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Published online: 04 Feb 2020.

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Hashtag activism and the configuration of counterpublics: Dutch animal welfare debates on Twitter

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ABSTRACT

Social media platforms provide major opportunities for online activism and the emergence of digital counterpublics. Research on counterpublics has focused on actors and their narrative strategies aiming at deconstructing dominant discourses. Less attention has been paid to how the interplay between actors and platform-specific functions affects the configurations and therewith also the success of digital counterpublics. Existing studies mainly rely on determining up front which topics, actor characteristics, or arguments constitute hashtag activism and digital counterpublics. In contrast, our approach allows for an empirical identification based on how actors position themselves in an online debate toward other actors and their shared hashtags. We argue that online activism is co-constituted by actors and their usage of hashtags, actor mentions, and retweets. Applying a communicative network perspective allows for the integration of semantic and relational research traditions. We combine a recently developed automated network analysis method and content analysis to analyze two Twitter debates about animal welfare issues. Our results show that among Twitter users, citizens and environmental organizations formed a common cluster whereas media actors formed their own sub-clusters in both debates. The findings emphasize the central role of citizens for the configuration of digital counterpublics. The proposed approach can be further adapted and applied more widely for the analysis of online activism and debates.

Introduction

Recently, 'hashtag activism' has been used to describe the networks of social media messages that use a common hashtagged term with a social claim (Tombleson & Wolf, 2017; Xiong, Cho, & Boatwright, 2019; Yang, 2016). The use of shared hashtags by minorities or activist groups can be considered as a strategy toward creating and propagating counterpublics, or alternative public spheres (Fraser, 1990). With their potential to influence dominant perspectives, counterpublics can be considered an important driver for social

change (Downey & Fenton, 2003). Counterpublics can be identified by their communicative space (e.g., media type or platform), distinct discursive patterns, and participants (Toepfl & Piwoni, 2015). Following these three features, empirical research so far has mainly focused on predefined counterpublic spheres and assessed their potential to countering dominant discourses by either describing discursive patterns or analyzing networks of specific movements or organizations (Kaiser, 2017; Milioni, 2009; Wimmer, 2005). Increasingly, attention has been paid to the question of how digital counterpublics emerge and are positioned as distinct communicative spaces within broader structures of public spheres or as distinct from dominant media discourses (Choi & Cho, 2017; Piela, 2017; Toepfl & Piwoni, 2015). A number of recent studies have combined automated network analysis and manual quantitative or qualitative content analysis to explore the dynamics of meaning creation within counter-public debates (Jackson & Foucault Welles, 2016; Ogan & Varol, 2017). The present study adds to this line of research. Taking a media affordances perspective (Evans, Pearce, Vitak, & Treem, 2017), we argue that the constitutive character of hashtags in addition to @username handles and retweets decisively contributes to how digital counterpublics are configured and, consequently, also to their success to reach a wider public beyond the initial movement. Hashtags were found to raise awareness and promote discussion, thereby stimulating engagement between social movement organizations and the public (Tombleson & Wolf, 2017; Xiong et al., 2019). So far, however, little is known about the interrelationships between different platform-specific functions.

We propose a network-based approach to relate hashtag activism to the configuration of counterpublics building on a recently developed communicative network approach to analyze online debates on Twitter (Hellsten, Jacobs, & Wonneberger, 2019). This approach may complement existing modes of studying counterpublics by more strongly focusing on the role of actors and hashtags for the scope and configuration of a debate. Moreover, this allows an empirical demarcation of counterpublics based on how actors position themselves in an online debate toward other actors as well their shared hashtags.

We analyze two animal-welfare debates on Twitter in the Netherlands for a two-year period. The first debate is on over-fed chickens ('*plofkippen*') that are bred to grow fast resulting in physical problems (Wakker Dier, 2017a). The second debate is on kilo stunners *('kiloknallers'):* meat without animal welfare quality marks that is promoted for low prices (Wakker Dier, 2017b). Both debates originate from social countermarketing campaigns (Bellew, Bauman, Freeman, & Kite, 2017) and are characterized by active debates on social media and a wide range of participating actors.

Digital counterpublics

The public sphere has been described as a fragmented network of communication enabling negotiation and deliberation concerning societal issues and as such representing a vital element for democratic societies (Habermas, 1996; Papacharissi, 2002). While conflict is inherent to all public spheres, the idea of counterpublics emphasizes biases in mainstream publics due to social inequalities or power struggles and the countering of these by alternative discursive practices that critique and challenge dominant public discourses and socio-cultural norms (Downey & Fenton, 2003; Fraser, 1990). The emergence of counterpublics is thereby closely tied to civil society actors, such as non-governmental

organizations (NGOs), or in a more general sense to social movements which can involve multiple organizations and individuals (Choi & Cho, 2017; Milioni, 2009). Representatives of civil society are considered vital elements in public discourses because of their autonomous character, distance to formal decision making (Ferree, Gamson, Gerhards, & Rucht, 2002), and potential to bring marginalized groups and viewpoints to the attention of wider publics and influence dominant perspectives (Downey & Fenton, 2003). While counterpublics are by no means a novel phenomenon, a crucial potential of social media for them is their ability to engage larger publics, connect diverse elite and non-elite actor groups, and coordinate action (Bennett, 2012). Central features supporting this potential include their openness – reflected by the wealth of information and diversity of viewpoints – and accessibility – due to the absence of gate-keeping mechanisms and potential empowerment of peripheral groups (e.g., Schäfer, 2015).

A main aim of counter-public discourses is the deconstruction of dominant or mainstream discourses and the strengthening of a sense of collective identity among participants (Toepfl & Piwoni, 2015). Accordingly, the most prominent strand of empirical research assesses the potential of various communication platforms for deliberative or democratic functions of counterpublics, such as participatory online journalism (Kaiser, 2017; Toepfl & Piwoni, 2015), social media (Choi & Cho, 2017; Piela, 2017), user-generated video platforms (Milliken, Gibson, & O'Donnell, 2008), or alternative blogospheres (Riegert & Ramsay, 2013). In these studies, actors participating in counterpublics are often predefined, for example, as representatives of minority perspectives, such as climate skepticism (Kaiser, 2017) or wearing a niqab (Piela, 2017), or more generally, presenting arguments that counter mainstream discourses or identities (Toepfl & Piwoni, 2015).

While these studies have focused on representational or semantic aspects of counterpublics, other studies have followed a more relational approach. Research focused on specific organizations or social movements has assessed the discursive or democratic potential of counterpublic spheres by analyzing structural conditions, the role of individual actors (e.g., Milioni, 2009; Wimmer, 2005) or transnational advocacy networks (Bennett, 2012). Building upon the concept of hashtag activism, we propose an approach that combines semantic and relational approaches and may thus complement existing modes of studying digital counterpublics. Specifically, we focus on the positioning of actors: We describe counterpublics as a result of the interaction between actors and hashtags and the distinct roles of active and passive actors in this process.

Counterpublics on Twitter

In the present study, we focus on Twitter as a social media platform that is characterized by networks of connected topics and actors (Hellsten et al., 2019). Typically, network-analytic research on Twitter activism separates social and semantic networks (Chen, Tu, & Zheng, 2017; Xiong et al., 2019). To enrich the typically automated methods of big-data or network analysis, increasingly approaches have been proposed of combining automated methods and manual content analysis (Theocharis, Lowe, Van Deth, & García-Albacete, 2015). Such approaches result in socio-semantic networks that combine both relational and meaning-related facets of online debates. Research has, for instance, included frames in a socio-semantic network analysis to detect patterns of opinion leadership (Lycarião & dos Santos, 2017; Ogan & Varol, 2017). Following an alternative approach, we combine

network analysis and manual content analysis to discern the role of different actor groups for the configuration of digital counterpublics including their positioning as active or passive actors and interrelationships with hashtags. Taking a media affordance perspective, we focus on three Twitter-specific functions: hashtags as a representation of sub-topics (semantic dimension); addressed actors as a representation of social networks between Twitter users (relational dimension), and retweets as information spreading and potential amplification of the debates (intensifying dimension) (see also Barisione, Micailidou, & Airoldi, 2019; Tremayne, 2014). Moreover, we emphasize the interrelation between these three dimensions.

Digital counterpublics constituted by hashtag activism

The term hashtag activism has recently been coined to describe aims to raise awareness for social issues and the encouragement of debates via hashtags on social media (Xiong et al., 2019). Hashtags were initially introduced on Twitter as a user-initiated practice to categorize – or tag – posts as belonging to a specific group, topic, or discussion but are now also used on other social media platforms. Their prime function for digital discourses thus relates to the semantic level. From a media affordance perspective, however, hashtags function beyond a mere categorization of information but contribute to the co-creation of meaning emphasizing their performative or constitutional character (Albu & Etter, 2016; Evans et al., 2017). Moreover, the use of hashtags establishes relations between various actors (Bennett & Segerberg, 2012). By creating hypertextuality, that is interlinking various texts and actors, hashtags can relate different perspectives, create or reproduce relationships between actors, and contribute to the course of online discourses (Albu & Etter, 2016). Empirical accounts of hashtag activism have focused on minority or human rights debates, such as #Ferguson (Jackson & Foucault Welles, 2016), LGBT rights (Tombleson & Wolf, 2017), #BlackLivesMatter (Yang, 2016), and #MeToo (Xiong et al., 2019). Highlighting both semantic and relational aspects, hashtags were identified as a means to raise awareness and promote discussion, thereby stimulating engagement between social movement organizations and the public (Tombleson & Wolf, 2017; Xiong et al., 2019).

The affordance approach can be further expanded to other linguistic conventions. In addition to linking topics or information, social media offer specific manners of embedding actors, such as via the handle @username. Beyond merely representing references to other actors – a relational function we can also find in other media texts – @username automatically signifies the respective user as being included in a post. This way, actor references fulfill a pragmatic function inviting passively mentioned actors to change their role and actively respond or contribute to a debate. Moreover, it allows other users to directly access the profiles of the referenced actors increasing the transparency and traceability of debates. By embedding passive actors in a specific context of a digital discourse, this relational function is intertwined with the semantic level. So can hashtags and @mentions be purposefully employed to create mutual awareness among actors (Tremayne, 2014).

Finally, specifically on Twitter, the function of retweets further contributes to hypertextuality. Retweets intensify discourses by employing and combining semantic and relational functions. Passing on original posts helps to further disseminate messages and their authors. The selection process can, thereby, either reinforce or alter the focus of a debate.

Specifically, citizens have been found to propagate digital movements in this manner (Barisione et al., 2019).

All three Twitter functions, hashtags, @usernames, and retweets have been marked as important elements for scale shift during the formation of social movements (Tremayne, 2014). But they can also help to understand the shift from collective to connective action (Bennett & Segerberg, 2012). A recently introduced communicative network approach integrates these Twitter-specific functions and thus allows a systematic assessment of their usage within online debates (Hellsten et al., 2019; Hellsten & Leydesdorff, 2020). Drawing on socio-semantic network analysis, this approach assesses the triangular relationships between active actors (authors or users) and passive actors (addressees referred to via @username or the retweet function RT@username) and topics (marked by hashtags). As opposed to determining up front which actor characteristics or argument types constitute counterpublics, our approach allows for an empirical identification based on how actors position themselves in an online debate toward other actors as well their shared hashtags. Specifically, counterpublics may be identified as communicative clusters that can be observed as distinct from communicative activities of elite actors, such as media or political actors. Explicitly considering counterpublics as networks of actors and topics brings us close to the original definition of the public sphere as a network (Habermas, 1996). Moreover, in the context of counterpublics, it is interesting to examine the position of civil society actors (Ferree et al., 2002) and citizens (Barisione et al., 2019; Papacharissi, 2002).

Twitter debates about animal welfare

The production and consumption of food in contemporary Western societies have triggered heated debates on social media (Stevens, Aarts, Termeer, & Dewulf, 2018). Food safety for consumers, the consequences of production methods for the environment, and animal welfare are some of the topics. In the Netherlands, several incidents occurred in the last decennium, such as horse meat sold as beef, salmonella-infected salmon, and recently a prohibited pesticide was found in eggs. In this context, the two debates surrounding over-fed chickens (*plofkippen*) and kilo stunners (*kiloknallers*) can be considered as long-term issues, as opposed to short-term incidents, allowing us to follow these debates over a longer period of time. Moreover, both issues are characterized by a central campaign term that is used as hashtag on Twitter rendering them suitable to study hashtag activism. With a focus on critique on bio-industrial production methods these two issues can be understood as social countermarketing (Bellew et al., 2017), as they form an opposition to ongoing commercial marketing of the food sector as well as socio-cultural norms regarding animal welfare, meat production and consumption. Both issues were initiated and facilitated by animal welfare and other environmental organizations and involved a wide range of actors.

The kilo stunner issue was initiated as a social countermarketing campaign by animal welfare organization *Wakker Dier* (alert animal) in 2010. The campaign focused on advertisements of large quantities of low-priced meat without animal welfare quality marks and thus directly targeted supermarkets and their sales offers (Wakker Dier, 2017a). Campaign messages from *Wakker Dier* and other organizations typically addressed supermarkets and other industry actors related to livestock breeding. In addition, appeals aimed at increasing public awareness and changing consumer attitudes and behaviors.

In contrast to this consumer focus, the second debate more strongly targeted the production and processing of meat. The term over-fed chicken (*plofkip*) first appeared in a consumer program on Dutch television in 2001. Over-fed chickens refer to consumption chickens that are bred to grow fast – their lifespan is about six weeks – and consequently develop physical problems, such as heart diseases (Wakker Dier, 2017b). In 2012, *Wakker Dier* initiated a campaign directly targeting restaurant chains, popular food brands, and supermarkets with the goal of stopping the processing and selling of this type of meat and promoting chicken that conforms to higher animal welfare standards. The difference between a consumer and a production focus may have consequences for the formation of counterpublics in relation to these issues, specifically, regarding the role of individual citizens. Stevens, Aarts, and Dewulf (2019) have already established that *plofkip* severed as a master term in the public debate as reflected by news media, policy documents, and Twitter and have encouraged a more detailed analysis of its function in the social media debate.

Our empirical research questions, first, concern the emergence and development of online debates: **RQ1**: Which actors participated in the Twitter debate on kilo stunners and over-fed chicken, by authoring Twitter messages, and how did their involvement in the debates develop over time? Second, regarding the identification of counterpublics: **RQ2**: Which topics co-occurred with which addressed actors in the Twitter messages and which counterpublic clusters can be identified in these networks? Third, concerning the aspect of intensifying: **RQ3**: Which actor groups retweeted whose messages on Twitter?

Method

Sample

The Twitter data were collected with the commercial software tool *Coosto* using the search terms 'plofkip' and 'kiloknaller' for the period from July 2015 to June 2017. *Coosto* is a commercial web monitoring tool that crawls and archives Twitter (and other social media) posts that have been sent by Dutch Twitter users. We used *Coosto* for the data collection as it allowed us to search in the Twitter archive and therefore collect tweets for the past two years, which is difficult when using other existing software tools and scrapers, such as *Webometric Analyst* (Thelwall, 2009). In addition, our focus was on Dutch online discussions which are covered by this tool. A total of 19,418 Twitter messages (plofkip: 18,631; kiloknaller: 7687) were downloaded in August 2017. To obtain a comparable sample and a sample size that is suitable for manual coding, a different threshold of a minimum number of posts per author was applied for each case. Moreover, during the coding process, all tweets that were not related to the actual issues were removed. For the *kilo stunner* debate, all authors who posted ≥ 5 tweets were included ($N = 1404$; 18%). For the *over-fed chicken* debate, only those authors with ≥ 15 tweets were included ($N = 2107$; 11%). The comparison of the timelines of the full and sub-samples indicated that these selections represented a good reflection of the developments over time for each case.

Author coding

We coded the author accounts according to the actor types based on the Twitter users' self-descriptions on their Twitter user account. Also links to websites on the user account were

taken into account. The actors were coded into eight categories: citizens, environmental organizations, media, political actors, public organizations, conventional industry, eco industry, and other. After several rounds of coder training and adjustments of the codebook, intercoder agreement was assessed based on a randomly selected subsample of 11% ($n = 33$) of the total author sample. Krippendorff's nominal α of 0.87 reflected a sufficient level of inter-coder reliability.

Hashtag, retweet, and username networks

We focused in particular on the three main Twitter affordances as indications of interactions in the debates: #hashtags as representations of topics: @username mentions as addressing other Twitter users, and retweeting using RT@username as an indication of debate intensification. We present the results of co-occurring hashtags and addressed usernames for the most prominent actor groups, and separately the RT@username networks for the same five actor types in both debates.

For the network analysis, we used the automated tool *tweet.exe* to calculate asymmetrical network matrices (Hellsten & Leydesdorff, 2020). We used #hashtags, @usernames, and RT@usernames as variables and the Twitter messages as documents for constructing asymmetrical network matrices of the words versus the documents. The method builds upon an automated tool for mapping co-occurring words in text documents (Leydesdorff & Hellsten, 2006), focusing on co-occurrences between the specific type of words, hashtags, retweets, and addressed usernames (Hellsten & Leydesdorff, 2020).

The network analysis proceeded in three steps. First, we used the open-access software routine *frqtwt.exe* to produce word-frequency lists of the words used in the Twitter messages. We selected the words indicating #hashtag, RT@username, or @username from the word frequency list for further analysis. Second, the automated *tweet.exe* tool was used to calculate the network matrices of the selected words and the Twitter message documents. Third, we visualized the resulting word/document matrices with the open social network analysis tool *Pajek* (De Nooy, Mrvar, & Batagelj, 2011) using the Kamada-Kawai layout algorithm (Kamada & Kawai, 1989). We then exported the networks to *VosViewer* and used the Newman modularity algorithm (Newman, 2004; Noack, 2007) for the clustering (Van Eck & Waltman, 2011).

Analytical approach

To provide an overview of the course of the debate, we first looked at a number of tweets posted per actor type per month. Next, an overview of total numbers of hashtags, mentioned usernames, and retweeted usernames per actor type gave a first account of how these Twitter functions were used in the debates. In order to analyze how the different actor types made use of hashtags, usernames, and retweets, we analyzed the co-occurrences of the hashtags, usernames, and retweets in their Twitter messages. This enabled us to provide network visualizations of, for example, the #HASHTAGS, @usernames, and RT@usernames, used in the Twitter messages sent by actors coded as media, environmental organizations, and citizens. Such visualizations provide an overview of the similarities and differences between the actor types in their use of the three Twitter-specific functions. For reasons of readability, we use upper case to indicate the hashtags, and lower case for addressed usernames and retweeted usernames.

Results

Both the kilo stunner and over-fed chicken debate were marked by several attention peaks throughout the sampling period of two years (Figure 1(a,b)). Both issues were typically discussed more intensely around Christmas time and New Year's Evening. Environmental organizations use this time of the year to create awareness regarding problems in animal welfare behind the meat and chicken sold in the supermarkets in general and for specific production sites or sales offers in particular. This explains the greatest peak for the kilo stunner case between November 2015 and January 2016. In addition, in December 2015 kilo stunner became a political issue as the social democrats proposed to ban cheap meet by law. This proposal was vividly discussed, and also other political parties and actors became more visible in the debate. The highest peak for the over-fed chicken debate occurred between March and April 2016. The beginning of 2016 marked a success for the campaign with changes initialized by several supermarkets. In addition, ongoing negotiations for an association agreement between the European Union and Ukraine further spurred the discussion because over-fed chicken produced in Ukraine would enter the Dutch market as a consequence of this agreement.
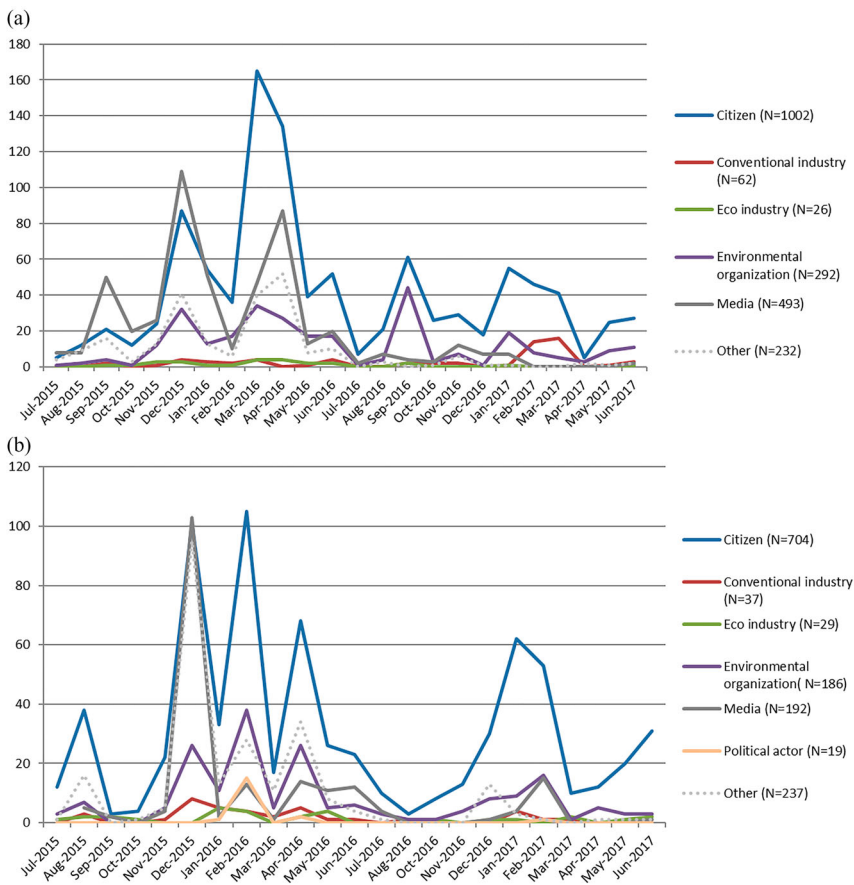

Figure 1. (a) Over-fed chicken debate: Number of sampled tweets per actor group per month ($N = 2107$). (b) Kilo stunner debate: Number of sampled tweets per actor group per month ($N = 1404$).

Actor involvement over time

Both debates showed a relatively similar distribution of participating actors as authors of tweets. As initiating actor of both countermarketing campaigns, the environmental organization *Wakker Dier* posted the highest number of tweets in both debates (over-fed chicken: 204; kilo stunner: 131). In both cases, only a few other environmental organizations were involved, four in the over-fed chicken, and six in the kilo stunner debate, with considerably lower levels of activity. The environmental organization jacht_en_boer ('hunting_and_farming'), an organization specialized as a contact point for nature conservationists, hunters, and fishermen to report inappropriate online messages, was active in both debates (over-fed chicken: 26 tweets; kilo stunner: 21 tweets). With four media actors in the top-10 active participants, these were slightly more present in the over-fed chicken debate compared to one media actor among the top-10 in the kilo stunner debate. Most of the media accounts were online-only media, and newsfeeds, such as *Dutchnewspapers* that forwards news from several Dutch mainstream newspapers (over-fed chicken: 50 tweets; kilo stunner: 8 tweets). With relatively high frequencies of posts, both debates were about equally influenced by citizen participation. In the over-fed chicken debate, 44 unique individuals posted 1002 tweets whereas in the kilo stunner debate 93 unique individuals posted 702 tweets (Table 1, unique authors per actor group).

Figure 1(a,b) shows how the different actor groups contributed to the Twitter discussions over time, in terms of number of posted tweets. Most notably, and in line with the overall frequencies, the two issues were largely dominated by individual citizens throughout the research period – almost half of the Twitter messages were sent by individual citizens in both debates. With only one exception: The first six months of the over-fed chicken debate were dominated by media actors and citizens became the largest group of authors only in January 2016. The lower level of attention among citizens coincides with a limited number of tweets by environmental organizations during that time. Besides such exceptional periods, environmental organizations continuously belonged to the most visible actors in both debates. Other relevant actor groups, such

Table 1. Number of unique authors, hashtags, mentioned usernames, and retweeted usernames in the over-fed chicken and kilo stunner debates.

OVER-FED CHICKEN

	Authors	Hashtags (≤ 5 times)	Usernames (≤ 5 times)	RT usernames (≤ 2 times)
Media	17	68 (18)	31 (7)	28 (8)
Citizens	44	255 (38)	225 (34)	150 (50)
Environmental organizations	5	106 (9)	99 (8)	72 (11)
Conventional industry	4	40 (1)	16 (2)	16 (4)
Eco-industry	2	15 (1)	17 (1)	10 (2)

KILO STUNNER

	Authors	Hashtags (≤ 5 times)	Usernames (≤ 5 times)	RT usernames (≤ 2 times)
Media	29	47 (15)	17 (1)	38 (5)
Citizens	93	157 (34)	143 (17)	86 (32)
Environmental organizations	7	64 (3)	52 (4)	27 (6)
Conventional industry	7	23 (1)	11 (1)	13 (4)
Eco-industry	4	17 (1)	21 (0)	6 (1)

Note. The number of hashtags, usernames, and retweeted usernames included in Figure 2(a,b) and Figure 3(a,b) in brackets.

as industry actors, in contrast, remained on a relatively low level of activity for most parts of the research period. Only four unique industry authors were present in the over-fed chicken debate and seven in the kilo stunner debate.

Use of hashtags, usernames, and retweets

To better understand the involvement of the different actor groups, we looked at how they used the three main Twitter functions in the debates. The actors used hashtags to different degrees (Table 1): Whereas environmental organizations used only a few unique hashtags, citizens and media showed a greater diversity in their hashtag use. In particular, citizens used both a higher number of hashtags and usernames, in their Twitter messages in both debates.

Content-wise, the media mainly used hashtags related to news: #NIEUWS (#NEWS), #NIEUWSTWITTER (#NEWSTWITTER), #PERSBERICHT (#PRESSRELEASE), or #AD.NL (referring to a national newspaper) and to actual campaigns: #MEERMEERMEER (#MOREMOREMORE) and #DUSMEERGROENTEETEN (#SOEATMOREVEGE-TABLES), but did not share hashtags with the two main actor types – beyond the general issue-related hashtags #PLOFKIP and #KILOKNALLER. Citizens and environmental organizations, in contrast, used several shared hashtags related to the countermarketing campaign: #DIERENLEED (#ANIMALSUFFERING), #PLOFKIPVRIJ (#OVER-FED-CHICKEN-FREE), or #VOEDSELTOP (#FOOD-TOP MEETING). Conventional industry actors, in contrast, referred to the Netherlands implying a national frame for their sector emphasizing agriculture as important element of Dutch national identity. Ecological industry actors used the hashtag #KLIMAAT (#CLIMATE) alluding to a greater, global problem that is at stake.

Regarding our first research question, we can thus conclude that both debates had the initiating environmental organization as the most prominent organizational actor. However, the overall volume of the debates – and therewith maybe also the success of both underlying campaigns – was driven by high rates of citizen participation, supported by media actors. Political actors and public organizations were not actively participating in the two debates. The central campaign terms #PLOFKIP and #KILOKNALLER, can be considered as the hashtags with the greatest potential to link different actor groups. With this as an exception, the actors differed substantially in the usage of their hashtags indicating different frames or perspectives that were taken.

A relational approach: co-occurring hashtags and usernames

To answer our second research question, we focused on the co-occurrences between topics and addressed actors. We analyzed which topics were co-addressed by which addressed actors, operationalized as relations between hashtags and usernames mentioned in the Twitter messages. The resulting networks show the intensity of the co-occurrences, the closer the nodes are to each other, the more frequently they were used together in the tweets. The node size, in turn, represents the frequency that the hashtag, the username, or the retweet was used in the set of Twitter messages 'authored' by the actor category.

We first focused on how the five most prominent actors, media, citizens, environmental organizations, conventional industry, and eco-industry used hashtags and usernames. In

the over-fed chicken debate, citizens and environmental organizations appeared clustered together showing similar tweeting behavior (Figure 2(a)). The main campaign hashtag #PLOFKIP (#OVER-FED CHICKEN) is positioned centrally in the network, and used by citizens, media, and environmental organizations. The initiating organization *Wakker*
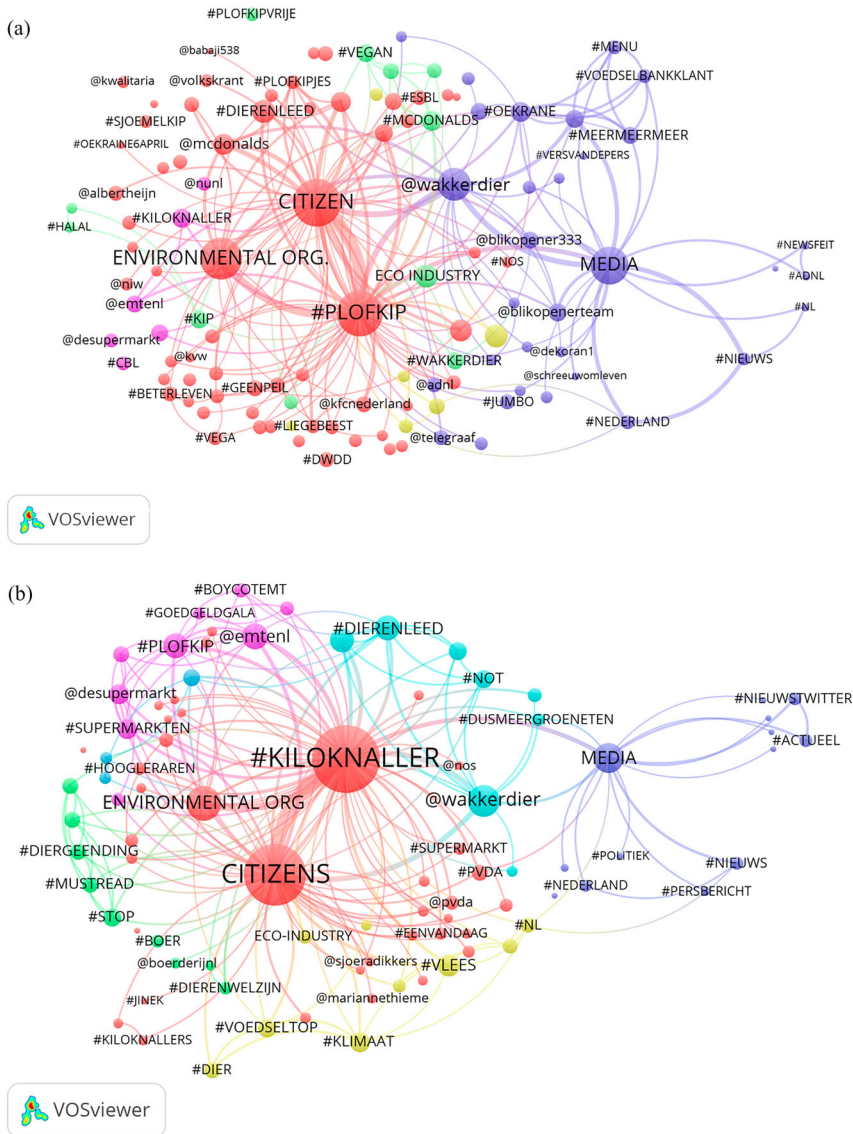

Figure 2. (a) Co-occurring 67 hashtags and 45 addressed usernames (used ≤ 5 times) in the over-fed chicken debate authored by media, citizens, environmental organizations, eco industry, conventional industry. Kamada-Kawai layout in Pajek, clustering with Newman algorithm in VosViewer, node size proportional to frequency of use, line thickness to strength of co-occurrence. (b) Co-occurring 57 hashtags and 26 addressed usernames (used ≤ 5 times) in the kilo stunner debate authored by media, citizens, environmental organizations, eco industry, conventional industry. Kamada-Kawai layout in Pajek, clustering with Newman algorithm in VosViewer. Node size proportional to frequency of use, line thickness to strength of co-occurrence.

Dier and its relation to the campaign term #PLOFKIP formed the center of the debate: the main actors addressing @WakkerDier were citizens (red) and media actors (blue). Whereas the media used news-related hashtags that are unique to this actor type (#NIEUWS, #AD.NL, #NEWSFEIT on the right-hand side), and addressed other media actors (@blikopener333), citizens and environmental organizations referred to the most important opponents addressed by the campaign (e.g., two restaurant chains McDonald's and Preston Palace) together with campaign-related hashtags such as #DIERENLEED (#ANIMALSUFFERING, left-hand side). The map visualizes how hashtags as sub-topics of the campaign were used to specifically target some of the industry actors (e.g., #HAP-PYMEAL for McDonald's). Industry actors complying with animal welfare standards, in contrast, were situated at the periphery of the network and linked to more positive terms (such as food labels, organic production, vegetarianism). This group of addressed actors was not central, not discussed frequently, and referred to mainly as counterexamples or examples for the success of the campaign. Also, references to traditional news media actors (newspapers and television programs, such as @volkskrant or @telegraaf) had a more peripheral position in the network. Low levels of attention to these media actors can be explained by occasional coverage of the issue that was then used to further promote the campaign on Twitter.

Similar to the over-fed chicken debate, in the kilo stunner debate, the main campaign hashtag #KILOKNALLER was central to the network, and used by the citizens, the media and the environmental organizations (Figure 2(b)). Most importantly, citizens and environmental organizations again appeared as one cluster displaying similar tweeting behavior. Citizens and environmental organizations addressed targeted supermarkets both with hashtags (e.g., #SUPERMARKTEN #BOYCOTEMTE) and addressed usernames (@emte, @desupermarkt) (left upper corner). The media, again, formed an independent cluster and mainly used news-related hashtags (#NIEUWS, #NIEUWSTWITTER #ACTUEEL, left-hand side) in addition to the main campaign hashtag. As opposed to the over-fed chicken debate, political actors were more prominent in the kilo stunner debate (e.g., @pvda and #PVDA referring to the labor party or references to members of parliament: @sjoeradikkers and @mariannethieme).

In summary, in both debates, citizens were central actors, authoring tweets, and clustered together with environmental organizations. The media, in turn formed their own cluster of topics and addressed actors. Both conventional and ecological food producers were relatively peripheral in the debates. As an answer to our second research question, we claim that citizens and environmental organizations formed counterpublics separate from the mainstream public spheres which were formed by media-authored Twitter messages.

Retweets: debate intensification

To answer our third research question, we focused on the same five actor types to present their retweets as a potential intensification of the debates. In the over-fed chicken debate, citizens were very actively retweeting messages from the main organization, *Wakker Dier*, and as such acted as intensifiers of the counterpublic (Figure 3(a)). Eco-industry mainly retweeted messages from RT@Wakker Dier whereas conventional industry retweeted tweets from a special poultry-related Twitter newsfeed (RT@kiepeboer – RT@chickenfarmer). The
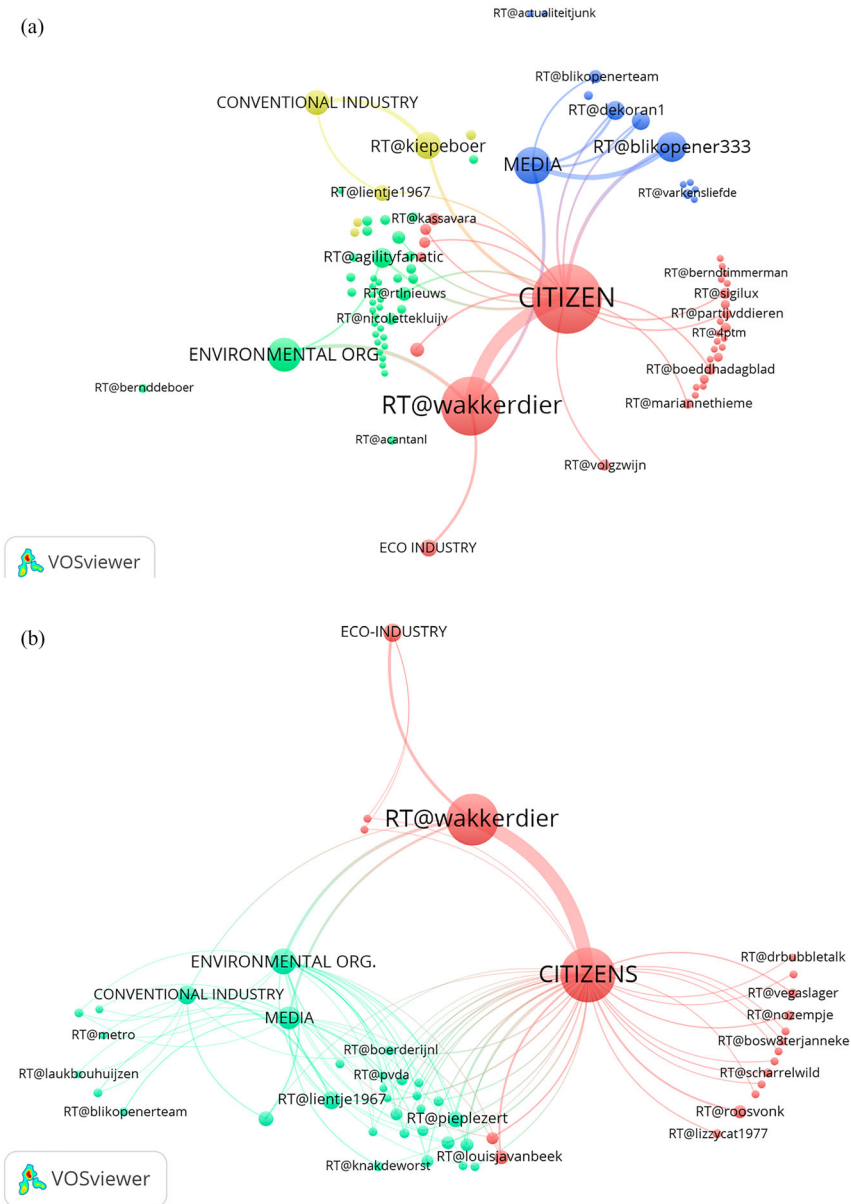
Figure 3. (a) Co-occurring 74 retweeted usernames (used ≤ 2 times) in the over-fed chicken debate authored by media, citizens, environmental organizations, eco industry, conventional industry. Kamada-Kawai layout in Pajek, clustering with Newman algorithm in VosViewer. Node size proportional to frequency of use, line thickness to strength of co-occurrence. (b) Co-occurring 47 retweeted usernames (used ≤ 2 times) in the kilo stunner debate authored by media, citizens, environmental organizations, eco industry, conventional industry. Kamada-Kawai layout in Pajek, clustering with Newman algorithm in Vos-Viewer. Node size proportional to frequency of use, line thickness to strength of co-occurrence.

media retweeted messages from other, mainly Twitter-based news media (RT@blikopener and RT@dekoran1). Environmental organizations retweeted information from consumer programs (RT@kassavara) and mainstream news (RT@rtlnieuws).

Also, in the kilo stunner debate, citizens were very active in retweeting messages originally sent by *Wakker Dier* (Figure 3(b)). In contrast to the over-fed chicken debate, the media, environmental organizations, and conventional industry formed a cluster (lower left-hand side), retweeting messages from the media, including also farming news (RT@boerderij.nl). This result may point to lower levels of confrontation between opponents and possibly more actual dialogue in the kilo stunner debate.

Discussion

This study extends current research into hashtag activism and digital counterpublics (e.g., Xiong et al., 2019). While previous research has focused on either semantic or relational aspects of counterpublics, our approach emphasizes the interplay of the three Twitter-specific linguistic functions: hashtags as an indication of semantic activities, addressing other actors as relational dimension of counterpublics, and retweeting as intensification of debates. While central hashtags of the debate may be interpreted as collective action frames (e.g., emphasizing critique on mass production) their functionality for the debates – specifically in interaction with actor mentions and retweets – stresses the connective logic which stresses the role of digital technologies as organizing agents (Bennett & Segerberg, 2012). We applied a communicative network approach to online debates by, first, exploring the socio-semantic networks of actors addressing tagged topics or hashtags and other actors to identify the scope of counter-public debates. Second, we analyzed retweet networks as additional intensification patterns within the debates.

Focusing on the main platform-specific functions reveals how hashtag activism in interaction with other affordances (Albu & Etter, 2016) contributes to the configuration of counterpublics. In particular, re-tweeting intensifies debates through increasing the prominence of certain hashtags and usernames. The tweets sent by the initiating environmental organization *WakkerDier* were re-tweeted most often and mainly by individual citizens, resulting in greater resonance for the organization and its messages. Thus, civil society organizations were important as leaders of the social countermarketing campaigns studied here while citizens contributed to further intensifying the scope of the campaigns. Our findings thus, particularly, emphasize the importance of digital citizen participation (Barisione et al., 2019) for the propagation of counter-public debates. Independent of their focus on consumer aspects (kilo stunner) or meat production (over-fed chicken), citizens intensified the scope of the debates on three different levels: First, concerning the size in terms of frequency of tweets and retweets. Second, in terms of meaning creation because citizens used the greatest diversity of hashtags. And third, with respect to their ability of involving the highest diversity of other actors by mentioning usernames in their tweets. As a more general implication, this finding confirms that social production and mutual constitutions are fundamental for the formation of digital counterpublics (Choi & Cho, 2017). In other words, digital counterpublics initiated by civil society organizations are more likely to succeed if they can mobilize a broader social movement via connective action (Bennett & Segerberg, 2012). Consequently, the potential of a hashtag to mobilize citizens, in particular, deserves explicit evaluation for effective hashtag activism. Central campaign hashtags that are normatively and emotionally loaded and yet sufficiently open to allow different diagnostic and prognostic interpretations may thereby facilitate mobilization (Stevens et al., 2019).

We focused on co-addressed hashtags as representation of the topics and usernames as representation of the actors and visualized the networks with automated software routines. This perspective provides an overview of the interplay between actors, addressed 'actants', and topics in a debate (Hellsten & Leydesdorff, 2020), for example, in the cases studied here showing the targeted supermarkets or restaurants in relation to negatively loaded and potentially mobilizing topics, such as animal suffering and boycott. Combining data about the involvement of actors, hashtags, usernames, and retweeting behavior can thereby overcome the necessity to determine the 'boundaries' of counterpublics in terms of content and involved actors. Boundaries are, instead, co-defined by the various actors in a bottom-up way. Our results show that media actors formed their own cluster in terms of co-occurring hashtags and addressed actors. In contrast, citizens and environmental organizations formed counterpublic clusters in both debates. The focus on hashtags as bridging between actors and clusters of actors emphasizes the shift from collective to connective action (Bennett & Segerberg, 2012). While this study has identified counterpublics based on clusters that emerged via connective activities, a closer look at the meaning that is conveyed with these activities would be a next step to better understand flexible or dynamic boundaries of counterpublics.

Moreover, digital counterpublics were found to influence action and success of counterpublics across platforms (e.g., Jackson & Foucault Welles, 2015). For both campaigns, peaks were detected when related issues were debated on the level of national or European politics. This confirms how the success of digital counterpublics can be influenced by offline events and, particularly, be affected by political agendas – pointing to a similar mechanism that has been found for the relation between counterpublics and newspaper coverage (Oliver & Maney, 2000). Integrating data from online and offline sources can provide a more integrated overview of how technologically guided connective action translates into offline collective action. For instance, is the intensifying role of citizens restricted to online spaces or is there a spillover to offline action? Or to what extent do central hashtags, which may also be considered as framing devices, expand to offline collective action frames?

As typical for research based on social media data, the selection criteria in addition to restricted access present possible limitations with respect to the representative character of the data. However, because of the nature of the two debates that have evolved around social countermarketing campaigns, the campaign hashtags can be considered as central organizing elements of the online debates. Selecting appropriate search terms may, however, present a challenge for less clearly defined issues. In addition, we do not expect any systematic omission patterns inherent in the archiving routines of the software we have used.

For analytic as well as pragmatic purposes, authoring actors were grouped into eight actor categories. While this allows to discern communicative tendencies between these actor groups, other aspects of hypertextuality, such as the degree of correspondence between active and passive actors, remain hidden. Also, emotional aspects and potentially related degree of opinion diversity could be further explored in this context (see Barisione et al., 2019; Jackson & Foucault Welles, 2016). While we follow previous research in interpreting hashtags as frames (Papacharissi & de Fatima Oliveira, 2012; Stevens et al., 2019), for a more comprehensive socio-semantic network approach also other aspects of

meaning creation, such as the degree of support or contestation of issue-specific frames (Lycarião & dos Santos, 2017), could be included.

The current study has accounted for dynamics of online activism by, first, tracking actor involvement in online debates over time and, second, including Twitter-specific elements reflecting the dynamics of a network, such as hashtags and retweets. Nonetheless, we believe that further theorizing is needed to understand the temporal development of patterns of co-relations between authors, addressed actors, and the tagged sub-topics in online debates. In addition to tracing formations of counterpublics, this approach allows to discern and position counterpublics within the broader context of issue-specific debates online or, in other words, observe the interdependencies between counter- and dominant publics in terms of communicative flows (see, Downey & Fenton, 2003). This results in a different look at the fragmentation problem of counterpublics, that is, answering to what extent they form exclusive echo-chambers or are connected to the wider public debate (Papacharissi, 2002; Schäfer, 2015).

Disclosure statement

No potential conflict of interest was reported by the author(s).

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