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Visibility Through Information Sharing: The Role of Tweet Authors and Communication Styles in Retweeting Political Information on Twitter

INES ENGELMANN[1]
Friedrich Schiller University Jena, Germany

ANDREA KLOSS
University of Leipzig, Germany

CHRISTOPH NEUBERGER
Ludwig Maximilians University Munich, Germany

TOBIAS BROCKMANN
Innoscale AG Berlin, Germany

If a speaker's political message on Twitter is retweeted, both the speaker and the message become visible to a wider network of Twitter users, making the tweet actor more prominent on the Twittersphere or beyond. This study analyzes the effects of different types of tweet authors (such as politicians, journalists, economic actors, members of nonprofit interest groups, and citizens) and the communication styles of political information (affect and rationality) on the number of retweets. The potential effects of these factors are hypothesized based on the heuristic-systematic model but are also discussed in the normative context of public sphere theories. A content analysis of 4,403 tweets shows that the author types, communication styles, and their interactions affect the number of retweets. The theoretical and normative implications of these results are discussed.

Keywords: heuristic-systematic model (HSM), Twitter, communication styles, information sharing, deliberation

Ines Engelmann: ines.engelmann@uni-jena.de
Andrea Kloss: andrea.kloss@uni-leipzig.de
Christoph Neuberger: neuberger@ifkw.lmu.de
Tobias Brockmann: tobibrockmann@gmail.com
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Social media platforms such as Twitter enable citizens to actively participate in processes of information creation and circulation. Twitter, a microblogging platform, affords functions of both online social and traditional news media (Liu, Liu, & Li, 2012). From a social media perspective, tweeting makes it possible to build or intensify the relationship between political actors and other stakeholders, as it facilitates an easy and continuous discourse that is free from the constraints of official (and unofficial) face-to-face gatherings (Ausserhofer & Maireder, 2013). Thus, politicians use Twitter to disseminate information and to hold discussions with each other and with citizens (Jungherr, 2014; Rauchfleisch & Metag, 2015). From a news media perspective, tweet authors can spread political messages to a larger audience to gain visibility. Accordingly, journalists use Twitter as a source of quotes for media outlets (Parmelee, 2014).

In this study, deliberation is used as a normative framework, as it is suitable for connecting the requirements of democracy with the social media. Derived from essential preconditions for discourse outcomes of deliberative democracy (Ferree, Gamson, Gerhards, & Rucht, 2002), we investigate how tweet characteristics (tweet authors and communication styles) receive attention from Twitter users and lead to information sharing. Political psychologists began to pay attention to dual-process models of information processing to explain political behaviors (MacKuen, Wolak, Keele, & Marcus, 2010). Although dual-process models have been empirically validated, there is little research on dual-process models and retweeting behaviors. In this study, we present a theoretical framework based on the heuristic-systematic model (HSM; Chen & Chaiken, 1999) that explains how individuals receive and process persuasive messages in forming their cognitive judgments. According to the HSM, information sharing on Twitter can be understood as a behavioral decision made after assessing tweet characteristics systematically or heuristically (Liu et al., 2012)—in the context of our study, tweet authors (experts and nonexperts) and their communication styles (affective and rational) are described as heuristic or systematic cues for information processing. The hypotheses and research questions are analyzed based on a manual content analysis of 4,403 tweets. We examine the Twitter communication on a recent German political issue, the Renewable Energy Act (EEG; Erneuerbare-Energien-Gesetz), during the full legislative procedure of about eight months. Finally, the empirical results are discussed against the normative background of deliberative democracy.

Normative Perspective: Deliberation on Twitter

From a normative perspective, online networks such as Twitter have the potential not only to enable citizens to actively participate in processes of information creation and circulation but also to provide access to political discourse, thereby promoting deliberation online (Friess, & Eilders, 2015). However, public communication processes should fulfill certain requirements to lead to desirable outcomes (Dryzek, 2000; Gutmann & Thompson, 2004; Habermas, 1996). According to Mutz (2008), different outcomes are conceivable—for example, political efficacy, the willingness to compromise, better-informed citizens, an increase in perceived legitimacy, and an increase in participation. Empirical research inspired by the deliberative perspective beyond Twitter has shown support for many of the claims about the positive outcomes of deliberation (Eveland, 2004; Rojas & Puig-i-Abril, 2009). However, the extent and ways in which deliberative processes are realized on social media platforms such as Twitter remain an open question. Specifically, potential reasons remain unclear why desirable information of original tweets gets shared and thus made more visible to audiences than less desirable information. On the Internet, visibility depends more on users' limited attention to the offered information than on a limited selection of information provided

by professional gatekeepers (Hindman, 2008). Thus, users codetermine the public visibility of political information. Benkler (2006) described this in his conceptualization of the networked public sphere as an emerging "system of intake, filtering, and synthesis" (p. 254), with various network nodes participating in the decentralized flow of information. This permeability means that not only mass media and other elite actors, but also less organized actors—such as social movements or ordinary citizens—may become more visible and consequently receive resonance and legitimacy by sharing or filtering information.

Although deliberative theory has formulated several requirements for deliberative communication processes (Friess & Eilders, 2015; Mutz, 2008), this study focuses on two important requirements pertaining to the tweet authors and their communication styles on Twitter: the requirements of equality and rationality. Both criteria are essential preconditions for the various discourse outcomes of deliberative democracy (Ferree et al., 2002). The criterion of equality touches the conditions of inclusiveness and accessibility to a discourse. Generally, equality emphasizes the equal opportunity of all actors affected by a policy to articulate their opinions and facts in the deliberative process (Chambers, 2003; Habermas, 1996). On Twitter, equality means that these affected actors and their tweets should have equal opportunity to gain visibility by being shared (retweeted), to reach new audiences and deliberations in the ongoing discussion. Twitter might be understood as a network of elite actors, such as politicians or media outlets (Ausserhofer & Maireder, 2013), which implies that participation on Twitter is unequal (Wang, Wang, & Zhu, 2013). However, according to Benkler (2006), the retweeting function also allows the opinions and facts of nonelite actors to be disseminated. To address that potential, we examine the criterion of equality in this study by comparing elite actors (members or representatives of a nonprofit interest group, economic actors, and actors at the center of politics, such as government bodies, legislators, political parties, journalists, and mass media outlets) to ordinary citizens.

The criterion of rationality refers to the norm that claims and opinions should be reasoned (Gutmann & Thompson, 2004; Habermas, 1996). An expression is rational when the assertion provides evidence that can be verifiably confirmed or empirically denied or is based on a common normative basis (Stromer-Galley, 2007). In deliberation research, several studies classify a message as rational when it contains justification or a reason for a claim (Friess & Eilders, 2015; Stromer-Galley, 2007). Hence, a rational style is understood as expressions supported by reasons and justifications for their claims. If the message contains only a claim but no reasons or justifications for it, it is classified as nonrational. Rational utterances are a crucial condition for public discourse to create an ideal speech situation (Friess & Eilders, 2015). This encourages opinions that are supported by reasons to be "open to critique rather than dogmatically asserted" (Dahlberg, 2001, p. 2). This also implies that nonrational expressions (that is, claims presented without reasons and justifications) are more difficult to criticize and make discursive discussions problematic. Only when arguments are presented in a rational style is it possible to solve the conflict by finding the better argument and changing the participants' opinion (Friess & Eilders, 2015). According to the traditional normative view (Habermas, 1984), rational tweets should gain more visibility by being shared than nonrational tweets because they are desirable to generate more reach for aspects of a rational communication style, such as facts, arguments, and solutions. Reach can be seen as a prerequisite for user attention and subsequent engagement in further discussion on Twitter or beyond.

More recently, deliberative theorists have tried to broaden the rational focus and to stress the need to also admit other communication styles such as emotional expressions (Nussbaum, 2013). In this connection, Dryzek (2000) noted that emotions must ultimately be capable of rational justification: "They need not necessarily be subordinated to rational argument, but their deployment only makes sense in a context where argument about what is to be done remains central" (p. 168). We will use the term *affect* instead of emotions, which simply refers to "valence" (Clore, Schwarz, & Conway, 1994, p. 326). Clore and colleagues, for example, name "preferences and attitudes" as affective (p. 326). While "emotions are states, […] preferences and attitudes are dispositions" (p. 326). This means that all emotions are affective, but not all affective things are emotions. An affective style of communication therefore includes more stable long-term statements by tweet authors about political discourses than an emotional style of communication. Because of this temporal stability, an affective style may be associated with longer-term reasoning or justifications related to a rational style. Thus, it is possible for users to combine an affective and a rational style of communication in a tweet. According to more recent, inclusive concepts of deliberation (e.g., Dryzek, 2000), it is desirable that even tweets that contain both an affective and a rational communication style gain more visibility through retweeting than tweets that contain an affective but a nonrational style of communication. In this view, emotions are no longer seen as irrational or counterproductive in political discourses (Morrell, 2010). Emotions are even an important element, especially on social media, which can make the rational style more comprehensible or vivid for subsequent political actions (Price & Neijens, 1997). Wang and colleagues (2013) have argued that tweets with emotional content could increase the popularity of tweets and stimulate tweeting behaviors such as retweeting, which in turn promote equality of public discussion. But this assumption could not be fully confirmed by Wang et al. (2013). However, previous research showed that popular and influential Twitter users tend, in part, to express negative emotions (Quercia, Ellis, Capra, & Crowcroft, 2011). Especially negative emotional message features as well as negative emoticons stimulate reactions in the followers and increase the probability for retweeting (Stieglitz & Dang-Xuan, 2012).

Information Sharing Behavior on Twitter

Retweeting behavior on Twitter can be understood as a filtering and a selection of information. Information is redistributed to news audiences and thus becomes more visible to a wider audience. The distribution logic in online networking spheres like Twitter is based on virality (Klinger & Svensson, 2015). Therefore, gaining visibility in the microblogging sphere depends on users forwarding the messages within their networks (Klinger & Svensson, 2015). In this sense, retweeting may be understood as an "act of copying and rebroadcasting" (Boyd, Golder, & Lotan, 2010, p. 1). However, retweeting can mean much more, especially when not only the author of the original tweet is considered but also the author of the retweet. Sharing of information allows the author of the retweet to engage in a discussion, without being directly addressed (Boyd et al., 2010). For the retweet author, retweeting can also mean serious listening and agreeing, helping those who are not popular, and performing an act of friendship or loyalty. These motives are public sphere oriented, but also other subjective motives (e.g., gossip, attention seeking) for retweeting behavior were investigated by Boyd and colleagues (2010). Therefore, we understand retweeting as information sharing that can have positive meaning not only for the original tweet author but also for the retweeting author, for instance, endorsing friends or authors who are less visible, or showing that the user believes in what was shared.

Various determinants for distributing news-related content on social media have already been analyzed (Dafonte-Gómez, 2018; Boehmer & Tandoc, 2015). Recently, scholars have begun to investigate potential factors that cause people to retweet information. For example, the number of followers and followees, the age of a Twitter account, and content containing URLs and hashtags have been shown to influence retweet probability (Suh, Hong, Pirolli, & Chi, 2010). However, specific research into why people share political content on Twitter is rare (for an overview of Twitter research in politics, see Jungherr, 2014). Studies at the intersection of politics and social media have mainly investigated the effect of Twitter messages on the media agenda (Parmelee, 2014); the reasons why users follow the accounts of politicians (Gainous & Wagner, 2014); the interaction of politicians and the public on Twitter (Kim & Park, 2012); political polarization of Twitter users (Prior, 2013); the motivation to interact with political actors and the effects of exposure to tweets on audiences' political learning; and the evaluation of political candidates and issues (Gainous & Wagner, 2014). Some researchers have also considered work in social cognition and neuroscience to explain political behaviors (Morrell, 2010). Following these approaches, information sharing in general and, by extension, on Twitter can be understood as a result of an evaluation of the validity of a message. A few studies on information sharing in online communities used dual-process models of information processing to explain the outcome of these validity evaluations, which then might result in information sharing (Zhang & Watts, 2008). Dual-process models of information processing, such as HSM, provide explanations for how users receive and process messages and the resulting behaviors. Hence, HSM provides a broader explanation of individuals' information-processing behaviors in the context of microblogging (Liu et al., 2012; Zhang & Watts, 2008).

Factors of Information Sharing Based on the Heuristic-Systematic Model

Applying the HSM to information sharing on Twitter, we can understand retweeting as a behavioral decision made after assessing tweet characteristics (Liu et al., 2012)—in the context of our study, tweet authors, and their communication styles. A few previous studies showed that behavioral decisions, such as information retweeting, are affected by information processing (Liu et al., 2012; Zhang & Watts, 2008). A message can be perceived and processed in two ways: systematically and heuristically. While perceiving the message systematically, the user considers all relevant information carefully, evaluates the content about its relevance and importance, and then forms a decision (Chaiken, Liberman, & Eagly, 1989). This processing strategy requires high motivation, ability, and cognitive resources (Chen & Chaiken, 1999). In heuristic processing, users apply decision rules or heuristics that are presumed to be learned and stored in memory (that is, they are available), that may be retrieved from memory in a given situation (that is, they are accessible), and that should be relevant to a situation at hand (that is, they are applicable). Decisions formed based on heuristic processing reflect easily processed judgment-relevant cues of the message (Chen & Chaiken, 1999). These heuristics enable users to evaluate messages despite having low motivation to devote a great deal of effort to processing persuasive arguments. Numerous studies have identified factors that drive heuristic processing, such as source credibility (Chaiken & Maheswaran, 1994). The credibility of an author is also a key characteristic concerning the sharing of tweet authors (Perloff, 2010). *Source credibility* is defined by the extent to which readers perceive an information source as competent—that is, the source is able to provide valid statements on a topic; and as trustworthy—that is, the source is willing to communicate the correct information (Petty & Cacioppo, 1986). This perception may stem from reputation, institutional affiliation, or access to expert knowledge. The tweet author may serve as a cue, calling up the

expert heuristic (for example, "You can trust them; they are experts."). This heuristic predicts that users will evaluate a tweet author and its related content as more credible if the tweet comes from a reputable source, a source with high expertise, or from a high-authority source, and if the motivation of users to fully process this news is low or if they have low involvement with the topic of news. On Twitter, users can apply this heuristic cue because information about the tweet author can be obtained from the account name and the Twitter profile. In line with the previous research, we define expert users on Twitter as users who provide professional information in a specific field (Liu et al., 2012), such as members of the news media, political actors, representatives of commercial enterprises, or members of nonprofit interest groups as opposed to all other nonprofessional lay users. In addition to the influence of the source type, the number of followers can also influence the credibility of the source (Westerman, Spence, & Van Der Heide, 2012). Source type and the number of followers can have different effects on the credibility of the source. In some cases, it is likelier that a high number of followers will have a positive impact on the credibility of the source, even if the tweet comes from noninstitutional followers. In other cases, the perception of a very credible source is guided by institutionalized, respected, and professional authors who also have many followers (Liu et al., 2012). The differences between these two cases depend on whether a political or nonpolitical issue is retweeted.

Previous studies have confirmed the impact of source credibility on social judgments and subsequent behavioral decisions. First, it could be shown that source credibility has an impact on message credibility (Metzger, Flanagin, & Medders, 2010). Second, source credibility and related message credibility affect behavioral decisions such as news clicking (Winter & Krämer, 2014) and the intention to share news in combination with other news cues (Xu, 2013). In relation to Twitter, a previous study found positive effects of source expertise and source trustworthiness (indicated as verified user status versus not verified) on the number of retweets in connection with an emergency event (Liu et al., 2012). Hence, we assume the following hypothesis in the case of the EEG debate on Twitter:

H1: Tweets by expert actors are more frequently retweeted than tweets by nonexperts.

According to HSM, a second factor that can explain information sharing on Twitter is the communication style of tweets as either affective or rational. Concerning an affective style, Clore, Schwarz, and Conway (1994) refer more generally to the positive and negative valence of expressions. The valence of emotions can be expressed on Twitter both verbally and symbolically in the form of emoticons (Crigler & Just, 2012). Previous research findings have revealed that affect can impact information processing, judgment, and decision making (MacKuen et al., 2010). In this study, the basic idea is that positive and negative affective feelings guide and direct judgments and decisions (Finucane, Peters, & Slovic, 2003). Researchers have called this mental shortcut the *affect heuristic* (Finucane et al., 2003; Slovic, Peters, Finucane, & MacGregor, 2005). In line with the HSM, affect may serve as a cue for message judgements. The information associated with an affect is stored in an individual's "affective pool"; this pool is consulted consciously or unconsciously during the process of judgement-making (Finucane et al., 2003). Thus, affect heuristics can be less effortful than weighing the pros and cons of various arguments, especially when the situation is complex and mental resources are limited (Slovic et al., 2005). So far, several studies in health communication have suggested that affect heuristics are associated with behavior changes (Slovic et al., 2005). Furthermore, previous results confirm this assumption, as affective and humorous content is more

frequently shared than nonaffective and humorless content in certain contexts (Dafonte-Gómez, 2018). Humor and emotions also have a significant positive effect on the redistribution of information on Twitter (Stieglitz & Dang-Xuan, 2012). Given this growing body of empirical evidence concerning the role of emotions in information sharing and behavior changes, we assume that:

H2a: Affective tweets are more frequently retweeted than nonaffective tweets.

On the other hand, a rational communication style that presents facts or arguments entails a more complex tweet structure than an affective style. This, in turn, requires more effort for processing. In several studies in deliberation research, rationality is characterized by providing arguments or claims supported by empirical or logical evidence during deliberative communication (Friess & Eilders, 2015; Stromer-Galley, 2007). Following the HSM (Chen & Chaiken, 1999), message elements including rationality provide more relevant information that requires high motivation and more cognitive resources. That requires systematic processing because of their more complex structure of information. However, it is assumed that the probability of heuristic information processing is higher in the context of microblogging. Twitter users have little time to spare or they are cognitively distracted because their limited mental resources are already used by other tasks (Finucane et al., 2003). Users might not have the capacity to process information carefully. Hence, it is likelier that tweets containing less information for processing (nonrational tweets) are likelier to be recognized and thus also retweeted. In contrast, there is also evidence that systematic processing leads to more retweeting (Liu et al., 2012). But in these studies, other systematic cues than rationality were investigated (e.g., the number of URL links or mentions, Liu et al., 2012) or, rather than the depth of the information processing itself, they investigated the probability of even considering the information (Zhang et al., 2008). If the user has already processed the information carefully, it is likelier that action like retweeting follows. However, we are interested in the likelihood of the user considering the message at all. These results are therefore not directly transferable to this inquiry. Hence, it is assumed that users might not have the capacity to perceive and process systematic cues and that messages containing more complex information are less retweeted. We assume that:

H2b: Rational tweets are generally less frequently retweeted than nonrational tweets.

So far, we have considered the effects of the tweet author and the communication style separately, and we assumed that retweeting is mainly affected by heuristic processing. In addition, the expert heuristic can also co-occur with arguments that are processed systematically, as in some specific and predictable ways both processes may also work together (Chaiken & Maheswaran, 1994; Chen & Chaiken, 1999). For example, Liu, Liu, and Li (2012) confirmed that expert authors increased the retweeting behavior by providing objective information. With these considerations, our prediction is that expert users (heuristic cue) together with arguments presented (systematic cue) will contribute to more retweeting:

H3: For expert users, a rational communication style is more frequently retweeted than a nonrational one, while this is not the case for nonexperts.

Furthermore, we assume that affective cues and systematic cues (e.g., rationality) could co-occur and possibly affect the number of retweets. For example, Meijnders, Midden, and Wilke (2001) showed that

moderate fear results in systematic information processing. Previous research on motivated information processing (e.g., the affect-as-information model; Schwarz & Clore, 1988) shows that negative affects support the processing of facts and arguments of messages, as well as show interest in campaigns, acquiring knowledge about politics, and participating beyond mere voting (Kim, 2016; MacKuen et al., 2010). On the other hand, positively affected people are less likely to engage in systematic message elaboration than people in a neutral or negative mood (Schwarz, Bless, & Bohner, 1991). To date, there are no empirical findings of affective and rational communication style on retweeting activities. We therefore ask:

RQ1: To what extent are rational tweets more frequently retweeted than nonrational ones if they are accompanied by affective cues?

Method

To test the hypotheses and answer the research question, a manual quantitative content analysis of tweets was conducted. In contrast to large-scale machine-coded analyses, human coding allows the authors and the communication styles of tweets to be analyzed in more depth.

Sampling

To assess political discussions on Twitter, we investigated all Twitter communication pertaining to the legislative reform of the German Renewable Energy Act (EEG; *Erneuerbare-Energien-Gesetz*). This topic was selected because (1) it was very controversially discussed among different actors in Germany, and (2) we could track the Twitter communication of the complete legislative decision-making process. The EEG-reform privileges the supply of electricity from renewable energy sources into the public grid and guarantees fixed rates for producers. Naturally, this regulation led to an increase in energy prices, raising debates about its economic and ecological efficiency, and about exceptions for large industries. After the national election in September 2013, the new government—a coalition of the Christian Democratic Union (CDU; *Christlich Demokratische Union*), the Christian Social Union (CSU; *Christlich Soziale Union*), and the Social Democratic Party (SPD; *Sozialdemokratische Partei Deutschlands*)—agreed on a reform of the EEG and incorporated these reforms into the coalition contract signed on December 16, 2013. The law finally came into effect on August 1, 2014. Therefore, our analysis covers the period from December 16, 2013 to August 2, 2014. This relatively long investigation period allowed us to include several stages of the public discourse on this issue, both in politics (BMWi, 2014; German abbreviation for Federal Ministry for Economic Affairs and Energy) and in German media outlets, with diverse speakers involved in debating different aspects of the reform (Hake, Fischer, Venghaus, & Weckenbrock, 2015).

The public discourse around this issue on Twitter was examined using five German keywords that were derived from the most frequently used words in both political booklets and professional news coverage: *Erneuerbare-Energien-Gesetz* (the German Renewable Energy Act), *EEG* (the German Renewable Energy Act), *EEG-Umlage* (EEG apportionment), *Ökostrom* (green power), and *Stromumlage* (power apportionment). Using these keywords, 84,519 tweets using researcher-developed tracking software were collected via the Twitter Search API. Bruns and Liang (2012) note two disadvantages of using the Twitter Search API. First, the retrieval rate is limited by the IP access of the requesting client, and second, Twitter

could change its access policy at any time, resulting in a loss of relevant tweets. We solved these two problems by parallelizing access to the Twitter Search API with multiple clients, all with different IPs. This largely reduced the risk of reaching the rate limit, although it did require us to identify and remove possible duplicates in the database. To ensure the completeness of the dataset, our tracking software could determine whether the rate limit had been reached or if the Twitter Search API could not be reached. In the case of either of these unlikely events, the tracking software would gather the tweets from the previous three days. This fallback solution enabled us to add any missing tweets.

By using the Twitter API, additional account and tweet information was tracked for each tweet, including the user description of the respective account and the number of retweets. Also, the very small Twitter URLs were resolved. The dataset was consolidated by excluding tweets in languages other than German, because the applied keywords for data tracking had different meanings in other languages and were not relevant for analyzing the EEG law reform. From this dataset, a sample was drawn in two stages.

First, from the eight-month investigation period, 45 investigation days were selected from days on which parliamentary events took place: (a) 16 days on which Twitter activity was high (with *high activity* defined as at least 1% of all tweets on that day pertaining to this issue); (b) 18 days with normal activity (that is, 0.5–0.9% of all tweets pertaining to this issue); and (c) 11 days with low Twitter activity (less than 0.5%). For these 45 days, a total of 34,935 tweets were retrieved. Second, we drew a proportionally layered daily sample from these 34,935 tweets by randomly selecting about 30% of daily tweets and retweets. After the data cleaning process, in which we excluded duplicate tweets, irrelevant tweets (that is, spam), and retweets, we obtained a sample of 5,600 original tweets. For 1,197 of these tweets, the author type could not be identified mainly because of incomplete author profiles, so final sample consisted of of 4,403 tweets.

Independent Variables

The sample was manually coded by eight persons. We assessed reliability by computing averaged pairwise percent agreements among coders (PA), using Holsti's (1969) method, and Krippendorff's alpha (α).

First, we coded the *authors* of original tweets (Ferree et al., 2002; Larsson & Moe, 2013) using account names and user descriptions provided on publicly available Twitter profiles. We created five main categories based on a public sphere-related typology of actors (Habermas, 1984): (1) ordinary citizens, nonprofit-oriented and nonorganized social actors, excluding citizens or persons affected by EEG; (2) civil society, members or representatives of a nonprofit interest group, such as citizens' initiatives, environmental associations, consumer protection associations, and scientists; (3) economic actors, members or representatives of a profit-oriented interest group, including commercial enterprises, citizens, and municipalities as energy producers, and cooperatives; (4) actors at the center of politics, such as government bodies, legislators, and political parties; and (5) journalists and mass media outlets (PA = .78; α = .61). All tweet authors except citizens were considered as experts, because they are primarily providing professional information in a specific field. Consequently, coded citizens were nonexperts.

We then coded tweet *affect* (PA = .76; α = .43), as indicated by emoticons, emotional verbal expressions, humor, or capitalization. For rationality, we drew on a common definition as opinion claims for

or against the legislative reform, or aspects of this that could be interpreted as a shortened argument or fact (Friess & Eilders, 2015). Consequently, we coded whether a tweet contained a reason for an implicit claim or not (*PA* = .74; *α* = .42). The reliability tests show that the PAs exceed .70, which is the critical value in content analysis (Frey, Botan, & Kreps, 2000), for all the variables coded. Krippendorff's alpha shows lower values for communication-style variables. Krippendorff (2011) argues that such a result is attributed to a lack of enough variability in the data. However, other authors have empirically shown that Krippendorff's conclusion is inappropriate for highly skew distributed, nominally scaled variables (Feng, 2014). Our communication-style variables are dichotomously scaled and highly skewed; for both communication styles, the ratio between presence and nonpresence is about 80 to 20% (see results section). In this case, the use of percent agreement is a better choice than calculating Krippendorff's alpha because the chance agreement is minimal (Feng, 2014).

Dependent Variable

The number of retweets per original tweet represented the dependent variable of retweeting level. This is a count variable that was tracked via the Twitter API.

Control Variables

Based on previous studies, several variables potentially affecting the number of retweets were controlled. Specifically, we controlled for the inclusion of a URL (Suh et al., 2010; decreasing impact: Liu et al., 2012) or an @-mention (no impact: Liu et al., 2012), for the number of hashtags and the number of followers per tweet—a more accurate measure than the number of followers per user for this long sample period (Liu et al., 2012; Suh et al., 2010; no impact: Boehmer & Tandoc, 2015).

Data Analysis

Data were analyzed using hierarchical multiple regression with the retweeting count as the outcome, and tweet authors, communication styles, and control variables (URL, mentions, followers) as covariates in the first model. In a second model, we also included all interaction effects. To estimate the retweeting number of an original tweet, we used a negative binomial regression model with maximum likelihood procedures for parameter estimation, a convenient and standard method of accounting for the properties of empirical count data (Cameron & Trivedi, 1998).

Results

The coding yielded complete data for *N* = 4,403 original tweets (i.e., no retweets). Of all coded original tweets, 23% received at least one retweet (*M* = 0.68; *Min.* = 0; *Max.* = 87; *SD* = 2.55). To test whether tweet authors or communication styles affected this high variability in the retweeting number, we first included control variables as well as tweet authors and communication styles as main effects, and then the interaction effects in model 2. Both models are highly significant (Table 1). The likelihood ratio test comparing models 1 and 2 shows that adding the interaction terms resulted in a significant increase in model fit (LR χ^2 = 15.15, df = 5, $p < .05$), so we focused on model 2.

Table 1. Predictors of Retweeting in the Political Discourse on Twitter.

	Model 1	Model 2
	Exp(B)	*Exp(B)*
	(SE)	*(SE)*
Constant	0.23***	0.38***
	(.15)	(.21)
Followers	1.00***	1.00***
	(.00)	(.00)
Hashtags	1.32***	1.31***
	(0.03)	(0.03)
Presence of a URL (= 1)	0.65***	0.64***
	(0.10)	(0.10)
Presence of a mention (= 1)	1.23#	1.25*
	(0.11)	(0.11)
Civil society actors[a]	3.82***	1.81*
	(0.13)	(0.28)
Economic actors[a]	1.57***	0.84
	(0.12)	(0.27)
Political actors[a]	4.37***	3.48***
	(0.14)	(0.29)
Mass media outlets[a]	3.13***	1.71*
	(0.12)	(0.26)
Affect (= 1)	1.36**	0.89
	(0.10)	(0.23)
Rationality (= 1)	0.98	0.53**
	(0.10)	(0.21)
Civil society actors x rationality		2.55**
		(0.32)
Economic actors x rationality		2.21**
		(0.29)
Political actors x rationality		1.29
		(0.33)
Mass media outlets x rationality		2.16**
		(0.29)
Affect x rationality		1.68*
		(0.25)

χ^2(df)	461.39***	476.53***
	(10)	(15)
Log Likelihood	−3988.11	−3980.54
Pseudo-R^2 (McFadden)	0.18	0.18
Dispersion parameter α	4.37	4.31
	(0.22)	(0.22)

Note. The models were estimated using a negative binomial regression model (N = 4,403).
[a] Citizens as authors of original tweets form the reference category.
Significance thresholds: # $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

After including the four control variables of URL (present in 81% of all original tweets), @-mentions (15%), number of followers (M = 4197.57, SD = 20874.09), and the number of hashtags (M = 0.88, SD = 1.30) in the regression model, we added the tweet authors: civil society actors (accountable for 12% of all tweets), economic actors (27%), political actors (9%), and mass media outlets (22%), with citizens as the reference category. The communication styles of presenting affective cues (21%; reference category = affective detachment) and rationality (81%; reference category = not presenting arguments or facts) were included as dichotomous variables. Finally, we included interaction variables with the four author categories and the rational communication style, as well as the combining effect of both communication styles (model 2 in Table 1).

In H1, we assumed that the tweets of experts would receive more retweets than those of nonexperts. The results of our final interaction-effects model partially supported this hypothesis, as civil society actors, mass media outlets, and political actors all generated significantly more retweets than citizens. Civil society actors and mass media outlets received 81% and 71% more retweets than citizens, respectively, while political actors received 248% more retweets. Thus, H1 can be confirmed, because experts such as political actors, mass media outlets, and civil society actors received more retweets than citizens, although the effect of economic actors was not significant in the second model.

In H2a, we postulated that affective tweets are more often retweeted than nonaffective ones. This impact was only observed in the first model, in which affective tweets received 36% more retweets than nonaffective ones. In the second model, which included interaction effects, affective cues no longer influenced the number of retweets. Thus, H2a must be rejected. In H2b, we assumed that rational tweets are generally less frequently retweeted than nonrational tweets. Our results demonstrate that rationality decreases the number of retweets in both models. Thus, H2b is confirmed.

Concerning interactions among the four tweet authors and rationality (H3), the results show three significant interaction effects (see Table 1). Civil society actors who used a rational style had 121% more retweets than citizens; economic actors had 160% more; and mass media outlets had 116% more. No interaction effect was found between rationality and politicians. Therefore, the interaction hypothesis H3 was partially supported (for all types of experts except politicians). Finally, the interaction of affective and rational communication styles increased the number of retweets by 68%, suggesting that original tweets are shared more frequently if they contain both facts or arguments and an affective cue (RQ1).

Discussion

Based on the HSM, we aimed to investigate which tweet authors and communication styles become more visible through information sharing in a political discourse on Twitter. The findings show that tweets by civil society, political, economic, and mass media actors are more often retweeted than tweets by citizens, even when controlling for differences in the number of followers. The analysis of interaction effects provides more detailed insights, with rational tweets by civil society actors, economic actors, and mass media outlets receiving significantly more retweets than rational tweets by citizens. Furthermore, rational tweets accompanied by an affective communication style are more frequently shared. The fact that tweets of civil society, political, economic, and mass media actors are shared more frequently implies that users applied the expert heuristics based on the credibility of these actors compared with citizens that are perceived as laypersons. This result is consistent with previous findings that politicians and mass media outlets attract the most attention on Twitter (Ausserhofer & Maireder, 2013; Larsson & Moe, 2013; Liu et al., 2012). This may be because mass media outlets and political actors have access to privileged information; some of these actors are also already opinion leaders through their offline popularity and leadership positions.

Furthermore, we found that tweets containing affective cues received more retweets than tweets without affective cues, echoing previous results in which the sharing of affective messages was confirmed using sentiment analysis (Stieglitz & Dang-Xuan, 2012). However, this result was found only in the model without interaction effects (model 1). In the interaction effects (model 2), we did not find that affective tweets had a direct effect on the number of retweets, but there was an interaction effect between rationality and affect. These findings may be explained by the affect-as-information model (Schwarz & Clore, 1988). Thus, facts or arguments accompanied by affective cues might trigger affective states in users' minds and inform users that the current situation is problematic and that action (here: retweeting) is required. In the case of a political legislative process, there are two possible explanations, depending on the valence of affective cues in the tweets. In tweets containing negative affective cues, positive outcomes may be lacking, or negative outcomes are imminent. Referring to the EEG law reform, anticipated negative outcomes for users might be increasing energy prices for their own private households. The results also indicate that positive affective cues in tweets triggered positive affective states of users and, consequently, heuristic processing, because positive affective states inform individuals that their situations with regard to this law reform are safe and the outcomes are positive, and therefore no action is required. In this case, the effect of positive affective cues would counteract the effect of negative affective cues. Based on our definition of affect as a more stable disposition, it is conceivable that possible outcomes in terms of the political content and in terms of possible retweeting activity will be thought through more consciously than with an emotional style of communication. On the one hand, emotions instead of affects, which are understood as short-term reactions to stimuli, could make the tweet author less likely to link emotions with facts or arguments. On the other hand, potential retweet authors might share this content more impulsively, which increases the likelihood of retweeting purely emotional tweets. In this case, our research could be connected to emotional contagion research (Hatfield & Cacioppo, 1994).

One possible explanation for the interaction affect between rationality and various expert actors is that tweets by these authors might be perceived as more credible, with perceived credibility stemming from the good reputation or institutional affiliation of a tweet author. Tweeting with factual and neutral

information could also convey competence (Chen & Chaiken, 1999). Tweet rationality is then a desirable byproduct of the perceived credibility and competence of these expert tweet authors. However, such an interaction effect was not observed for politicians, thus potentially indicating that politicians are perceived as credible or competent without expressing rational information and that they receive retweets for reasons other than credibility and competency. For example, their retweets could primarily stem from their political colleagues and result from shared opinions or emotions.

From the perspective of deliberative democracy, we found that not only mass media outlets and politicians received above-average retweets, but so did civil society actors such as the German Federation for Environment and Nature Conservation (BUND; *Bund für Umwelt und Naturschutz Deutschland*), Greenpeace, and the NGO Campact. This finding indicates that the discussion of EEG law reform included an environmental perspective, coming from peripheral actors of the public sphere. Our study revealed that several citizens were also among the most retweeted users. However, we aggregated individual Twitter user profiles to correspond to the relevant public sphere actors. We then compared the retweeting levels of these tweet authors.

Our empirical results show that the frequency of retweets increases if the respective tweets both contain facts or arguments and are accompanied by affective cues, while original tweets are less frequently retweeted if these tweets contain only facts or arguments or affective cues. This finding confirms that pure rationality (Habermas, 1996) is a very ambitious requirement for political discourse when, at the same time, as many affected people as possible should be included in the discourse. Positive social bonds can help achieve mutual understanding, the fundamental requirement for fostering rationality in discussions in the public sphere (Graham, 2009).

Limitations and Future Research

This study has certain limitations that should be addressed in future research. We only considered two normative criteria pertaining to participating actors of original tweets and their communication styles. Future research could assess additional criteria of political discussions on Twitter, such as the ideals of interactivity, which demand free exchange among different actors (Ferree et al., 2002; Friess & Eilders, 2015). Some researchers see retweeting as one form of interactivity on Twitter, but one can also address tweets to other people, mention people in tweets, and link to other types of actors. These different interactivity behaviors might be related to certain actors. However, this is a controversial point in deliberation research and should therefore be considered with caution in future studies.

From an empirical point of view, research on the characteristics of retweet actors (such as actor type or number of followers) is needed. This would be the logical next step for a better understanding of users who share information. The relationship of retweet authors to original-tweet actors and the reach of their activities could both be examined. Furthermore, we used an indirect indicator for measuring heuristics (Bellur & Sundar, 2010), so that we cannot conclude with certainty that this respective heuristic was triggered. In addition, future research should also consider the valence of affective cues in tweets, since the valence of emotions can lead to different levels of information processing depth (Meijnders et al., 2001) and can provoke different types of reactions with respect to approach and avoidance (Clore et al., 1994).

Moreover, emotions and affects should be operationalized separately in a content analysis to better understand the relationship to the rational style of communication and the consequences for retweeting. Regardless of this, content analysis relies on (non)verbally expressed emotions or affects. Strategic or staged utterances are often indistinguishable from truthfully uttered emotions, whereby truthful utterances from the perspective of deliberation would be desirable for a communication-oriented exchange in the political discourse. Furthermore, other political discourses should also be examined on Twitter, so that our results could be generalized or differentiated for different political issues.

Finally, we also must note that, first, Twitter is regarded as an elite network (Ausserhofer & Maireder, 2013), especially in Germany. Secondly, the brevity of its messages and the low level of interactivity among its participants may not be the best venue for political discourse. However, it is only one of many arenas of the public sphere on the Internet, and users might express their opinions and viewpoints on various microblogging platforms. An increased sharing of political information on Twitter could potentially foster the visibility of users connected to other arenas of public discourse. These considerations refer to the concept of the emerging networked public sphere (Benkler, 2006), with messages that resonate highly on Twitter and potentially spilling over into the mass media or other discourse arenas. Further research is needed to identify and examine overlaps between Twitter and other deliberation platforms.

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