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Influence in the Political Twittersphere

Authority and Retransmission in the 2015 and 2016 Spanish General Elections

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Abstract

Candidates, parties, media and citizens have the same ability to post tweets. For this reason, mapping the dynamics of interaction among users is essential to evaluate the processes of influence in an electoral campaign. However, characterising these aspects requires methodologies that consider the interconnections generated by users globally. The discipline of social network analysis provides the concepts of centrality and modularity, both very suitable for the context of network communication. This paper analyses the political conversation on Twitter during the 2015 and 2016 General Elections in Spain, in which four candidates with significant popularity in the electorate participated. Two corpora of 8.9M and 9.7M tweets were collected from each campaign, respectively, in order to analyse the networks of mentions and retweets. The network of mentions appears more blurred than that of retweets, allowing us to better estimate users' partisan preference. The graphs of the network of retweets show a strong internal activity within clusters, and the proximity between them reflects the ideological axis of each party.

Keywords

Introduction

Twitter is drawing more and more attention from political communication researchers. What began as a microblogging and instant messaging platform has become a space where politicians and the media communicate with the same level of access as anyone else. Moreover, because this communication is often public, we can evaluate the various processes of diffusion and influence.

Due to there being such a wide range of actors on Twitter, a mere quantitative analysis of tweets would ignore the relationships between users, who have such a strong influence on interpersonal communication processes. The discipline of social networks analysis provides us with a series of tools that allow us to better understand the interaction between a large range of actors operating on a horizontal arena. Applying this discipline to Twitter has great potential to unveil otherwise unseen user clusters. In particular, it can help identify information flow patterns between clusters and assist in mapping the political affinity of users based on whom they relate to.

To that end, we will analyse the campaigns for the Spanish General Elections held on December 20th, 2015 and June 26th, 2016 using social network analysis techniques. These elections were suitable to evaluate Twitter conversations due to the uncertainty existing among voters and in public opinion. For the first time after many years of bipartisanship, in 2015, there were four candidates who had the possibility of obtaining relevant parliamentary representation (López García and Valera Ordaz, 2017). The need to repeat the General Elections after six months because of a coalition not being agreed upon between parties added more uncertainty to the new electoral campaign. Both circumstances stimulated debate and conversation between voters, especially in the social network sphere.

In terms of the article's structure, we first explore the concept of influence and its application to Twitter users. Second, we explain the social network analysis applied to Twitter. Third, we describe the unique political situation in Spain that led to a repetition of the General Election. We subsequently state our research questions and describe the methodology employed. Finally, we present and discuss the results obtained from each campaign.

Influence on Twitter

The relevance of personal influence in political contexts was first uncovered by Lazarsfeld, Berelson and Gaudet (1944). *Opinion leaders*, in their crucial role of evaluating political issues, had a marked effect on the voting decisions made by individuals close to those leaders. The study of informal relationships in the dissemination of information in other fields confirmed the key position of such people, who were able to exert a significant level of influence (Rogers, 2003). These *influencers* stand out because of their capacity to connect with different social groups and the central position they enjoy in their network of personal ties (Katz and Lazarsfeld, 1955). In addition, their ability to persuade and being considered experts enhances their status as a

point of reference for a given topic (Gladwell, 2000). They are usually aware of their ability to influence others and stay well-informed through their consumption of media (Weimann et al., 2007). Political conversation patterns reveal a particular way in which influencers relate to other people. In face-to-face conversations, the studies led by Huckfeld and Sprague (1987, 1991) highlighted the tendency of individuals to consciously construct information networks that reflect their own political leanings.

The internet has made it easier for this kind of active individual to influence others. Drezner and Farrell (2004) noted the value of the expertise on international topics that some bloggers were supplying not only to other internet users but also to journalists and even politicians. With the spread of online communication tools, the public began to take on a more *interactive* role in the public sphere. This emerging media system combines different logics. As Chadwick (2013) has pointed out, the growing ability of some internet users to produce content and disseminate information through a network of connections requires researchers to develop methodologies capable of properly exploring this new ecosystem. Traditional actors of political communication (politicians, parties, and the media), must now deal with a wide variety of other actors who attempt to exert influence on the digital public sphere. The relevance of analysing Twitter is framed within this context.

More so in political issues than in other contexts, Twitter users tend to create *echo chambers* (Barberá et al., 2015), typically gravitating towards a selective sample of ideologically similar topics and users. However, we also see some users who play the same role as influencers in the offline world. Park (2013) studied the positive correlation between self-perceived opinion leadership of Twitter users and their involvement in political processes, in addition to other people's echoing of their ideas. Inasmuch as the dissemination of information on Twitter follows a network structure, the platform reflects the hybridity of the old and new logics in the media system and has a clear effect on the topics discussed therein. Jungherr (2014) analysed the confluence of political campaign agendas on Twitter and detected a large number of sources in the heart of the conversation. There was evidence of one component which depended on the agenda set by the media, along with another that came from the users themselves.

Twitter's horizontal communications arena places politicians, media and citizens on the same broadcasting level. The candidates' messages tend to be in line with campaign strategies but adapted to the medium's more informal style (Kruikemeier, 2014; López García et al., 2015; Vergeer and Hermans, 2013). These messages, along with the content highlighted by the media, help set the agenda on Twitter, despite the existence of other forces arising due to the medium's internal dynamics (Conway et al., 2015; Guo and Vargo, 2015). Vilares and Alonso (2016) have pointed out specific problems in the Spanish political arena, such as smaller parties' intense use of Twitter, propaganda published by bots, extremely active users and linguistic diversity.

The complexity of Twitter's communicative arena requires tools which consider users' numerous interactions. The discipline of social networks analysis provides us with the proper instruments for tackling these issues.

Social Networks Analysis

Social networks analysis helps evaluate the interdependent actions among users as a whole despite not all of them being directly linked to one another (Christakis and Fowler, 2009). Both graphs and social networks are comprised of nodes and ties. A node represents a social being, whereas the tie is an action linking two social entities to each other. The graph can be directed or undirected based on whether the ties between the nodes are one-way or bi-directional (Wasserman and Faust, 1994).

Two concepts in network analysis are particularly appropriate for Twitter: the *centrality* of a node and the *modularity* of the network. Centrality refers to the node's capacity to *influence* the dynamics of the network activity stemming from the node's location (Freeman, 1977). *Degree centrality* indicates the number of ties that a node has. In a directed network, one must distinguish between indegree and outdegree (Newman, 2010). *Eigenvector centrality* or *eigencentrality* measures the relative importance of a node with respect to its adjacent nodes. A high number means that the node is connected to other well-connected nodes (Bonacich, 1972). Eigencentrality differs from degree centrality in that the former takes the *weight of the linked node* into account.

Modularity groups the nodes into clusters based on the density of the connections. (Watts and Strogatz, 1998). This measure identifies community structures within the network and allows users who display *homophily* to be distinguished from those displaying *heterophily*. Homophily refers to the tendency to interact with people like one's self, whereas heterophily implies the tendency to interact with individuals with characteristics distinct from one's own (Rogers, 2003).

Dang-Xuan et al. (2013) analysed various measures of influence on Twitter through retweets and mentions. Dubois and Gaffney (2014) studied measures of centrality-based influence within the political conversation on Twitter to identify those users most able to influence the conversation. In Spain, Congosto (2015) used quantitative techniques and graphs to classify users according to the publication's affinity with the candidates and parties. Structural relations of interaction expose the relevant positions of centrality of those users who play an influential role both in the dissemination of political information (Dubois and Gaffney, 2014; Xu et al., 2014) and in public conversations and debates on Twitter (Congosto, 2015; Freelon and Karpf, 2014). Studying these relationships makes it possible to map the degree of homophily among all users (Barberá et al., 2015; Colleoni et al., 2014).

The discipline of social networks offers a series of potentially wonderful tools for unveiling patterns of interaction in the political arena on Twitter. This potential is even more crucial when it comes to an environment rife with uncertainty, like that of Spain in 2015-2016.

The Spanish General Elections in 2015 and 2016

Spain's political spectrum has undergone significant changes since the 2011 General Elections. The two major parties, PP (the conservative People's Party) and PSOE (the Spanish Socialist Workers' Party), were being outdone by new leaders in terms of media coverage. These upstarts would finally establish a foothold following the 2014 European Elections. The two-party system gave way to a four-party system with the rise of the parties Ciudadanos (literally *Citizens*) and Podemos (literally *We can*). The former, led by Albert Rivera, had, until the 2014 European Elections, been limited to Catalonia, whereas the latter came into being almost overnight after its leader, Pablo Iglesias, attracted a great deal of TV coverage through channelling much of the discontent towards the political class that had been simmering and which was bought together and to the surface with the 15-M movement (Domínguez and Giménez, 2014). Moreover, the use of digital media was key in shoring up the bases of this new party (Casero-Ripollés et al., 2016). Facing these two emerging political forces, the PP again chose Mariano Rajoy as its candidate for prime minister in the 2015 General Election. PSOE's candidate was Pedro Sánchez, who had been elected the party's Secretary General in the primary elections of July 2014.

The 2015 General Election campaign attracted a great deal of attention because of the uncertainty presented by the new political arena, and was widely covered by the media and extremely popular on social networks.(López García and Valera Ordaz, 2017) The result of the Election on December 20th, 2015 returned a hung Parliament. The PP lost the absolute majority it had won in 2011. In second place came PSOE. In third was Podemos and in fourth, Ciudadanos.

The talks to form a government fell through, and a new General Election was called for June 26th, 2016. The major difference in this new campaign was the coalition that Podemos formed with Izquierda Unida (*United Left*) called Unidos Podemos (*United We Can*). Survey data gave this new coalition a lead over PSOE, while predicting a fall of the PP. This situation led all parties to campaign intensively in the new electoral campaign, while the media predicted a strengthening of the radical Left (Zarzalejos, 2016). Despite this, the results of this election barely changed the distribution of Parliament. On October 29th, 2016 Mariano Rajoy was sworn in as Prime Minister against a tumultuous political backdrop.

This unprecedented situation and political spectrum which now comprised four parties with possibilities of governing after an uninterrupted bipartisan tradition, along with two general elections within six months, represented fertile ground for studying patterns of interaction between Twitter users' conversations.

Designing the Study

Research Questions

Our research aims to analyse the interactions among users to better understand the way information flowed on Twitter during the electoral campaigns for the Spanish General Elections held on December 20th, 2015 and June 26th, 2016.

During an electoral campaign, conversations revolve around parties and candidates. But in Twitter's horizontal communication space, mentions of these protagonists coexist with references to other users. Since the political conversation on Twitter tends to be homophilic (Barberá et al., 2015; Congosto, 2015), it is expected that homophily patterns will emerge around the related party from the network of mentions among those more active users. With this in mind, we propose the following question:

RQ1: What will the map between clusters of users associated with each of the main parties emerging from the Twitter conversations regarding the 2015 and 2016 electoral campaigns in Spain look like?

Within this network of mentions, it would be of great interest to explore the weight of each candidate in terms of centrality. This information would provide data regarding the prominence that each candidate has had on the entire global Twitter conversation. Thus, we pose the following research question:

RQ2: What order is established among the candidates regarding their relevance, through references received in Twitter conversations during the 2015 and 2016 electoral campaigns?

Another relevant aspect in the flow of information on Twitter worth exploring is the dissemination of information through retweets. Uncertainty in a campaign mobilises the conversation and the retransmission of messages that users want to support. Consequently, evaluating this diffusion activity will allow us to better understand the influence processes in general.

RQ3: How are retweets in the political conversation on Twitter channelled during the Spanish electoral campaigns of December 2015 and June 2016?

There have been studies that have used user's self-identification of the related party in their profile to explore ideological ascription (Guo and Vargo, 2015). It would be of great interest to be able to compare this self-identification with the identification emerging from the conversation. If we assume that the user tends to disclose content that is similar to rather than opposing their opinions, the analysis of the network of retweets seems more reliable than the network of mentions when studying partisan affinity on Twitter. Thus, we pose one last research question on this basis:

RQ4: Does users' self-positioning of support for a party through their Twitter profile correspond to the positioning emerging from their retweeting activity?

Methodology

To address RQ1 and RQ2, the modularity and centrality of the network of mentions will be analysed. In it, the nodes are users and hashtags. One tweet can imply more than one connection on the graph given that in a single tweet a user may mention multiple other users or hashtags. Moreover, the ties have a specific weight based on how many times a user mentions another user or hashtag over the course of the study. Consequently, the

network of mentions represents a *conversation network*: it reflects who is talking about whom and about what.

The measure of centrality that will be evaluated in this network is the eigenvector centrality, since the objective is to explore the degree of authority in the conversation. When a node in the network of mentions (be it a user or a hashtag) has a high eigenvector centrality, it means that it has been cited by users who, for their part, are also highly cited. In other words, users with high eigenvector centrality have an *internal authority within the network due to the mentions received* in the conversation and because of *who mentions them*.

RQ3 and RQ4 require an analysis of the modularity and centrality of the network of retweets. When we plot this interaction on a graph, a retweet takes the form of a directed tie between two nodes: the user where the tie begins, retweets the user at the end of the tie. In the resulting network, all of the nodes are users and the ties have a specific weight determined by the aggregate number of retweets between the source node and the end node over the course of the study. Therefore, a network of retweets represents a *retransmission network*: it shows who retransmits who.

The most appropriate measure in this case is the degree centrality, given that the aim is to expose information flows through the retransmission network. Because it is a directed network, in the network of retweets we distinguish between indegree and outdegree. Indegree indicates how many times tweets published by a certain node have been retweeted. This provides a *source* measurement of messages in the conversation. Outdegree, on the other hand, shows how many retweets a particular node has posted. This figure plays the role of *loudspeaker* in the retransmission of messages.

We will assume that users who belong to the cluster in which a particular party finds itself in the network of retweets prefer that party. In an electoral campaign, the party and candidate accounts are a basic reference point in the dissemination of political messages. It seems reasonable to assume that users who prefer a certain political party will *consistently* retweet the official account of the party and other ideologically similar users. Therefore, we can assume that users in the same cluster as a particular party will be politically akin to that party. In this way, a user who regularly retweets messages from various different parties or accounts outside party clusters will be assigned by the modularity analysis to a cluster that does not include any of the major parties. In this case they cannot be ascribed to a particular party.

In order to address RQ4, a self-described party preference was carried out by applying an automatic content analysis to the text in each user's individual profile. We created four dictionaries of terms, one for each political party. We established six categories to classify the profiles: one for each of the four major political parties, a 'Null' value for those users whose profiles had no text, and 'N/A' for those users whose profiles did not allow us to associate them with any one party.

Lastly, the graphs were created using Gephi (Bastian et al., 2009). This program has tools for calculating eigenvector centrality and modularity (Blondel et al., 2008).

Data Corpora

The political conversation throughout the campaigns and especially on the night of the elections was intense. In order to tackle both these periods, our corpora comprises data starting on the first day of the campaign season and ending the day after the election. Thus, the 2015 corpus captures tweets between December 4th and December 21st, 2015, and the 2016 corpus comprises tweets between June 10th and June 27th, 2016. Each period comprises 18 days. The tweets were obtained using Twitter's API. The data mining and processing of tweets were carried out using Python.

We established three criteria for filtering tweets: a pair of general terms related to the elections; the names and users of the four major political parties and the names and users of the four prime ministerial candidates. In the 2015 campaign, it was impossible to include the name of the political party Podemos as a filter element. This word works poorly in constructing a corpus through a selective extraction process because, given that it means *we can* in English, it can be used in many contexts other than political conversations. Nonetheless, in 2016, given that Podemos ran in a coalition with Izquierda Unida under the name Unidos Podemos, we were able to include these two names as filter elements.

We also filtered out messages written in languages other than Spanish. This limited the study's results, given that tweets in Spain's regional languages were excluded from the corpora.

We created two graphs from each of the two general corpus, one for the network of mentions and another for the network of retweets. The nodes with fewer edges had to be trimmed to fit the network to the processing capacity of the Gephi tool. Table 1 shows the volume of the corpus obtained in each campaign, together with the size of the networks of mentions and retweets processed.

	General corpus		Network of mentions		Network of retweets	
	Tweets	Users	Nodes	Ties	Nodes	Ties
2015	8,943,134	915,049	90,625	494,716	33,815	97,430
2016	9,796,119	1,303,003	83,787	422,908	36,096	100,427

Table 1. Size of the corpus extracted from the 2015 and 2016 campaigns, and of the networks of mentions and retweets analysed.

Results and Discussion

The 2015 Campaign

Our first objective is to determine the clusters formed from the references made through the tweets and the users who have the greatest levels of authority in the conversation. To that end, we conducted a modularity analysis and calculated the eigenvector centrality for the network of mentions.

Figure 1 represents the mentions graph. The size of the node is proportional to the eigenvector centrality value. Due to a large number of nodes, we have only labelled the biggest ones. The pineapple shape obtained indicates that there are many intersecting mentions between the clusters. The graph reflects the primary direction of the mentions: Podemos users mainly mention nodes associated with Ciudadanos and to a lesser extent those associated with PSOE; Ciudadanos users are associated with PP nodes; PP users with PSOE and Ciudadanos nodes; and PSOE users mostly mention nodes associated with Podemos.

[insert Figure 1]

Eigenvector centrality was calculated for the entire network, including hashtags. Of the users with the highest eigenvector centrality, the top eight are the four candidates and the four parties. In this group, Mariano Rajoy occupies first place, with second and third occupied by Pablo Iglesias and his party. The last two positions in this group of eight are held by Pedro Sánchez and the PSOE, respectively. There is a marked difference between this group and the rest. The reason for this is that the filter words used to comprise the corpus were precisely the candidates and the parties.

In answering RQ3, we first performed a quantitative analysis of the network of retweets. The distribution of retweets published by each user in decreasing order reveals a gap between the most active user and the rest. The former retweeted 14,064 times, equivalent to 32 retweets per hour throughout the 18-day period analysed, including resting hours. As per the above graph, the next two users each retweeted more than 6,000 times. Approximately 90 users retweeted between 2,000 and 6,000 times. The activity of all other users falls precipitously.

The modularity analysis of the network of retweets detected four major clusters, each associated with one of the four major parties. Thirty-one per cent of users are associated with the Podemos cluster, 15% with the PP, 13% with the PSOE and 12% with the Ciudadanos cluster. The fifth largest cluster detected represents 6% of all users. Thus, more than 70% of users who retweeted, used tweets posted by users belonging to the same party cluster.

Figure 2 shows the graph after the network has been reduced. In this way, we see those users most engaged in retransmission. The size of the nodes is proportional to the number of retweets received (indegree). In this Figure, we see Podemos at the forefront. In addition to having more users, the members of this party's cluster mostly retweeted one another, which becomes clear when we see that hardly any ties link to other clusters. Conversely, the users of the other clusters not only retweet users in their same cluster but

also those in the Podemos cluster. Users in the PSOE cluster retweet those in the Podemos cluster, whilst barely retweeting those in the PP and Ciudadanos clusters. Moreover, users in the PP cluster mostly retweet Ciudadanos users, some Podemos users and hardly any PSOE members at all. Finally, Ciudadanos users show a clear preference for retweeting users in the Podemos cluster.

[insert Figure 2]

The position of the parties in Figure 2 allows us to assign party preference to the four major clusters on the graph. The highest indegree values on the graph correspond to the parties. By far, the PSOE cluster contains the four most active users.

[insert Figure 3]

The analysis of self-described political preference only allows us to categorise relatively few users. Of the 33,815 accounts analysed on the network of retweets, 5% corresponded to PP, 5% to PSOE, 4% to Ciudadanos and 2% to Podemos. Fifty-eight per cent fell under the N/A category and 26% under the Null category.

When we introduce this classification in the retweets graph, we obtain Figure 3, where the colour of the nodes corresponds to self-described political preference and the size of the node indicates the level of retweeting (outdegree). Each of the four clusters contains some users with an empty profile. Such users are most common in the Podemos cluster, though the most active belong to the PSOE cluster.

The 2016 Campaign

Figure 4 shows the conversation graph. The size of the nodes corresponds with the eigenvector centrality. The clusters are still tightly distributed. The Podemos cluster largely revolves around itself and attracts mentions from the other three parties, especially Ciudadanos. We see the PSOE cluster has broken off a bit from the other three. The graph also contains a small cluster apart from the core of the conversation. It revolves around the hashtag #PP. A significant amount of the users in this cluster are associated with a brand of plastic polymers that promote their products using this hashtag.

[insert Figure 4]

Our analysis of the top users in terms of eigenvector centrality puts @PPopular, @PSOE and @Pablo_Iglesias in first, second and third place, respectively. Of the four major parties, Ciudadanos is the weakest in this respect. After eleventh place, we see a major drop-off in eigenvector centrality.

Lastly, we analysed the retransmission of messages. In this case, the highest value of retweets per user is 8,729. The next highest is fewer than 5,000. There is a plateau of eight users who retweeted more than 4,000 times. From that point, the slope is negative, with the user in 90th place falling below 2,000 retweets.

According to the 2016 retweet graph (Figure 5), the clusters of the four major parties are much more spread than in 2015. The Podemos cluster still leads, representing 34% of retweets with the PP and PSOE following, each with 12%. Ciudadanos is the smallest cluster of the bunch, with 9% of retweets. Again, the four most active users are in the PSOE cluster.

The clusters in Figure 5 appear very centred on the internal diffusion of messages. The Podemos cluster retweets external messages very little. And in contrast, user clusters from the other three parties disseminate more messages from other clusters. In the case of PSOE, its proximity to Podemos is quite clear, while its affinity towards Ciudadanos is somewhat less clear. Meanwhile, users akin to Ciudadanos retransmit many more messages coming from the PP cluster than those from the PSOE cluster. Additionally, users akin to PP tend to disseminate messages from Ciudadanos more than any other group. Finally, it is worth noting that there is a fifth group that connects only to the Podemos cluster.

Figure 5 indicates the polarity of the retransmission on Twitter. The analysis has outlined the emergence of two major groups of users, one akin to Podemos and the other to the PP. There is almost no dissemination of messages between them, and additionally, they structure the retransmission map: the Ciudadanos cluster is more *connected* with the PP cluster while the PSOE cluster is *closer* to the Podemos cluster.

[insert Figure 5]

The overall 2016 figures for self-described political preference are quite similar to those of 2015. Twenty-five per cent of users in the network of retweets have no text in their profiles. Moreover, these users are spread throughout the four clusters, as seen in Figure 6.

[insert Figure 6]

Discussion

RQ1 seeks to explore the map of references between users. Figures 1 and 4 reveal an intense interaction of mentions of users from other clusters, due to the proliferation of edges that cross the space between the clusters. It seems that the definition of similar groups is less in 2016. However, there is evidence of certain patterns of interaction.

The network of mentions graphs contribute to identifying the groups between which there is hardly any interaction. Here we see a change between the two campaigns. In 2015, there were few references between PSOE and Ciudadanos users. In contrast, in 2016 the separation of clusters occurred between Ciudadanos and the PP on one hand, and between PSOE and Podemos on the other. The graphs also show the central position of Podemos, not only because they are the largest cluster, but also because they are extremely self-referential: internal discussion capitalises on references among users, and hardly any users of other political preferences are mentioned.

RQ2 focuses on the relevance of candidates in the political conversation according to the authority granted by the set of users through mentions. The calculations made on the basis of the eigenvector centrality reveal the protagonism in the corpus of the candidates and parties over the rest of the users, both in the 2015 and 2016 campaigns. In this group, the Podemos—Pablo Iglesias couplet stands out with the most combined authority in both campaigns. In 2015, PSOE—Pedro Sánchez had the weakest position of all the candidacies, whereas in 2016 this position went to Ciudadanos—Albert Rivera. This finding is consistent with those derived from analysing the maps of interactions, in which the Podemos cluster was the most numerous and the most self-referential.

RQ3 addresses retransmission. In both corpora, 66% of the tweets are retweets. This represents a significant finding: Twitter users conceive of their social activity in the campaign season primarily as retransmitting messages.

A modularity analysis of the network of retweets reveals the tightly-knit communities revolving around the four major parties. The graphs show the evolution of dissemination between users. Thus, the closely related Podemos cluster disseminates almost no information from other parties in both campaigns. In 2016, a fifth cluster appears, one which does not belong to any of the main parties, which disseminates information from users akin to Podemos. Also in 2015, we can see smaller clusters closely linked with Podemos. An inspection of the graphs suggests that in 2016 these groups were more tightly concentrated, although it is also possible that they ended up integrating into the Podemos cluster when that party entered into a coalition with Izquierda Unida.

Users akin to the PP disseminated information primarily sourced from Ciudadanos in 2015, and in 2016 they also retweeted users linked to PSOE. Meanwhile, the opposite occurred in the PSOE cluster: in 2015, it only disseminated information from Podemos, while in 2016 it retreated much more into itself. This suggests an intensification in its internal debate, perhaps due to the possibility of Podemos overtaking it in the 2016 elections. Finally, users of Ciudadanos look much more towards users akin to the PP, both in 2015 and 2016.

Partisan self-positioning has been scarce among the users who participated in the Twitter conversations during the two campaigns. Figures 3 and 6 show that this self-positioning is quite aligned with the partisan positioning obtained through the modularity analysis of the network of retweets. Although some users that stated their position in their profile were located in clusters different to that self-positioning, the majority of the users who stated their position fell into the corresponding cluster. Thus, RQ4 can be answered in the affirmative.

In addition, this last analysis has revealed information of interest. In both campaigns, 25% of the users in the network of retweets fail to include any information in their Twitter profiles. Undoubtedly, some people may prefer not to provide personal information in their accounts, but this seems a bit illogical if that same person wants to become part of a conversation and to become renowned on Twitter. It turns out that many

of these users have a relatively low number of followers. This leads us to believe that perhaps these accounts might be automated retweeting processes. If this hypothesis proved true, we would have to reconsider the overall value of the information provided by the media based just on counting tweets (El País, 2016; Terrasa, 2015).

Conclusion

The campaigns for the Spanish General Elections in 2015 and 2016 painted a rare picture: six months went by and the four main candidates ran with significant electoral weight for the same position. Due to this unique circumstance, the social network analysis allows us to better outline the relationships in the horizontal communications platform Twitter provides. The two fundamental interactions that occur between users through tweets are references or mentions of other users and the retransmission of messages or retweets. Both actions have different repercussions in regard to conversations and the partisan affinity of users.

The two campaigns' network of mentions clusters appear less marked than the clusters exposed in the network of retweets. This difference suggests that it is easier for a user to quote another user. In both cases the result is that the two network of mentions clusters appear very interconnected. This is not the case in the two networks of retweets. Both campaigns have four very marked groups, each associated with one party, which are more obviously defined than they are in the network of mentions. This suggests that retransmission activities had a more homophilic nature than references to users. In addition, in both campaigns, the activity that most users performed was precisely that of retweeting. We can therefore confirm that this activity was significantly important for this electoral context in Twitter.

As we have seen in this research study, the partisan affinity obtained from the modularity analysis of the network of retweets has not distorted users' partisan self-identification. Certainly, the percentage of users who expressed support for a party in their profile has been small. Generally, the number of users who have posted without providing personal data in their profile has been greater.

The retweet graphs from the two campaigns indicate the central and dominant position of users akin to Podemos. This cluster was the most compact: hardly any retweets come out of it, while it attracted the attention of other clusters. These graphs also indicate the evolution of the clusters between the two campaigns. The PP cluster connects with Podemos in 2015, while in 2016 it distances itself from it, to retreat much more into itself. This suggests more internal debate and fewer references to other parties. In addition, users akin to PSOE are much closer to those akin to Podemos in both campaigns, while those of Ciudadanos retweet more to users akin to PP. This dual axis of PSOE-Podemos and PP-Ciudadanos clusters reflects the ideological axis of Spanish politics during this electoral period. We can thus state that the tendency to retweet is fundamentally homophilic, not only in terms of party affinity but also of ideological proximity.

The present study is limited because it only evaluates interaction. An assessment of the content of the tweets would enrich the estimation of partisan affinity in the Twitter conversation. Future research could analyse the content of the tweets associated with each cluster, and extend the analysis of social networks to the topics treated by each group. Including a sentiment analysis of the retransmission flow, and establishing an indicator of intensity, both internal and of the connections between the clusters, would also be of interest. Likewise, an analysis of social networks could be applied longitudinally to expose the evolution of partisan affinity in smaller temporal units. This option could more accurately model the homophilic trend of users. In this way, we would be able to better understand Twitter's unique dynamics in political communication.

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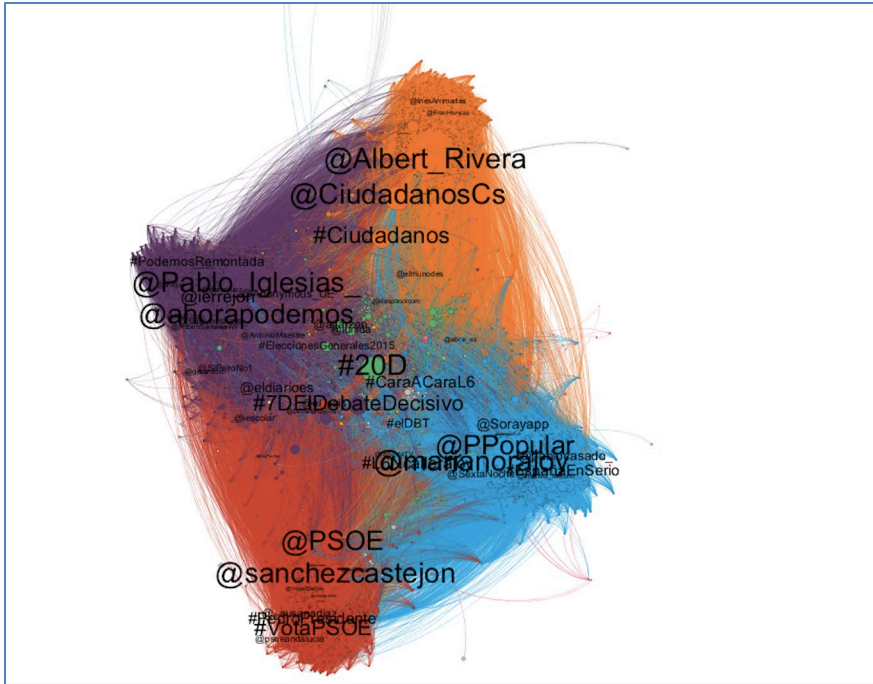
Figure 1. Network of mentions showing the users with the most authority during the 2015 campaign. The size of the nodes represents eigenvector centrality. The ties take the color of their respective source node (the mentioning user). Only the names of the largest nodes are presented.
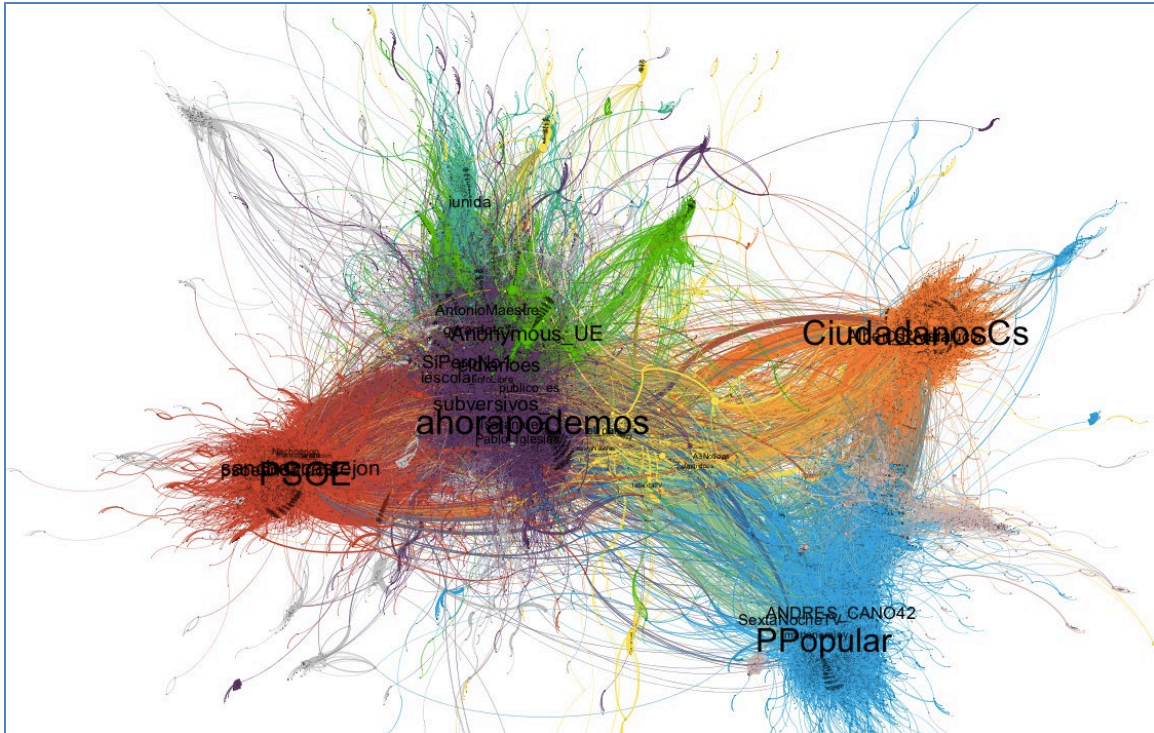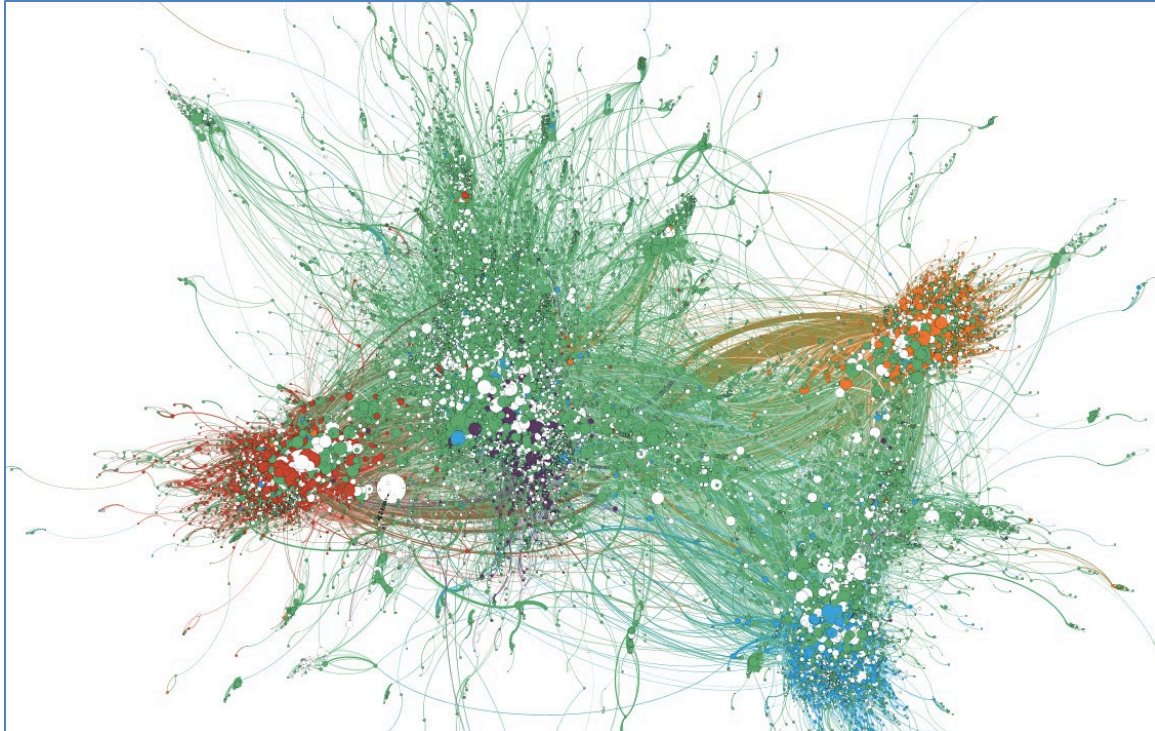
Figure 2. Network of retweets showing source users during the 2015 campaign. Node size represents indegree. The ties take the color of their respective source node (the retweeter user). Only the names of the largest nodes are presented.

Figure 3. Network of retweets showing loudspeaker users during the 2015 campaign. Node size represents outdegree. The ties take the color of their respective source node (the retweeter user). White nodes represent those users with no text in their individual profiles, whereas green nodes represent users with profiles that fail to reveal party preference.
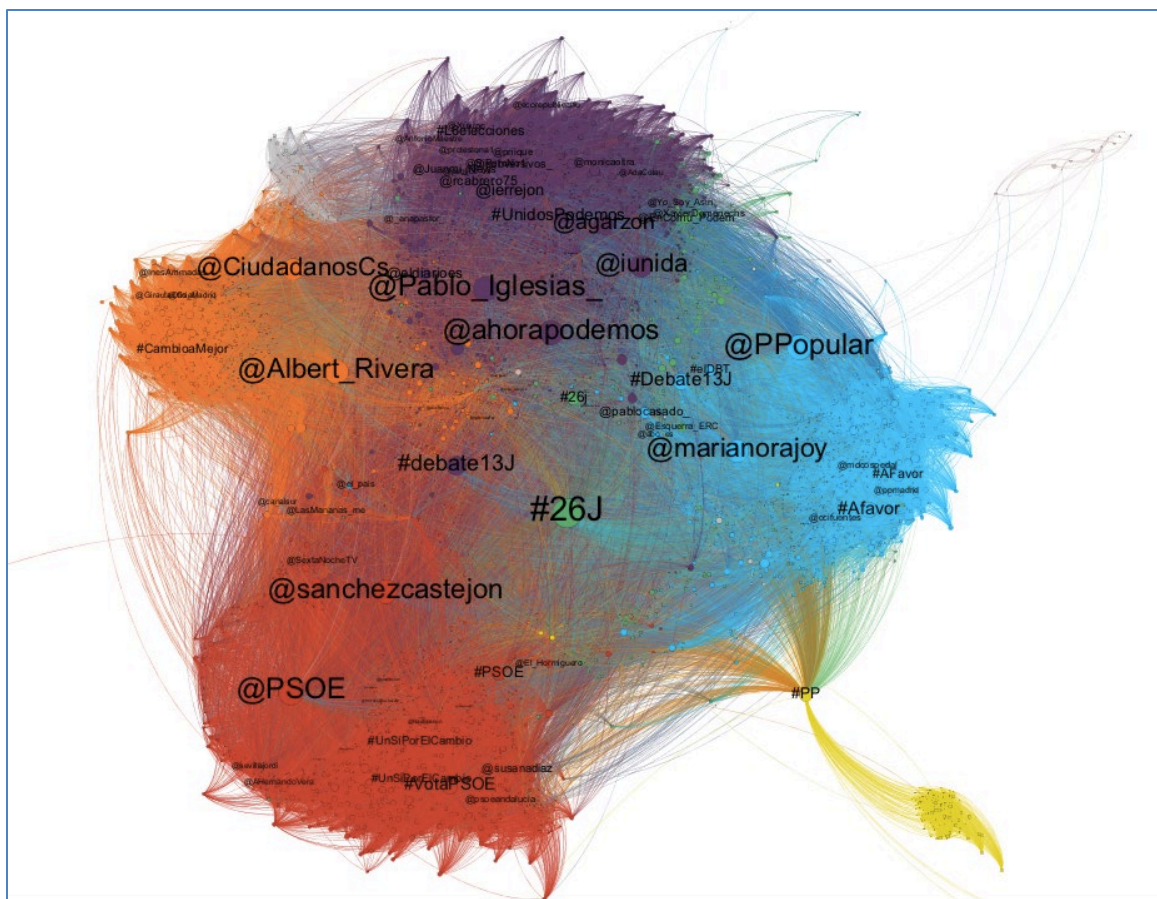
Figure 4. Networks of mentions showing the users with the most authority during the 2016 campaign. The size of the nodes represents eigenvector centrality. The ties take the color of their respective source node (the mentioning user). Only the names of the largest nodes are presented.
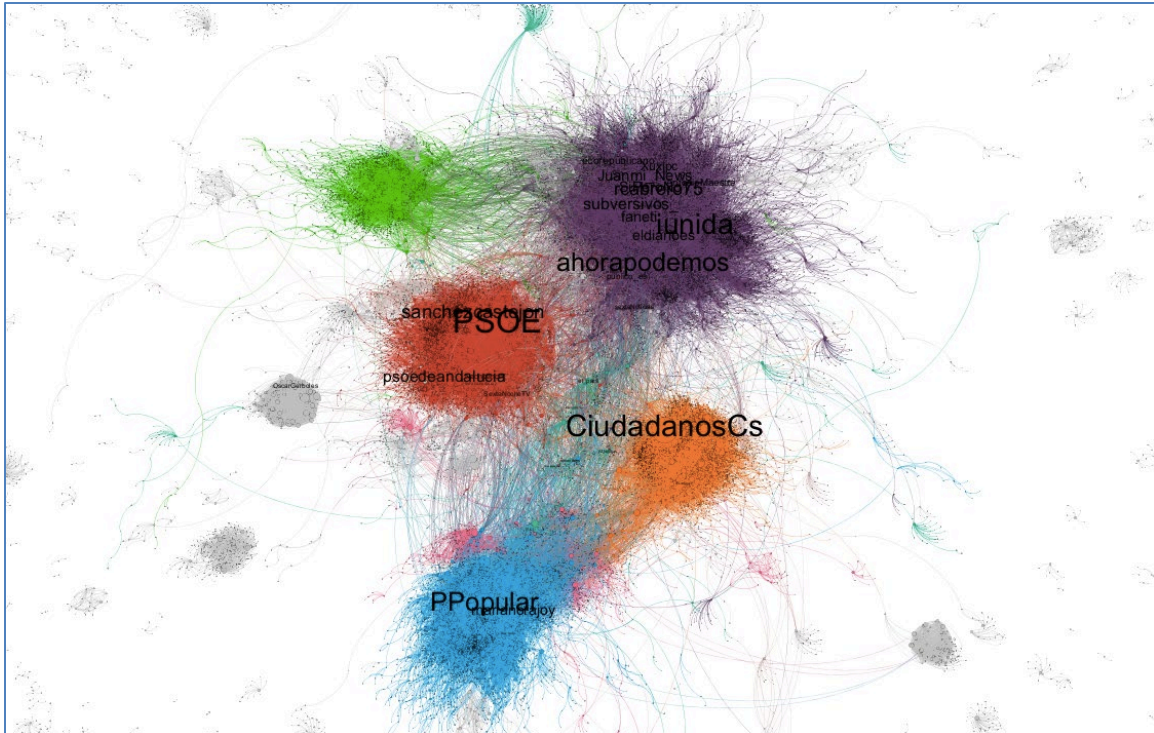
Figure 5. Network of retweets showing source users during the 2016 campaign. Node size represents indegree. The ties take the color of their respective source node (the retweeter user). Only the names of the largest nodes are presented.
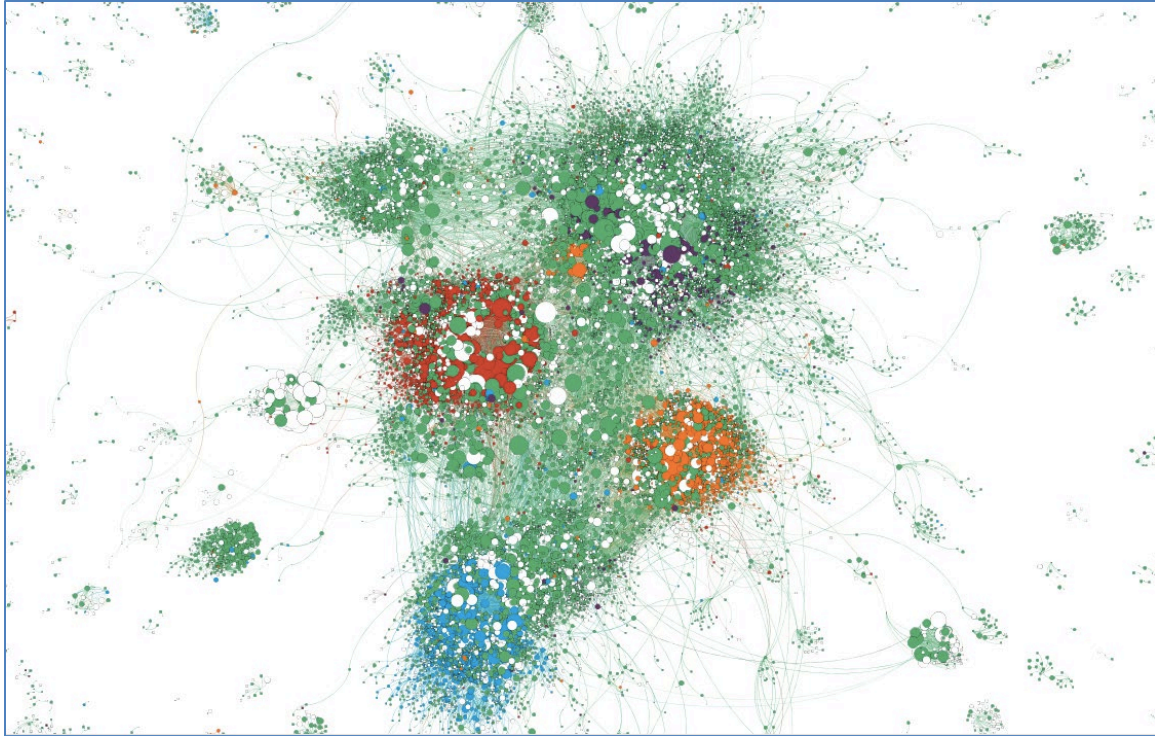
Figure 6. Network of retweets showing loudspeaker users during the 2016 campaign. Node size represents outdegree. The ties take the color of their respective source node (the retweeter user). White nodes represent those users with no text in their individual profiles, whereas green nodes represent users with profiles that fail to reveal party preference.