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RESEARCH ARTICLE

THE LAST WILL BE THE FIRST
A study of European Issue Publics on Twitter

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ABSTRACT: This article analyzes topics of European relevance on Twitter. It does so by examining *#schengen* and *#ttip* Twitter hashtags as a case study. The purpose of this article is to detect which accounts are most important in terms of the number of ties received, and whether they are elite or non-elite actors. This is done by calculating the in-degree and out-degree scores of nodes involved in the networks generated by the usage of the two hashtags. The research reveals that it is easier for civil society and citizens to enjoy an important level of attention similar to that of the media, institutions and politicians on topics of European relevance. The outcomes of this research are important when it comes to understanding how a digital platform such as Twitter contributes to bottom-up conversations about relevant European topics. What we learn here about the structure and configuration of these networks helps us obtaining a more fine-grained understanding of new forms of communication and interaction used by citizens, and their implications for the emergence of a European Public Sphere.

KEYWORDS: Twitter, network analysis, issue publics, Schengen, TTIP, Europe

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1. Introduction

The Internet and more specifically social media have become a space where citizens, activists, politicians, news organizations and institutions from across the globe can communicate and engage in dialogue about issues that interest them. The Internet offers virtually unlimited platforms, sources of information and network opportunities. Different theories have emerged that try to explain this new relationship between the actors present in the public sphere (Benkler 2006; Bennett and Segerberg 2013; Chadwick 2013). These theories argue that digital media technologies such as social media have the potential to constitute bottom-up and grounded public spheres as they are less dominated by mass media and institutions, and citizens' involvement in public debate becomes more spontaneous than ever before. The capability to overcome the domination of political and media actors of traditional communication flows is due to the capacity of digital platforms to transmit information and to enable public input, thus facilitating greater citizen and civil society engagement.

Amongst all the digital communication tools we can find online, Twitter has received particular attention because of the specific characteristics of its networks. A microblog such as Twitter is considered the ultimate expression of online asymmetric interaction based on the exchange of user-generated content. Despite the extensive results of research conducted on Twitter in different countries and on different topics, very little research is focused on the European context. The European angle remains relatively uncharted, and this omission is problematic especially given the increasing gap between European institutions and citizens (Morganti and Bekemans 2012).

In this article, I research political European issue publics that can be found inside the European political Twittersphere in order to see whether more grassroots and less elite actors, which differ from political ones and the mass media, have space and visibility within conversations that unfold online. The purpose is to discover whether Twitter networks of European topics contribute to bottom-up conversations where non-elite individuals interact and are fully engaged.

The article is divided into two parts. In the first part, I present network public theories and why previous research has chosen Twitter as the platform to test these theories. The article continues with the current debate on European topics online and their contribution to a European Public Sphere. I then introduce the research questions on the European context and the case study on which empirical analysis is based - two different hashtags on European topics – i.e., #*schengen* and #*ttip*. In the second part, I introduce the data and the analytical methods adopted, followed by the illustration of results. I conclude by discussing the results of the analysis in relation to three aspects.

First, I comment on European issue publics on Twitter. Second, I compare results obtained from the analysis of the two hashtags. Finally, I discuss results in relation to their importance for a more general discussion on the European Public Sphere.

2. Issue publics from bottom-up

In the last decade, we have seen the emergence of different theories about the changing roles of actors as well as on the impacts of new technologies that have emerged onto the public sphere. These theories have two points in common. First, they argue that Internet technologies have opened up new and previously unimaginable possibilities of communication thanks to the usability, interoperability of digital communication tools and the possibility to produce and circulate user-generated content. Second, because of these opportunities, different types of actors have more visibility and importance in new digital channels than in the past (Benkler 2006; Bennett and Segerberg 2013; Chadwick 2013).

Benkler (2006) was one of the first to capture this change in the public sphere. He theorizes that contrary to the "classic" public sphere, dominated by the mass media and political institutions, an "online networked public sphere" provides room for other actors, including NGOs, think tanks, and single individuals to express and take part in the discussion. Benkler argues that the decentralised individual action facilitated by digital tools allows a more democratic and participatory form of political communication than before. Thus, the structure of the online networked public spheres is unique insofar as pieces of information are pushed and pulled between shared spaces and may travel "upward" from smaller to larger publics. In essence, networked platforms allow anyone to be a media outlet (boyd 2011).

Since Benkler's initial elaboration, the networked public sphere theory has evolved, particularly as a consequence of the diffusion of social media and other digital communication tools. Furthermore, other theories have been developed, complementing the explanation of the distinct roles played by mass media, politicians and civil society in these new forms of online communication. Bennet and Segerberg (2013) have shown that established actors are still central to political debates, but that less conventional voices can now also make themselves heard and sometimes heavily interact with traditional centers of attention. As online content can be posted quite easily without the interference from gate-keeping journalists, it is more difficult for authorities to contain the free expression of citizens' opinions and needs. All this can "empower" those who have always wanted to engage in public debate but were previously marginalized par-

ticularly by traditional media thus yielding to the consolidation of a connective action logic underneath online interactions (Bennett and Segerberg 2013). This distributive connective action forms a complex and powerful alternative public sphere that serves as an arena for communicating, organizing and connecting a wide range of actors and organizations. These collectives can vary greatly in focus, scope and stability and range from publics emerging around specific events (Ausserhofer and Maireder 2013), political developments (Tumasjan et al. 2010) and fan communities (Larsson and Moe 2012).

While the Internet offers manifold communication tools, Twitter has often been considered the ultimate expression of online interaction based on the exchange of user-generated content (Bruns and Burgess 2015). With its unique interaction system, Twitter is a perfect platform to study a characteristic sociotechnical type of networked public (Bossetta 2018). First, interactions made by users under a hashtag shape Twitter networks as issue publics that entertain conversations and ground communities (Gruzd, Wellman, and Takhteyev 2011). Moreover, these hashtagged conversations themselves form networks of topics or sphericules (Bruns and Highfield 2016). At the intersections between topics, hashtags and networks of topics a Twittersphere is formed. Twitterspheres can emerge in relation to the most disparate topics, from cooking, to fashion, to politics. When it comes to the discussion of European topics, such as Brexit, Schengen, the European Elections or the European Commission, a European political Twittersphere emerges that gathers Twitter users and their interaction habits around topics of European relevance. Second, the inherent structure of Twitter is unique compared to other social media platforms, with its asymmetric principle of "following" users without mandatory reciprocity (Golder and Macy 2015). Third, the degree of transnationalization of Twitter communications and the open interactivity among its users make the platform an ideal public arena with, in principle, no restrictions (Dutceac, Bossetta, and Trenz 2016).

Nevertheless, despite the potential for allowing the participation of individual users and alternative voices, concerns have arisen about the impact of automated accounts, especially on Twitter. Bots are small computer programs with increasingly complex and sophisticated algorithms that automatically perform tasks such as the publication of tweets, replies and following other accounts. They can influence the dissemination of information, or the interruption of online conversations (Michael 2017; Howard, Kollanyi, and Woolley 2016). There are numerous scientific studies that point in this direction and not only try to measure the quantity of bots on Twitter (Wojcik et al. 2018; Moon 2017), but also their impact. For instance, a research on how social media are used to give voice to actors traditionally excluded from public discussions raised some

concerns about how political bots are negatively affecting democracy and political communication (Tucker et al. 2017).

3. The debate of European topics on Twitter

Many scholars and political actors have insisted on the importance of a European Public Sphere as a contribution to the democratic quality of the European Union (Risse 2015; Bennett, Lang, and Seberberg 2015). One of the reasons underpinning the proverbial distance between European Union institutions and European citizens has been attributed to a communication gap: the lack of a common and public space where the European *demos* is able to talk about common concerns regarding European affairs (Splichal 2006; Sicakkan 2016; Kaitatzi-Whitlock 2007).

There is no agreement as to whether the European Public Sphere exists or not (Trenz and Michailidou 2014; Risse 2015; Koopmans and Statham 2010). Extant studies have adopted different research designs to explore the domain of European political communication thus revealing the sophistication and complexity of such research task. Despite the uneven and fragmented character of research in this area, observers consistently underline that the inclusive participation of citizens in European affairs is the only way to generate a genuine European Public Sphere. In this respect, it has been argued that interaction within Europe-related debates enables lay citizens to discuss and engage with European issues of common concern.

With the diffusion of the Internet, researchers have also begun to investigate whether online there is already a different, more participated, interaction in public discussions than in the past (Gil De Zuñiga, Puig-I-Abril, and Rojas 2009). Increasing attention is thus being paid to the opportunities generated by the Internet enabling political organizations to engage with the public (Anduiza Perea 2012). Results produced in this respect suggest that the Internet, and the communication tools citizens and users have within their reach, can help increase or enhance interactions on European issues that are relevant for everybody (Bennett 2012).

For the purpose of this article, I consider Twitter, as a platform where citizens can inform themselves about EU issues and communicate about them in a participatory way. For this reason, I investigate empirically whether online conversations on European issues are still dominated by elite actors, such as mass media and political institutions, or whether other actors have a greater presence and prominence. Indeed, the extent to which online discussions on EU topics host different actors that acquire different levels

of prominence is important for the European project as well as for the consolidation of a more democratic and participated public sphere.

The choice of studying Twitter as a platform where political interactions can develop lays in the path marked by a vast amount of research that has been carried out within different disciplines. One growing field of study is the study of communities and topics of discussion inside Twitter. For instance, Bruns and Burgess have mapped and explored Twitter networks of different Australian national elections *(#ausvotes*) (Bruns and Burgess 2011). Mappings of specific Twitter communities discussing specific topics, such as the Digital Humanities research community, have also been conducted (Grandjean and Mauro 2016). In the U.S., similar studies have been carried out exploring *#sopa* and *#pipa* topic networks (Benkler et al. 2015). Furthermore, the Russian Twittersphere has also been a target of analysis (Kelly et al. 2012). Indeed, different academic disciplines have explored Twitter in order to shed light on the potential of these networks to overcome the traditional structure of political conversations (Bruns, Burgess, and Highfield 2014; González-Bailón 2014; Grandjean and Mauro 2016; Mejova, Macy, and Weber 2015; Weller et al. 2013). As it has been shown, indeed, Twitter networks can be inclusive of multiple publics and connect seemingly disparate actors in a political debate (Ausserhofer and Maireder 2013).

However, there is a striking shortage of empirical studies addressing the European level and context. Twitter-based studies considering Europe have been conducted but only at the national levels or with reference to specific national topics. For instance, observers have engaged in studying the Austrian Twitter public sphere (Ausserhofer and Maireder 2013), or the German discussion of *#aufschrei* (outcry) (Maireder and Schlögl 2014) and the Norwegian Twittersphere (Bruns and Enli 2018). Conversely, only few studies have addressed questions of the European Twittersphere transcending from the national lens. Exceptions in this respect are provided by the study of Twitter follower/followee networks of the 2014 European Elections (Maireder et al. 2014), or of how the circulation fo the hashtag *#austerity* makes national public spheres Europeanized (Hänska and Bauchowitz 2018; Barisione and Ceron 2017). However, compared to other regions, or even topics, very little research has been conducted in Europe.

Against this background, the question on whether the European Political Twittersphere is more open to the meaningful participation of non-elite, civil society and individual users remains an open one. With the aim of contributing to overcome this situation, this article will explore whether Twitter enables the creation of a bottom-up networked public sphere when it comes to the discussion of European political issues, enhancing visibility of non-elite actors. To this aim, I implement and adjust the methodology already used in previous research on Twitter issue publics to study the Euro-

pean context making a systematic use of network analysis to trace online conversations around European topics. Given the relative scarcity of similar analyses, I take an explorative approach and examine Twitter networks on European political topics with the aim of highlighting who are the actors that occupy more central positions within online discussions and to elaborate on the participatory nature of the European political Twittersphere.

4. #Schengen and #TTIP: two cases of European issue publics on Twitter

In order to answer my research question, two issue publics have been selected that develop around two Twitter hashtags referring to the European context. First, the hashtag *#schengen*, which relates to the Schengen agreement, a treaty that led to the creation of Europe's internal borderless space, the Schengen Area, thus allowing citizens to cross borders without checkpoints (European Commission 2016). Second, the hashtag *#ttip*, which refers to the Transatlantic Trade and Investment Partnership between the European Union and the United States of America (European Commission 2017a). Since TTIP negotiations started in 2013, the trade agreement has had alternate stages of advancement and stagnation until the election of Donald Trump when it was discarded altogether. Before that moment, the TTIP has been highly contested in national and European campaigns (Caiani and Graziano 2018).

These hashtags were selected because they are of European relevance and used in different countries. On the one hand, both have European relevance because issues such as mobility within the EU space or trade agreements not only affect their daily lives, but also because they are regulated at the European level and need to be then implemented at the national level. Second, the two hashtags are used in different countries by different national publics at the same time. Moreover, the two hashtags can also be used by institutions, organizations or politicians, and are not officially backed or sponsored, as it happens in the case for other hashtags such as *#Eurovision* for the Eurovision Song Contest, or *#ep2019* for the European Elections in 2019. In this sense, they are used by any organization, institution or individual willing to refer her tweets to the specific topic, sometimes together with other hashtags such as *#stopttip*.

Moreover, the inclusion of both hashtags in the analysis allows for comparison. Indeed, online conversations around hashtags *#schengen* and *#ttip* may have fundamental differences since one unfolds around a political issue (Schengen), and the other around a topic of a more economic nature (TTIP). Thus, it becomes interesting to compare the way in which the two issue publics are developed and organized around two

completely different topics that are nonetheless of European nature, to see whether any common patterns or relevant differences emerge.

5. Data and Methodology

To collect data necessary to trace online conversations around the two hashtags I used Twitter's Streaming API (Application Programming Interface) and the software TCAT (Twitter Capture and Analysis Toolkit) (Borra and Rieder 2014). Collected data cover a period that goes from August 2016 to the end of April 2017. During this period, all Tweets containing "Schengen" and "TTIP" were collected regardless of the language in which they were written.[1]

From all collected tweets, those published within three time snapshots, August 2016, December 2016, and April 2017 were extracted. The three months were chosen so to leave a three-month period between one snapshot and another and to make it possible to compare conversations developing in "random" periods separated by regular intervals. Overall, I created three different datasets for #*schengen*, and three different datasets for #*TTIP*. Table 1 presents the data samples and contains the total number of Tweets in each period, and the distinct active users that tweeted using one of the two hashtags.

Table 1. Characteristics of the two Issue publics of European relevance developed around #schengen and #ttip

Hashtag	*1 August to 31 August*		*1 December to 31 December*		*1 April to 30 April*	
	Tweets	Users	Tweets	Users	Tweets	Users
#schengen	17,869	12,862	65,237	37,385	27,941	18,371
#ttip	151,715	69,389	32,773	17,359	17,163	9,514

Source: Author's elaboration

Several types of networks can be built from Twitter data. For the purpose of this investigation, I created networks consisting of mentions and retweets because the structure of this specific kind of network is indicative of actual interactions users have amongst them. Thus, if one user mentions or retweets another user by their username,

[1] An estimation of the amount of non-captured Tweets due to the reach of rate limit imposed by the Twitter API shows that during the period of data gathering, some Tweets were missing. However, the number of missed Tweets only accounts for around 1% of the total.

including retweets (RT), a directed link is created. The more often one user mentions another, the stronger the link between them.

Table 2 presents the number of nodes (Twitter users) and edges (mentions to others and retweets) that constitute each network. It is worth noticing that the number of users in Table 1 and the number of nodes in Table 2 is not the same. The difference between these numbers corresponds to the users who tweeted using any of the two hashtags, yet without mentioning or retweeting any other user. Given that the focus of this article is on interactions, these isolated Twitter accounts were eliminated from the network.

Table 2. Network characteristics

Hashtag	*1 August to 31 August*		*1 December to 31 December*		*1 April to 30 April*	
	Nodes	Edges	Nodes	Edges	Nodes	Edges
#schengen	12,079	17,487	36,762	67,556	18,644	28,864
#ttip	60,663	135,142	18,413	31,094	10,120	19,614

Source: Author's elaboration

Indegree centrality

In order to shed light on the numbers of retweets and mentions received by users participating in the conversations around the two hashtags, I calculated indegree centrality, which stands for the number of incoming ties held by every node in a network (Prell 2012). Ultimately, indegree centrality indicates how "important" a Twitter user is for others in the network.[2]

After calculating indegree centrality for all nodes in the two conversations around *#schengen* and *#ttip* hashtags, I focused on the first 200 for each snapshot, i.e., those most mentioned and/or retweeted, to study more in details who are the actors that participants in our networks recognized as more important or worth retweeting. Indeed, after the first 200 nodes, the differences in the indegree score of nodes in our networks is minimal. Therefore, by looking at the first 200 nodes ranked by indegree I

[2] Six tables have been created for each dataset with the two hashtags containing the first 200 nodes in each snapshot ranked by in-degree. They include an anonymized ID code, indegree and outdegree score, as well as the probability score of the account being a bot. Tables are available in an online repository at the following URL http:// www.github.com/jaruizso.

was able to capture those that were recognized by others in the network as important, influencers or role players.

Outdegree centrality

The study of indegree centrality was then complemented by that of outdegree centrality. This latter calculates the outgoing ties of a node. In the context of the Twitter networks around *#schengen* and *#ttip*, outdegree stands for the number of retweets and mentions sent to other users. Thus, outdegree centrality indicates how active a Twitter user is in establishing ties with others in the network. Considering outdegree scores, I was able to see whether nodes receiving more ties from others (i.e., nodes with higher in-degree) are also active within the conversations or merely passive accounts with very little interaction with the rest of participants.

Type of actor

In order to verify whether Twitter users with highest in-degree are politicians, institutions, mass media or civil society and individual citizens, most prominent nodes in were classified into different groups. By looking at the results of this classification, I could elaborate on whether Twitter allows individual users and civil society to by-pass the dominance of institutions and mass media as rulers of online debates and influencers.

Although there have been various attempts to classify Twitter accounts into different actor types (see for instance Dutceac Segesten and Bossetta 2016; Lotan et al. 2011; Pavan 2017; Barisione, Michailidou, and Airoldi 2017), for the purpose of this article I chose to manually classify users in four groups based on the description field of their Twitter account. If the account represents a local, regional, national, international or transnational public office, political party, politician, or political institution, it is coded as Group 1. If the account is from media industry or journalists, it is coded as Group 2. If the account is from a think tank, NGO, association, company or social movement, it is coded as Group 3. Finally, if the account description points towards an independent blogger or account without any kind of manifest affiliation, it is coded as Group 4. Table 3 presents the results of this grouping. Groups 1 and 2 represent actors who traditionally play a leading role and exerted power in the public sphere: politicians, political institutions and mass media. Groups 3 and 4 represent instead actors with a sec-

ondary role or mere listeners. Following Andrew Chadwick's approach, Groups 1 and 2 gather elite actors, while groups 3 and 4 hold together non-elite actors.[3]

Table 3. Categorization scheme to distinguish types of most central actors

Group	*Nature*	*Description*
1	Politician, politics	- National politician or political institution, EU politician or institution, public office, political party, etc.
2	Media & Communications	- Media industry, newspapers, professionals in journalism and/or communications related, news source etc.
3	Civil society	- NGOs, think tanks, associations, companies, celebrities etc.
4	Citizen	- Individual user level, including independent bloggers, experts, etc.

Source: Author's elaboration

Bots

Once that network nodes have been ranked by in-degree, and the first 200 accounts have been categorized by actor group, I verified whether these Twitter accounts were "real" accounts managed by humans or bots. The identification of bots is pursued to analyze whether the European context shows similarities or differences in terms of quantity and impacts of automated accounts with cases dealt within previous research on different regions or topics. A higher number of "non-real" accounts amongst the most mentioned ones would thus point towards a successful manipulation of the conversation.

To spot bots, I used the *BotOrNot* API developed by the Observatory on Social Media from Indiana University (Davis et al. 2016). The algorithm calculates a score that ranges from 0 to 100 for each account that is based on different indicators – particularly, the number of tweets, the date of the last tweet, ratio of followers, etc. The higher the score, the higher the probability that an account is a bot. This scoring method is not perfect, but it is an effective way to determine whether or not a given user account is likely to be fraudulent. For the purpose of this article, I consider account scoring over 65% as having a high probability of being a bot.

[3] With regard to Group 3 and Group 4, it is worth specifying the reasons why I decided to keep them separated even if citizens and individual users are part of civil society. In light of recent reflections on the retrenched role of formal organizations for political participation processes (e.g., Earl and Kimport 2011), I decided to keep them separated to identify more accurately the nature of individual users, and their possible influence as *solo* Twitter accounts.

6. Results

Tables 4 and 5 introduce the results for the classification of the most mentioned and retweeted accounts for both hashtags. The first row in each table reports the overall number of Twitter accounts per group, while the second row shows the sum per elite actors (Groups 1 and 2) versus non-elite actors (Groups 3 and 4). To enable comparison, the third row shows the percentage for each of the four groups and, in the fourth row, the percentage of elite actors and non-elite actors is given. Finally, the last row in the tables shows the number of potential bots.

In Table 4, for the *#schengen* hashtag, we observe that non-elite actors (Groups 3 and 4) represent most of most mentioned and retweeted accounts. Within each snapshot, their percentage goes from 53.5% in the network for April 2017 to the 57.5% for August 2016. Moreover, thirteen bots were identified for #*schengen*. Figure 1 gives us the aggregate number of accounts for the three periods. As it shows, 345 accounts over the 600 most mentioned and retweeted (57.5%) are non-elite actors.

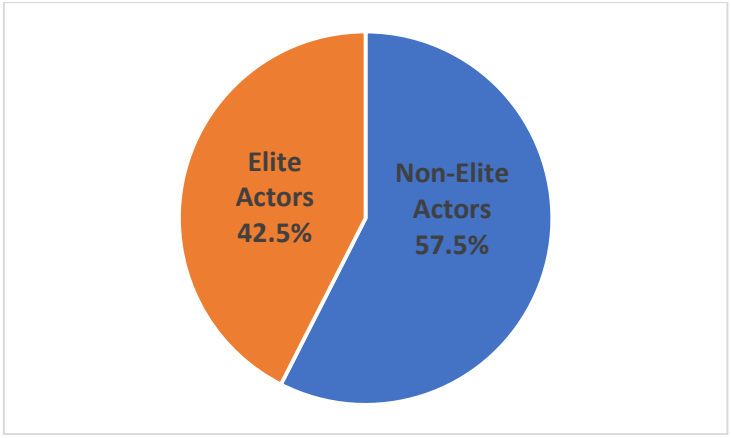
Table 4. Categorization of most central nodes for #schengen

	Group 1	*Group 2*	*Group 3*	*Group 4*	*Total*
August 2016					
Number of Twitter accounts	50	35	18	97	200
Elite vs. non-elite actors	85		115		200
Percentage	25%	17.5%	9%	48.5%	100%
Percentage elite vs. non-elite actors	42.5%		57.5%		100%
Bots	3 (1.5%)				-
December 2016					
Number of Twitter accounts	42	35	12	111	200
Classic vs. new actors	77		123		200
Percentage	21%	17.5%	6%	55.5%	100%
Percentage elite vs. non-elite actors	38.5%		61.5%		100%
Bots	6(3%)				-
August 2017					
Number of Twitter accounts	51	42	20	87	200
Amount of elite vs non-elite actors	93		107		200

Percentage	25.5%	21%	10%	43.5%	100%
Percentage elite vs. non-elite actors	46.5%		53.5%		100%
Bots	4(2%)				-

Source: Author's elaboration

Figure 1. Elite actors vs. non-elite actors for *#schengen* (N=600)



Source: Author's elaboration

In Table 5, for the #*TTIP* hashtag, results are similar to those for #*schengen*: there is a majority of non-elite actors in the three time periods as they range from 50.5% in August 2016 to 64.5% in April 2017. However, the number of potential bots is lower than that in the #*schengen* network as only five accounts were classified as bots. In Figure 2, the aggregate number of accounts in the two elite and non-elite categories shows that in the #*ttip* conversation there is a slightly higher number of accounts classified as non-elite actors (60%) compared to #*schengen*. Across the three periods, indeed, a total of 358 out of 600 are non-elite actors.

In order to verify that these results do not respond to the structural configuration of the network, a random sample for each dataset was taken and analysed.[4] This random sample verifies that the results in Tables 4 and 5 correspond to bottom-up interactions and not to the proportional configuration of the respective network. In this case, a random selection of 200 nodes for each hashtag was taken, and then classified by actor

[4] An additional robustness check was performed by calculating the mean of indegree scores plus a standard deviation. With mean of indegree plus a standard deviation threshold, the percentage results are very similar to the distribution by group of the random sample.

type following the same manual coding as for the first 200 with highest in-degree score.

Table 6 presents the results of the classification of nodes in the random sample for each hashtag. As it shows, results are very similar for both hashtags, with over 87% (175 accounts out of 200) representing Group 4, i.e., individual accounts. In addition, the number of potential bots increases to 9.5% for #*schengen* and to 10.5% for #*ttip*, with 19 and 23 accounts respectively.

Table 5. Categorization of most central nodes for #ttip

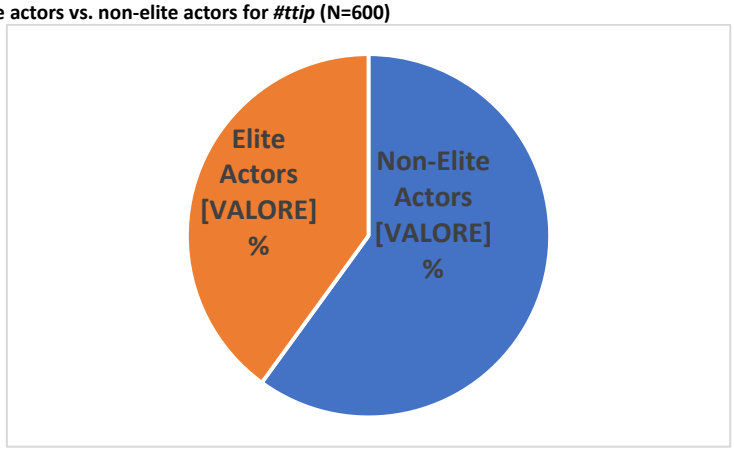
	Group 1	*Group 2*	*Group 3*	*Group 4*	*Total*
August 2016					
Number of Twitter Accounts	44	55	44	57	200
Elite vs. non-elite actors	99		101		200
Percentage	22%	27.5%	22%	28.5%	100%
Percentage elite vs. non-elite actors	49.5%		50.5%		100%
Bots	2(1%)				-
December 2016					
Number of Twitter accounts	52	20	47	81	200
Classic vs. new actors	72		128		200
Percentage	26%	10%	23.5%	40.5%	100%
Percentage elite vs.non-elite actors	36%		64%		100%
Bots	1(0.5%)				-
April 2017					
Number of Twitter accounts	45	26	58	71	200
Elite vs non-elite actors	71		129		200
Percentage	22.5%	13%	29%	35.5%	100%
Percentage elite vs. non-elite actors	35.5%		64.5%		100%
Bots	2(1%)				-

Source: Author's elaboration

What is captured by the random samples confirms that the results in Tables 4 and 5 are genuine and valid. The random samples reveal the natural distribution by groups of the entire network, with Group 4 being the largest. If the results in the random sample were similar to those in Tables 4 and 5, it would mean that the random sample and the

in-degree ranking merely replicate the configuration of the networks. However, this is not the case. Therefore, results reflect the actual interaction of accounts based on discretional choices of participants about who are the accounts that are considered more important or worth mentioning.

Figure 2. Elite actors vs. non-elite actors for *#ttip* (N=600)



Source: Author's elaboration

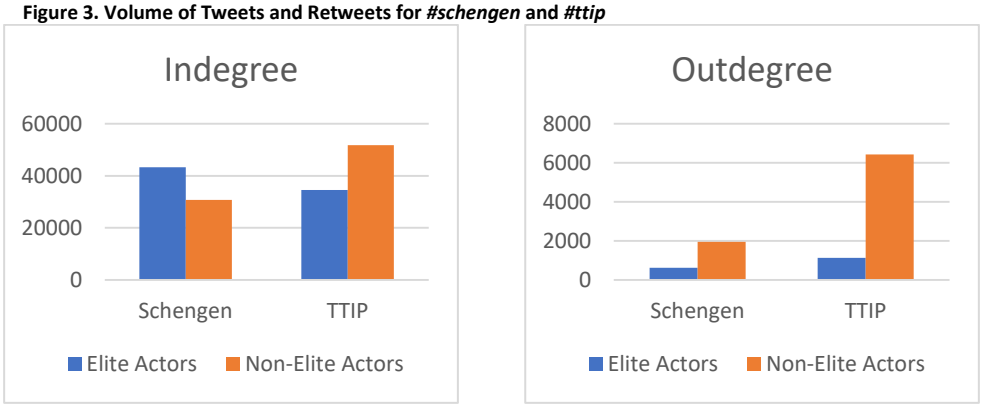
Table 6. Summary of accounts belonging to type of actor for random samples

		Group 1	*Group 2*	*Group 3*	*Group 4*	*Total*
Schengen	Number of Twitter accounts	8	7	8	177	200
	Elite va. non-elite actors	15		185		200
	Percentage	4%	3.5%	4%	88.5%	100%
	Percentage elite vs. non-Elite	7.5%		92.5%		100%
	Bots	19(9.5%)				-
TTIP	Number of Twitter accounts	9	7	10	174	200
	Classic vs. new actors	16		184		200
	Percentage	4.5%	3.5%	5%	87%	100%
	Percentage elite vs. non-elite	8%		92%		100%
	Bots	23(10.5%)				-

Source: Author's elaboration

Figure 3 summarizes the overall indegree and outdegree scores for elite and non-elite accounts in the three snapshots considered for both hashtags. The overall score was obtained by summing up the total number of ties received by each elite or non-elite group. As it shows, non-elite actors receive a greater amount of attention in the #*ttip* conversation, while elite actors are more prominent in the #*schengen* one. Moreover, in both cases, the most mentioned and retweeted accounts are not very active, as shown by the overall outdegree scores. In general, therefore, these results suggest that most influential actors barely interacted with others in the network. Also, in both cases, accounts that have higher out-degree scores, that is, nodes that start more interactions, are from Groups 3 and 4 – hence, from the civil society, including individual citizens. Nonetheless, their out-degree score is very low compared to their in-degree score.

Figure 3. Volume of Tweets and Retweets for *#schengen* and *#ttip*



Source: Author's elaboration

7. Discussion

The calculated metrics and classification of accounts by actor groups presented above allow us to reconstruct the *#schengen* and *#ttip* issue publics on Twitter and, in this way, to elaborate on the type of interactions that users develop on Twitter while discussing European topics. In what follows, I read the results illustrated in the previous section to shed light on three different and yet interrelated aspects. First, I comment on European issue publics on Twitter. Second, I compare results obtained from the analysis of #schengen and #ttip. Finally, I discuss results in relation to their importance for a more general discussion on the European public sphere.

In response to the research question in this empirical study, the *#schengen* and *#ttip* Twitter networks do in fact enhance the visibility of actors who have traditionally been listeners. The in-degree metric calculated suggest a de-hierarchization of traditional gatekeepers, opening up opportunities for non-elite actors to have more visibility, and to play a key role in spreading information on European issues. The results are in line with what has already been observed in similar researches that, based on the categorization of accounts within online networks, showed the high presence of non-elite actors (Bennett, Lang, and Segerberg 2015; Bruns and Enli 2018; Benkler et al. 2015; Maireder and Schlögl 2014). Thus, results show that non-elite actors obtain attention and can become part of the set of actors that are taken as preferred interlocutors by participants in all six snapshots for both hashtags. Ultimately, non-elite actors, especially independent citizens, or individual accounts without any type of affiliation are mentioned and retweeted often and thus become alternative voices to those of traditional political and media actors.

In terms of bots, the analysis has shown that very few nodes amongst the most central ones were "non-real". However, the number of bots in the random samples is similar to that identified in previous Twitter research – which is roughly around 12% (Martinez 2017). This result has two implications. First, when it comes to the discussion of the two European issues, interactions tend to occur between "real people" than with automated accounts, despite these latter are often very effective in capturing attention and numbers of retweets (Michael 2017; Badawy, Ferrara, and Lerman 2018). Second, the lower attention given to bots shows that, in both cases, online issue publics have not been manipulated artificially. Although the number of bots in the entire networks was similar to that emerged in the study of other Twitter networks, automated accounts did not receive any particular attention in the discussion of examined European topics and, therefore, did not have a significant impact in terms of visibility and the spread of information.

The comparison between networks linked to the two hashtags reveals two main differences. The first relates to the size of the datasets (see Table 1). The size of the dataset for *#ttip* is 55% larger than that for *#schengen*. There are no technical explanations, for instance, limits on Twitter rates, that could explain the difference. It is simply that users employed the hashtag #*ttip* more frequently during the period of data collection. One of the reasons behind higher levels of discussion on TTIP is the declarations made by German official Sigmar Gabriel, Minister of Economic Affairs and Energy and Deputy to Chancellor Angela Merkel, about the failure of US–EU talks regarding the Treaty in August 2016 (Ford 2016; Guida 2016). However, both datasets are smaller in comparison to those designed starting from other hashtags or topics (Hänska and

Bauchowitz 2016; Whitehead 2015; Theocharis et al. 2015), indicating that European topics are not particularly interesting or popular across the European Twitter community.

A second difference can be observed for the total number of ties received by elite actors for *#schengen*. As shown above, while for both #*schengen* and #*ttip* non-elite actors are keener to interact with others, only in the discussion about the TTIP treaty they also managed to become a greater catalyzer of attention. Conversely, elite actors obtained more attention in the discussion about the Schengen treaty. One motivation behind this result is the highly contested nature of the TTIP treaty, which stimulated several bottom-up and civil society protest campaigns across Europe (Caiani and Graziano 2018), whereas the topics associated with *#schengen* are typically more discussed by politicians and institutions.

The results of the so-called European political Twittersphere go hand in hand with those produced by similar research conducted in other regions or countries and on other topics. Indeed, there is no remarkable difference with previous research and the results for the "European context": within Twitter networks, non-elite actors can enjoy higher visibility that in other contexts and thus have a greater chance of being seen and heard.

Ultimately, results of empirical analysis suggest that Twitter has indeed the potential to boost European conversations between different national bubbles, acting as a bridge between different national spheres and allowing the participation of individual and organizational actors who did not previously have a place in which they could be sufficiently visible. In this way, European citizens can discuss European issues of common concern and can also affect the contents that are associated with these issues, without being particularly manipulated (see the rather low presence of bots amongst most mentioned and retweeted accounts).

Nevertheless, the small size of the datasets compared to other hashtags previously researched indicates that political topics of European relevance lack in popularity and interest. This is correlated with Eurobarometer's findings and the lack of interest in European politics in general (European Commission 2013, 2017b). This is not the case for European topics that are not political, such as Eurovision.[5] The lack of interest on political issues may constitute a barrier to boosting a European dialogue, or engaging citizens in European politics. In spite of the scant interest that there may be for European issues, our networks suggest also a certain degree of cohesion in online discussions around these topics. For both hashtags, very few Tweets become invisible since at least

[5] On the day of the final in 2018 during my own data collection of Tweets using *#eurovision* hashtag, I gathered over 3 million Tweets.

91% of the collected tweets contain either a mention or a retweet. Albeit of smaller scale than in other cases, issue publics forming around European issues are formed by a niche of interested and interaction-prone users.

8. Conclusions

In this article, I presented a number of insights concerning how the hashtags *#schengen* and *#ttip* on Twitter developed in specific periods of time. The main objective was to empirically explore the theories of bottom-up networked publics in a European context. I considered Twitter as a digital platform where users can interact directly and override media and politicians/political institutions. I applied in-degree centrality in order to highlight which actors are getting more mentions and retweets, and thus more attention. The manual classification of accounts with higher scores into four different types of actors shows that civil society and individual users (non-elite actors) can receive more attention than mass media, politicians and political institutions (elite actors) but that the type of issue discussed still play a role in determining the extent to which traditional hierarchies can be overcome.

With its exploratory take, this study makes three main contributions. First, it adds to ongoing discussions on the European Public Sphere by investigating in depth part of the European political Twittersphere. Second, it shows how European Twitter's issue publics are configured, taking *#schengen* and *#ttip* Twitter networks as a case study, and contrasting them with other research on Twitter issue publics. Third, it contributes to the study of political communication using social media and big data. In this sense, this research is a tentative input to emerging studies based on larger-scale on European political communication and political participation.

The type of analysis presented here has, however, some limitations. The datasets I considered here must be taken for what they are: snapshots of communication flows between users located specific periods of time. In this sense, results could vary depending on the actual period selected. Another potential limitation pertains to the impossibility to unveil the role played by the internal algorithms of Twitter. Social media platforms are ruled by different algorithms that rank the contents that users see. Some have argued that these implemented algorithms produce echo chambers of interest, as users see more and more of what they are interested in (Dunbar et al. 2015; Gerhards and Schafer 2010; Papacharissi 2009). Thanks to these algorithms, popular content is

oftentimes emphasized, and thus a smaller number of actors are empowered, with the overall result that hierarchies are reinforced rather than overcome. However, the extent to which eco chambers threaten genuine debate in the public sphere remains a highly debated issue. Other scholars indeed stress that the multi-choice environment enabled by digital platforms makes it hard for users not to see information from "the other side" (Dubois and Blank 2018). We do not know whether the accounts receiving a higher number of interactions in the results of the analysis were favored by the platform itself. In any case, if this promotion occurred, it gave often higher visibility to accounts that were traditionally considered listeners, or which played a secondary role.

Despite these limitations, the outcomes presented are still valid as they demonstrate the interaction on European topics for a concrete period of time. Further research could explore other topics of European relevance, and an expansion of the timespan of data collection may also yield different and more complete insights. In addition, analysis on the types of interactions opens up a potential field of research, where interactions can be examined in relation to their capacity to span across different national contexts, this contributing to the emergence of a transnational European Public Sphere, as well as with regards to their contents, in order to dissect how European citizens do characterize these European topics.

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