses were performed with Excel and SPSS. To render the networks, we used the open source software Gephi and its layout algorithm 'Force Atlas'.

4.   Results

The results presented here refer to the research questions from Section 3.1. In Section 1, we go into detail about the political actors in Austria, their characteristics and tweeting habits; Section 2 covers their networks and interdependencies, while Section 3 explores the agenda on Twitter compared with mass media.

4.1   *Political actors and usage structure*

4.1.1   *Dominant greens and gender inequality.*   In the phase of data collection, we identified and categorized 374 political core users who tweeted regularly about Austrian domestic politics. Of the 374 users, 69 were politicians, 83 were journalists and 28 acted as experts or professional activists. Around half (194) of the users were citizens without any professional political affiliations.

Among the politicians we identified, there was both a left-wing majority and an overrepresentation of small parties compared with their share of the Austrian parliament. Thirty-one of these users were affiliates of the Green Party, and 17 indicated a connection to the Social Democratic Party in their Twitter profile information. In contrast, members of the conservative and right-wing parties accounted for only 15 users. Six politicians belonged to other parties. The dominance of the Green Party was somewhat unsurprising given its progressive Internet and technology adoption policy. Vergeer *et al.*'s (2011) study of the Twitter accounts of politicians running for the European Parliament in 2009 also found that the progressive parties were the most active users, whereas conservatives were largely absent. Interestingly, this is not the case in the United States where Republican Members of Congress have been and continue to be more likely to tweet than Democrats (Glassman *et al.* 2010; Tweet Congress 2012).

In addition to these trends, Austria's political Twittersphere seems to be a 'real name' environment with 86 per cent of the core political users using a first name and surname that could not be identified as pseudonyms.

Finally, an immense gender gap stood out as well: among the 374 users, 268 could be coded as male and only 68 as female. The other 38 accounts were either institutional or the gender was not identifiable.

4.1.2   *Intense interaction: broadcasting during the day, chatting at night.*   Our results clearly indicate that the 374 political core users do not use Twitter as a

one-way broadcasting tool. They interact with each other intensely, addressing and retweeting, and thereby referring to the tweets and accounts of others. In fact, 68.5 per cent of the 87,466 tweets by the core users contained at least one link to another Twitter user. Among experts, lobbyists and professional activists, 74 per cent of all tweets mentioned others. We also noticed that there were intense conversations and discussions within the Twittersphere as well as a strong positive correlation ($r = 0.78$) between (active) addressing and (passive) mentions. In other words, the more often a user addressed others, the more often this user was mentioned by others. On the contrary, the number of followers had little influence ($r = 0.48$) on the number of mentions by others. What these findings indicate is that nobody played an influential role in conversations only by accumulating followers; taking initiative and addressing others was key.

Figure 1 illustrates the fact that many Twitter conversations happened during the evening and night: between 5 pm and 1 am, direct addressing ((@-replies) were the most common type of tweet. From this we deduced that during these times people tended to chat through Twitter and reply to posts that they had missed during the day. Between 8 am and 5 pm retweets were the most common tweet type with a peak around noon. These observations support the claim that daytime Twitter use functioned primarily as a channel for broadcasting and forwarding news. Journalists were the primary beneficiaries of these daytime broadcasts, as their tweets were retweeted more often than any other groups'.
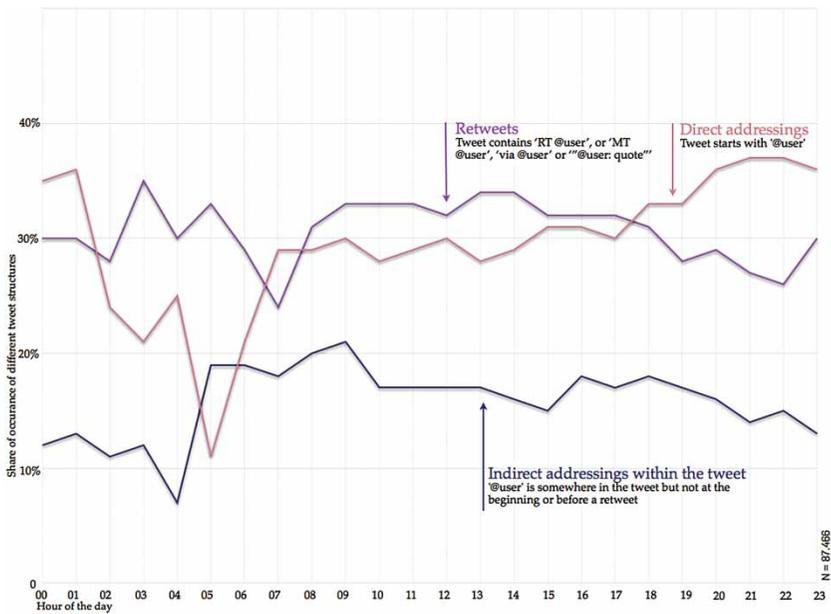
FIGURE 1   Share of retweets, direct and indirect addressings over an average Twitter day.

To determine how many different users each actor interacted with, we calculated the ratio of 'mentions' to 'users mentioned'. For politicians and journalists, this ratio was very close to 2 which meant that 100 mentions came from 50 different users. In contrast, the ratio for citizens was 3.18, or 100 mentions coming from 31 different users. Stated plainly, this means that citizens talk to fewer users than political professionals which is unsurprising given the public role of the latter.

Figure 2 shows how the different groups communicated among themselves and with other groups. Journalists were the most self-referential group among professionals: 19.5 per cent of their addressed tweets were directed to other journalists, while only 4.0 per cent and 4.8 per cent went to experts and politicians, respectively. On the other side, 13.8 per cent of all tweets addressed by politicians were directed to journalists. However, politicians were only slightly less self-referential: 17.4 per cent of their tweets went to other politicians. All professional groups seemed to be open to conversations with people from outside the political system, as indicated by the high percentages of addressings directed towards citizens or users outside the network. While only 10.3 per cent of the tweets directed by citizens were addressed to politicians, journalists or experts, this represented substantial interaction, as citizens accounted for more than half of all users studied. The relationships between the different groups become even more evident in the following network analysis.
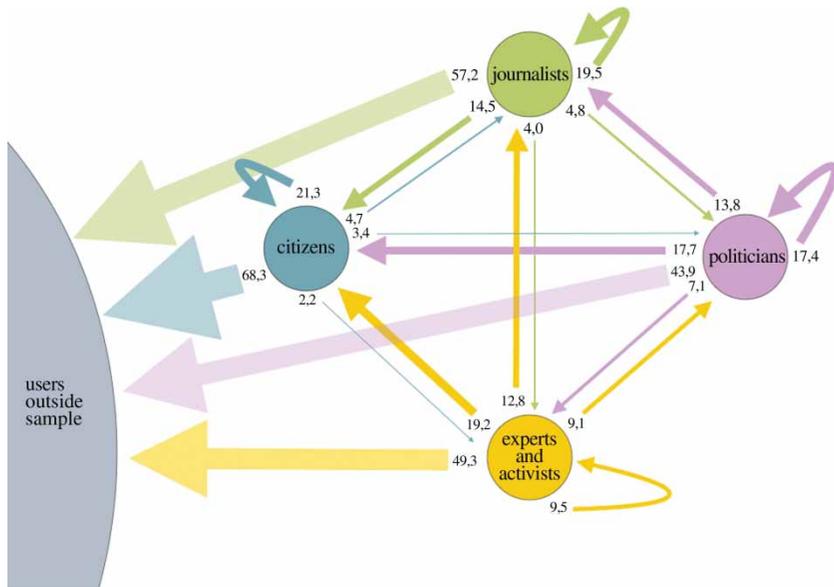

FIGURE 2 User groups mentioning themselves and others as a percentage of overall group mentions.

4.2   *Networks within the Twittersphere*

4.2.1   *Subnetworks within the Twittersphere.* The second set of research questions concerned the authority and influence of individuals as well as the network's openness to participation. These questions were designed to identify important actors and the subnetworks in which they were embedded. As we have clarified, on Twitter the number of followers of a particular user does not always correlate to this user's influence. A better criterion for determining influence is how intensely people are addressed. Therefore, the basis of our exploration of authority on Twitter was addressings by other users. That said, it must be noted that these addressings have very different functions, including (a) directly addressing another user (the tweet starts with '@name'), (b) quoting a tweet of another user ('RT @user', or 'MT @user', 'via @user' or '"@user: quoted text"') or (c) mentioning someone in a tweet ('@name' within the text). However, we did not distinguish between these different mention-types in our network analysis as all of them indicate the relevance of a user to a particular discourse or conversation.

Figure 3 shows the interaction of network of users who were addressed by at least 10 different users. Users, or the nodes of the network, are represented by dots. Mentions are represented by edges, colour is determined by the addressor and the thickness of any line indicates the number of mentions sent. The more often users mentioned each other, the closer they appear in the visualization. Proximity and distance are approximations, as 'Force Atlas', the algorithm we
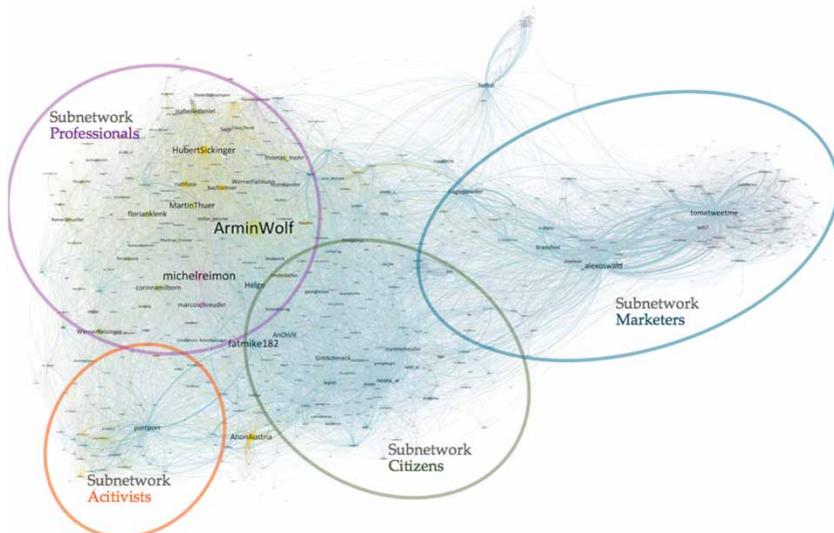
FIGURE 3   The Austrian political Twittersphere. Network of 374 users and other users mentioning them: 882 nodes and 24,384 edges.

used, clusters the edges by relative distance but is unable to provide precise metrics. The size of the nodes represents the number of mentions a user received, or the 'in-degree'. The larger the circle, the more often a user was mentioned by others. The colour of the nodes shows our classification in terms of profession. Politicians are pink, journalists are green, experts are yellow and citizens are blue.

The network analysis places the traditional political actors in the upper-left quadrant. Journalists (@MartinThuer, @isabelledaniel, @florianklenk and @thomas_mohr), political strategists and experts (@bachleitner, @rudifussi and @HubertSickinger) and politicians (@stefan_petzner and @Svejk) are the users most often mentioned by professional actors, but they play a less central role when their connection to users outside the professional cluster are considered. Within the network, the users @ArminWolf (journalist) and @michelreimon (politician) are densely connected to both political and non-political actors. This is also true for @marcoschreuder (politician), @corinna-milborn (journalist) and @helge, a famous political blogger. They represent 'bridges' between the discussion networks of political professionals and citizens.

Other users form partly independent clusters. One of these networks can be identified in the right corner of the network visualization and consists of people primarily concerned with marketing. Users @_alexoswald and @tometweetme are professional marketers at the centre of their own clusters and are connected largely to people outside of the initial 374 users. Anonymous user @porrporr is central in a small subnetwork in the lower-left corner of the visualization that consists of political activists and leftist, politically active students. Journalists @corinnamilborn and @WernerReisinger connect these users to the political professionals. The large subnetwork in the lower-central part of the visualization is mostly formed by citizens who interact heavily among themselves. Users @fatmike182, @helge, @AnChVIE and a few others connect this subnetwork to political professionals.

In summary, Figure 4 shows that the interaction network of professionals (politicians, journalists, experts, strategists and lobbyists) is distinguishable from a greater network that includes non-professional, but politically interested citizens. Many of the politicians, journalists and experts are oriented towards each other, thereby forming a dense networked sphere of professionals. Few professionals are equally or more engaged with non-professional citizens. On the other side, only those few citizens who actively engage professionals manage to participate in their subnetwork.

4.2.2 *No female but male networks.* Colouring the nodes and edges according to gender reveals that women are massively underrepresented, as the analysis of the core user structure (268 men, 68 women) already indicated. Although several networks of men can be identified, no noteworthy women's network exists in Austria's political Twittersphere. It appears that women only play
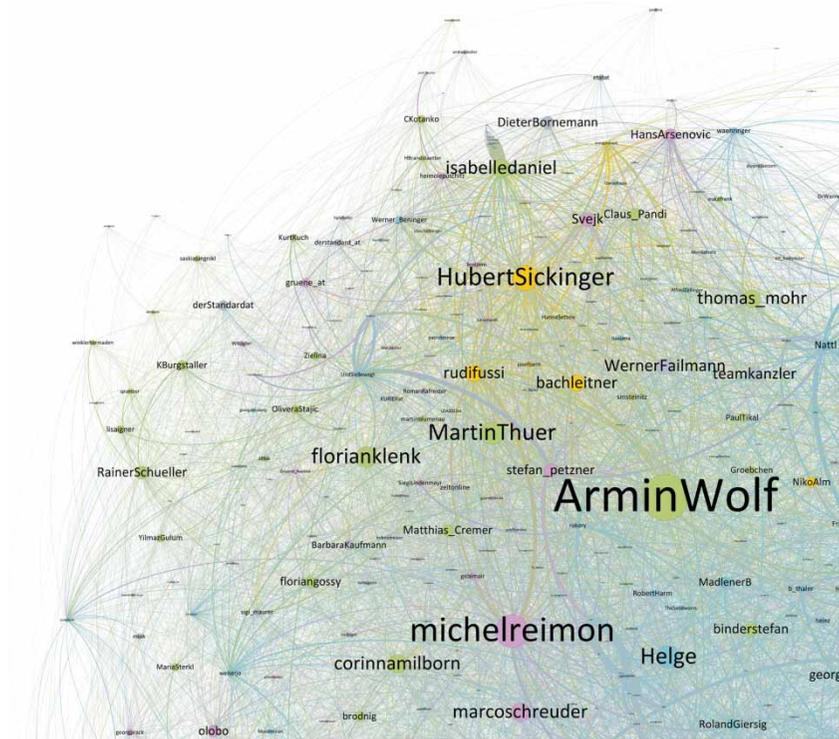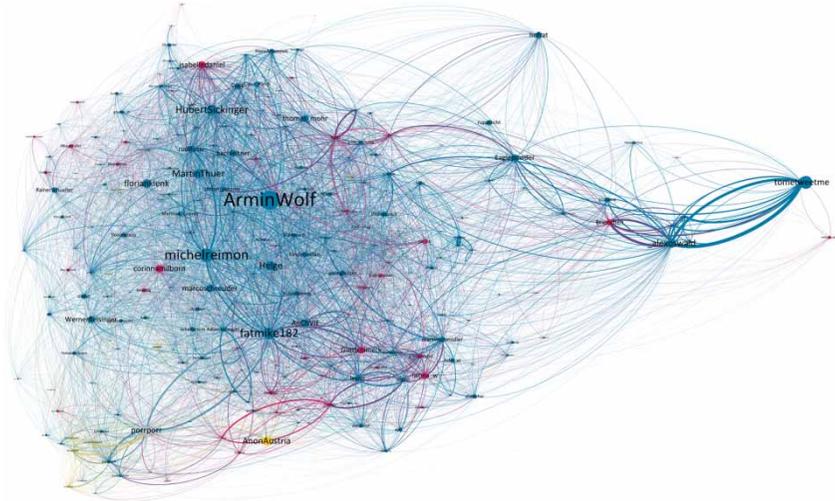
FIGURE 4   Detail from the Austrian political Twittersphere: the political professionals.

more prominent roles in the subnetworks composed mainly of citizens and early Twitter adopters. Among the professionals, the only females that stand out are the journalists @corinnamilborn and @isabelledaniel. The dense network core is dominated by male users (Figure 5). Similar results have also been found in other studies (Heil & Piskorski 2009; Naaman *et al.* 2010). In the Austrian Twittersphere both women and men address men more often than women.

4.3   *Topics and relations to mass media*

4.3.1   *Chitchat and politics.*   Topics which enjoy prominence in mass media or domestic politics are not necessarily important topics on Twitter. In addition, the 145,356 tweets that were recorded during the sample weeks concerned politics to differing extents. For example, in sample week three only 13.4 per cent of all 28,618 tweets were related to domestic politics. One month later, not only were there far more tweets (47,207), but they were also considerably more political (26.5 per cent). On average 18.9 per cent of all 145,356 tweets concerned national politics.
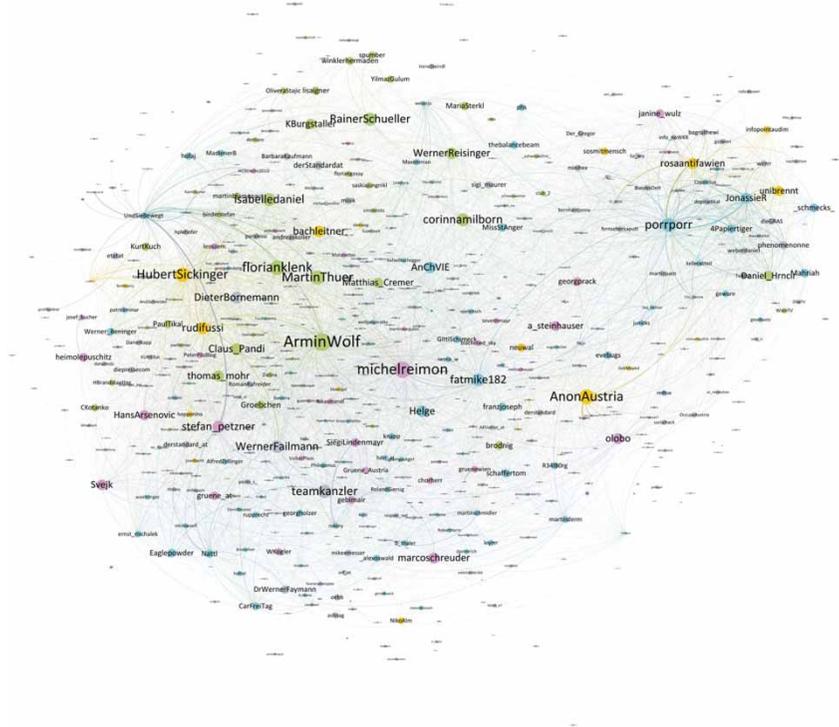
FIGURE 5   The Austrian political Twittersphere coloured according to gender (men in blue and women in red): 374 nodes and 8,545 edges.

The network analysis based only on political tweets brought further insights (Figure 6). Central to these was the fact that citizens played more minor roles in a discourse dominated by political professionals in general and by journalists in particular. There are still identifiable subnetworks, but the dense distinguishable subnetwork of political professionals has vanished and been replaced by a looser network of citizens and (mainly green) politicians and by a network of journalists and experts. The subnetwork of left activists still exists, but the cluster of marketers has disappeared. The central role of the journalist @ArminWolf and the politician @michelreimon remains apparent. To sum up: If the topic is politics, the clearest interactions occur between citizens and politicians on the one hand and journalists and experts on the other. This result is remarkable as it demonstrates that the political Twittersphere is not just an echo chamber of a political elite, but a conversation that can be joined by outsiders.

4.3.2   *Issue networks and relations to mass media.*   The issue networks derived from the tweet classifications revealed that private citizens, especially bloggers, emerged alongside journalists and political pundits as central information hubs and connectors to subnetworks concerning specific topics. We call these actors 'niche authorities' (Figure 7).

The visualization above shows all users who tweeted about a ball organized by right-wing student fraternities in Austria. In 2012, the ball evoked considerable media coverage and protests from the political left because it took place on Holocaust Remembrance Day and gathered international right-wing extremists.
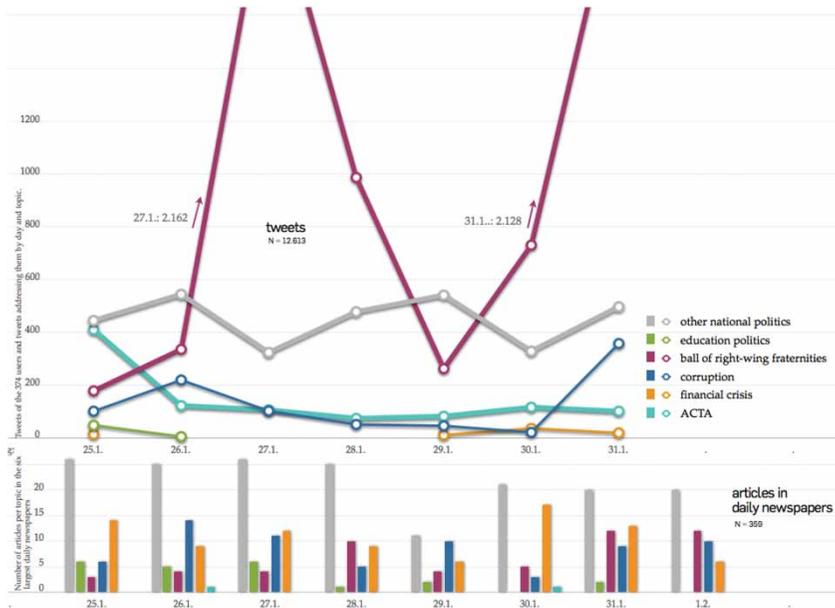
FIGURE 6   Network of the Austrian political Twittersphere based only on tweets about domestic politics. Network of 374 users and other users mentioning them: 620 nodes and 7,869 edges.

In the network the size of the nodes is calculated differently: the more tweets about the ball a user sent, the larger this user appears in the network. What stands out is that citizens, rather than politicians or journalists, set the agenda on this topic. Most journalists and politicians are located in the central right part of the network and play a marginal role. The citizens who stand out belong to the subnetwork of political activists on the left (Figure 3). Right-wing activists do not exist on this map. The left used Twitter for political campaigning in several ways as Figure 8 indicates.

This timeline tracking topics during the week of the ball demonstrates not only the different functions of Twitter in political communication but also its relation to mass media. In the days before the ball Twitter was mostly used to attract attention to the controversial ball and to engage people to protest against the event. On the day of the ball (27 January), protestors used Twitter both to coordinate their actions and to keep groups updated of new developments until long after midnight. On the evening of the 29th an investigative report about the ball went online and was spread through Twitter. On 31 January @arminwolf, the television anchor of

FIGURE 7   Network of users who tweeted about the ball of right-wing fraternities in Austria: 423 nodes and 1,692 edges.

the national public service broadcaster and most addressed user of the political Twittersphere (Section 4.1), conducted a live interview about the ball during the late night news. The interview was strongly cited, commented and disputed on Twitter. Within a few hours, we collected nearly as many tweets on the topic as we had on the day of the ball.

Figure 8 also shows other domestic political issues mentioned on Twitter and in newspapers during the same week. The ratio between the two different channels indicates that the agenda on Twitter differs from the agenda of political newspapers and television broadcasts. One criterion for the dominance of a political topic on Twitter is the topic's affinity to media or technology. For instance, ACTA, a multinational treaty for intellectual property rights, was much more debated on Twitter than in the traditional media, where it was almost non-existent. In another week

FIGURE 8   Tweets and daily newspaper articles per day and topic between 25 January and 31 January/1 February 2012.

included in our study, the (failed) social media strategy of the Austrian chancellor was the most tweeted issue, something the news media hardly reported on.

Another criterion for a topic's success on Twitter seems to be a short news life cycle. While topics such as the financial crisis were massively represented in the newspapers and on TV, hardly anyone tweeted about such topics on Twitter. A similar phenomenon could be observed with the ongoing coverage of corruption-related investigations, about which only a few users bothered to tweet. Short-living topics such as the aforementioned ball of the right-wing fraternities and the squatting of an abandoned house and the forced eviction of its 'residents' were popular topics on Twitter. A further explanation of why these topics are more popular on Twitter than in mass media is that activists use the service not only to discuss but also to facilitate their activities.

5.   Conclusion

In this article, we have presented a number of insights concerning both how national politics are discussed on Twitter and how participants in those conversations are networked within its public sphere. Our multiphase, user-centred approach allowed us to both avoid the problems inherent to many hashtag-based studies and to reliably identify important topics and political actors on

Twitter. The method we developed is well-suited to the exploration of issue-centred publics, and we look forward to its further refinement.

Manually assigning 374 user profiles, 145,356 tweets and 1,375 newspaper articles to different categories and analysing the data resulted in a broad range of findings that indicates certain structural changes in the nature of political partici-pation, namely that politicians, journalists, experts and, to a lesser extent, citizens interact intensely with one another through Twitter in Austria. In general, their tweeting practices conform to the pattern of 'broadcast by day, chat by night', and with every act of communication they update their connections to others.

A good part of professional users forms a highly connected but distinguished subnetwork in which only a few participants branch out to connect with citizens. Other subnetworks, noticeably those of left-wing activists and a social media/mar-keting cluster, are also distinguishable from the rest of the network. In our network visualizations, all type of addressings on Twitter (@-replies, @-mentions and retweets) were used to calculate influence. One could argue that not differentiating between different types of addressings helps conversation-oriented accounts (as @-replies happen more often than retweets). While this is true, this effect may be balanced by the fact that users who provide original and relevant content also get retweeted and credited more often. As a result, not distinguishing between different forms of addressings is a practicable way to determine the influ-ence of actors embedded in a Twitter network.

In general, famous journalists, experts and politicians are central actors within the Austrian political Twittersphere and form their own, dense and influ-ential subnetwork within the broader sphere. Non-professionals may participate in this network, provided that they engage receptive members of the elite who act as 'bridges' between subnetworks. However, when the discussion involves certain topics, niche authorities emerge, and these authorities – including a few left-wing activists and bloggers – join other political professionals as central information hubs.

Concerning the Twittersphere's agenda in relation to mass media, our research identified different ways in which the service is used, especially with regards to political events. In these instances, people used the service to report new developments, maintain communication, coordinate action, and react to the broadcasts and publications of traditional media outlets. In many tweets these different functions coincide.

As to why there is such an uneven allocation of influence between men and women within the political Twittersphere, we can only speculate: does this trend simply mirror men's stronger representation in traditional politics – only 28.4 per cent of Austrian MPs are female[2] – or do other unique factors lead to this disparity? While it is tempting to hypothesize, answers to these questions require further research.

It seems reasonable to conclude that as a medium of political communi-cation, Twitter is another arena for already established actors. However, our

results clearly show that Twitter facilitates links between the political centre and the citizenry, giving 'ordinary' citizens more chances to engage in the political discourse. Whether citizens feel they are more involved in politics and how this engagement affects the political or editorial processes is still an open question. More channels of communication may be necessary to develop a more inclusive public sphere but are not sufficient in and of themselves. We look forward to further research that analyses how Twitter is used in the everyday life of citizens, politicians and journalists and – over a longer term – shapes political and editorial decision-making.

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Notes

1   The self-built Twitter tracker is available as open source: https://github.com/axkibe/twaaaj.
2   Calculation of the authors based on the database on Austrian MPs provided by the Austrian parliament at http://www.parlamanet.gv.at.

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