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Twitter and Political Communication in Korea: Are Members of the Assembly Doing What They Say?

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Abstract: *Members of the Korean National Assembly post to Twitter, but we really do not know how or what they say on this increasingly popular social media vehicle. We test the Downsian spatial model by asking whether officials communicate in ways which differentiate themselves from members of the opposite party in order to provide a clear distinction when it comes time for individuals to vote. We also compare parties on this strategy and measure the effect on audience size. We discover that there are no inconsistencies between communication and action, which is counter to our expectations. We also find that the popularity of liberal members of the Assembly seems to increase when they provide information rather than attempting to pull the median voter in a leftward direction. There is, thus, little opposition to a continued rightward shift of the median voter.*

Keywords: *Social media, median voter model, Korean politics, political communication*

1. Introduction

The rapid increase of Twitter users since its launch in 2006 and the recent dissemination of smartphones and tablet computers has accelerated Twitter use and enabled the number of Twitter accounts to now exceed 200 million worldwide (Wickre, 2013; Bosker, 2011). This paper expands and provides badly needed updates to core theories of political communication in the context of an examination of how the social media platform "Twitter" is used by elected officials in South Korea (henceforth, "Korea"). Twitter provides politicians with direct access to their audience – i.e., their constituents – and essentially has fostered an important but still poorly understood dynamic of political communication.

We focus on communications from elected officials via social media in Korea for a number of reasons. First, the media have given considerable attention to the effects of Twitter communication on political events (e.g., the 2010 National Assembly elections and provocations by North Korea) (Hsu & Park, 2012; Lim & Park, n.d., 2011; Sams, Lim, & Park, 2011). Second, Twitter use in Korea has clear, positive outcomes in political campaigns: In 2002, the country was the first to elect a president on the basis of social media-based activism which was led largely by young people (Han, 2012), and in a by-election for Seoul mayor in October 2011, one million tweets were generated to mobilize supporters and undecided voters (Y. O. Lee & Park, 2012). The significance of examining Korean political communication becomes even more important, though, when we point out that, with regard to the data analyzed below, more than two-thirds of all active national-level politicians are users of Twitter. The implication is that political leaders in Korea have ample opportunities to market themselves, their positions, and their party's positions. And, this is all done quickly, cheaply, and with an expansive reach. We have yet to understand precisely what these elected officials are saying, and this is crucial if we are to understand the broader implications for political communication and representation.

We use Twitter data and invoke the Downsian spatial model and valence effects as presented originally in Downs (1957) and Stokes (1963). In two-party systems, the median voter model – the Downsian spatial model – is the dominant structure and predicts that political leaders will employ a couple of different strategies. First, politicians will communicate in ways that will attract support from large swaths of the public; i.e., politicians will speak about issues that the majority of the public, represented by the median voter, agrees is important. Second, politicians will communicate in ways which differentiate themselves from members of the opposite party in order to provide a clear distinction when it comes time for individuals to vote. Korea is actually a multi-party system, but these parties are easily assigned to two groups according to ideological position where the Saenuri Party represents the conservative party and all other parties are classified "liberal."

With Twitter-based data, we are able to understand how Korean politicians employ these two communication strategies, and we are also able to match up such communications with their voting practices in order to determine consistency in what they say and do. That is, are politicians pitching themselves as moderates and then voting like extremists? To our knowledge, there has been no research on this topic in terms of social media-based communication despite a surge in use by politicians. We know that the Internet is a useful tool for politicians to convey information to their constitutents (Owen et al., 1999), and we confirm below that the most recent utility of the Internet – i.e., social media such as Twitter – are tools for self-promotion (Golbeck et al., 2010). However, the possibility that elected officials could in some way misrepresent themselves to their constituents, intentionally or otherwise, demands an update to the spatial model. Indeed, given the size of one's audience in social media, the tendency for the traditional media to cite politicians' social media updates, and the persistently increasing popularity of Twitter, our analysis of whether Korean politicians do what they say is both timely and forward-looking.

2. Literature & Hypotheses

Studies of political communication often focus on the language officials use in traditional media (Cook et al., 1983; Edwards III & Wood, 1999; Entman, 2007; Kedrowski, 2000; H. S. Lee, 2009) or, more recently, on websites and blogs that report statements and speeches of public officials (Gentzkow and Shapiro 2011). However, minimal research has examined language use within political conversations on social media. Where available, research on Twitter use by elected officials is primarily descriptive, focusing on Twitter adoption rates by followers of members of the U.S. Congress (Boutyline and Willer 2011; Himelboim, McCreery, and Smith 2011) or making relatively simple observations, such as determining that tweeting (posting on Twitter) is often concentrated in the hands of only a few politicians (Kim & Park, 2012).

In linguistic terms, Members of the Korean Assembly (MOAs) that tweet are accomplishing tasks which correspond to speech acts. Austin (1962) explained that communication between humans is typically much more than a means to transfer information from a speaker (sender) to a hearer (receiver). We are often trying to achieve a particular goal when we speak, and these underlying actions are referred to as "speech acts" (Bach, 1998). In extending Austin's concept, we develop our own coding scheme* for tweet "action" (described at length below) and discover that MOAs use social media to position themselves in ways that are consistent with their communication in traditional media (e.g., newspapers, TV news). Specifically, they position themselves, share information, and request action of their followers. Yet, MOAs also use Twitter to congratulate people, thank individual followers, and share the minutiae of their daily agendas. With these additions, MOAs are not simply using Twitter to position themselves in relation to others in the Assembly but also to convey a greater understanding of who they are. Legislative behavior, such as voting, is primarily studied as a predictor of incumbents' election campaigns (Bovitz & Carson, 2006; Carson, Koger, Lebo, &

* See [Anonymous] for complete details about the development of this coding scheme.

Young, n.d.; Cox & McCubbins, 2005; Grose & Middlemass, 2010; Mayhew, 1974), but we are more concerned with its connection to cross-party differences (Brady & Han, 2006; Frederick, 2010; Jenkins, 2012; Proksch & Slapin, 2012; Saunders & Abramowitz, 2004). In short, there has been little said about the correlations between legislative behavior and social media-based communication.

Following Downs' (1957) and Stokes' (1963) theories of political representation, positioning tweets provide a distinction between one MOA and another from the "other" party.* At the same time, tweets which narrate one's day, congratulate others, or thank others are intended to gain support, which is consistent with Burden's (2004) and Groseclose's (2001) claims that all non-positioning statements create some sort of valence advantage. "Valence," referring to non-policy factors (e.g., competence, personal integrity) that constituents use to make judgments about their representatives (Stokes, 1963), is especially present for non-positioning tweets (e.g., tweets that provide information or request action). Therefore, non-positioning tweets help politicians achieve their first strategy goal by attempting to attract large swaths of the public using valence rather than policy. There is also an incentive for MOAs to avoid positioning tweets as they may be accompanied by great costs. For example, politicians can diverge from party ideology, harm their reputations, and suffer electoral losses as a result of stating their positions (Ansolabehere et al., 2001a; Burden, 2004; Deckard, 1976; Ensley, 2012; Sullivan and Uslaner, 1978). Negative reputation effects are also exacerbated when positioning statements do not square with positioning actions such as legislative behavior, such as one says one thing and votes in the opposite direction.

The setup for our study is quite simple and relies on the inherent differences between the Twitter-based actions of conservative and liberal MOAs. We explore the possibility that polarizing statements arise more from one group of MOAs more than the other. For example, conservatives might be more likely to make polarizing statements than

* For our purposes, the Saenuri Party is the conservative party while all other parties are grouped together in the liberal party.

liberals; yet, liberals are more likely to rely on valence advantages achieved through non-positioning communication in order to attract support because they fall left of the median voter on policy issues. As such, we hypothesize that members of the conservative party in Korea are more likely than liberal party members to engage in positioning tweets. It is of no consequence whether a positioning tweet is with regard to a politician from the other party or about a particular issue; politicians and their parties are typically clear representative of issues, often referencing specific bills by the names of the co-sponsors.

We also test whether MOAs are inconsistent by positioning excessively via Twitter, where it is easy and costless, but voting in the Assembly much closer to the median voter. Assuming that we accept the hypothesis that conservative party members are more likely to position-tweet, we expect that such inconsistent behavior will be more pronounced for conservatives. To conduct this test, we will compare extreme voting behavior in the National Assembly with excessive positioning via Twitter.

Given that positioning statements play such an important role in political communication, we examine a third area of research to determine the specific effects of positioning statements on audience size. In line with the second strategy implied by the Downsian spatial model, we expect politicians will communicate in ways that differentiate themselves from the other party; however, if other speech acts increase audience size, the value of this communication strategy is effectively mitigated. Given the expected prevalence of positioning by conservative politicians, there should be clear differences between what attracts the respective audiences of the conservative and liberal parties. This analysis should prove edifying for researchers as well as for the MOAs themselves.

In summary, we propose and test three hypotheses and analyze the effect of tweeting behaviors on audience size:

> H1: *Members of the conservative party in Korea are more likely than liberal party members to post positioning tweets*;

H2: *Inconsistent behavior will be more pronounced for conservatives as measured by correlations of positioning tweets and extreme legislative votes*;

H3: *Positioning tweets are significantly associated (positive or negative) with audience size.*

3. Method: Data Collection and Coding Tweet Action

According to the Twitter Korean Index by OikoLab (http://tki.oiko.cc/service/count), the number of Korean Twitter accounts is approximately 6.5 million as of May 4, 2012. That is roughly fourteen percent of the total population. Our first task was to identify Twitter accounts for MOAs, based on listings at assembly.go.kr. Using the Twitter Database Server (Green 2011) and Twitter-collectors (anonymized citation), we gathered 4,303 original tweets posted by 202 elected MOAs between July 1, 2012 and July 15, 2012, a time period which was not influenced by any particular political event, election campaign, or structural change. This is far larger than earlier datasets of legislative Twitter posts (Golbeck, Grimes, & Rogers, 2010; Hsu & Park, 2011, 2012), politicians' web pages (Lim & Park 2011; Xenos and Foot 2005), politicians' blogs (Park & Thelwall 2008; Park & Kluver 2009), or politicians' use of traditional media (Lim & Park 2011, 2012; Xenos and Foot 2005). As such, we have been able to avoid problems of consistency and generalizability present in earlier studies.

Our method of identifying positioning and thus potentially polarizing statements is the result of an iterative process of establishing inter-coder reliability across a spectrum of action-based categories. We used three rounds of coding to develop a robust scheme for the action taken in tweets: six codes – narrating, positioning, directing to information, requesting action, giving thanks, and other – were identified to describe the nature of the action taken in a tweet.* While

* To elaborate, narrating tells a story about their day, positioning situates one's self in relation to another politician or political issue, directing to information points to a resource URL, requesting action explicitly tells followers to go do something online or in person, and thanking congratulates or thanks someone else. See [Anonymous] for complete details.

inspired by the concept of speech act, the codes in our scheme are not mutually exclusive and allow us to better capture what officials are trying to accomplish when they post a tweet. This is particularly important in terms of political communication, as MOAs are often engaging in multiple actions at once. Our approach provides a stark correction to Golbeck, et al. (2010), who found that a single speech act, "providing information," described almost all tweets posted by members of the U.S. Congress (over 98% of tweets in their data set). Our coding scheme accounts for more fine-grained actions as compared to that of Golbeck and colleagues, providing us with better insight into a MOA's overall communication strategy on Twitter. Three sets of one hundred tweets were randomly drawn from the sample, and we calculated Cohen's kappa scores (Cohen, 1968) for each code and found very strong agreement between coders.* In the sample generated for the coding process, shown in Figure 1, positioning and directing to information were by far the most common actions exhibited on Twitter.

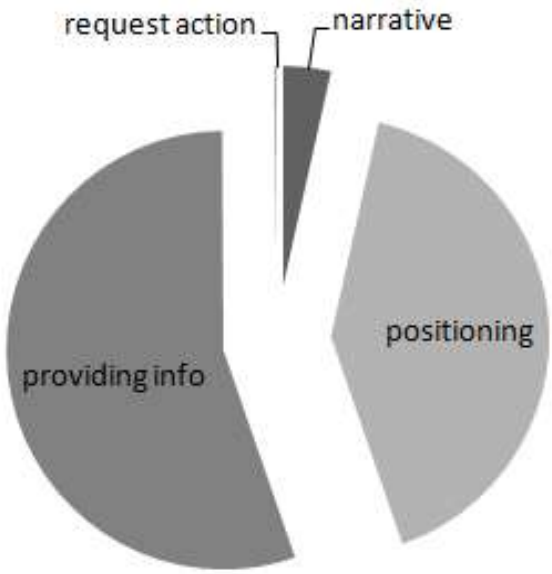

Figure 1. Distribution of Twitter speech acts by Korean politicians

* The simple kappa coefficient is 0.78; the weighted kappa coefficient is 0.87.

The labor-intensive nature of hand-coding each tweet using the action coding scheme described above makes it difficult to code large numbers of tweets. We avoid this problem through successful efforts to automate the coding process, using our manually labeled dataset to train binary classifiers for each of our five action codes.* To this end, we employed MALLET (Machine Learning for LanguagE Toolkit; McCallum, 2002) both to train and evaluate our classifiers. MALLET uses supervised learning algorithms to exploit the words in tweets in order to determine whether or not they exhibit each of the five actions. We experimented with three learning algorithms in building our classifiers: naïve bayes, decision trees and maximum entropy. The maximum entropy classifiers achieved the greatest accuracies on classifying the tweets, a result that resonates with those of previous research in text classification problems (e.g., Nigam et al. (1999). We performed 10-fold cross-validation experiments in which each classifier was trained on nine-tenths of the tweets, and then evaluated on the remaining one-tenth of the unseen data, for 10 iterations (Mitchell, 1997). For each tweet, the output of MALLET is a probability that it should be coded as a given action. We then converted these measures to binary values based on whether they were greater than or equal to 0.50 (coded "1") or less than 0.50 (coded "0"). It should be noted that the results generated by using a binary classification do not differ significantly from the continuous measure. Intuitively, it makes more sense to have definitive tweets; e.g., "yes" or "no" for whether a tweet is "narrative" rather than a tweet being, for example, "35 percent narrative."

We focus on positioning tweets and providing information tweets as they are the most common Twitter actions and can even be considered opposing actions; i.e, when one positions, s/he attempts to polarize the electorate (or their following on Twitter, whatever the case may be).† Positioning tweets often take shape like "Here's where I stand on issue X", implying

* We omit the "other" action category in the following analysis, as it represents a still unidentifiable measure and is challenging to interpret. Omission does not impact our results in any meaningful way.

† Only 1 percent of our more than four thousand tweets were classified as both positioning and providing information.

that followers should agree. Encouraging followers to agree, even implicitly, is a potentially polarizing action. When providing information as we have defined it above, the MOA is attempting to bring the facts of the issue to the electorate rather than to persuade. Tweets that provide information take the form of "Read here [URL] for more information on issue X" and do not imply a position or encourage followers to take a particular stand. Rather, these tweets encourage followers to develop their own opinions. Of course, the information sources to which MOAs direct their followers may be polarizing, but that information is not immediately available from the tweet, and we focus only on what is conveyed in the tweet communication.

There are two separate dependent variables. First, we use a measure of polarized voting by the Dong-A Ilbo. The Donga-A Ilbo analyzed all of the 278 MOA's voting patterns on 720 pieces of legislation from May 30, 2008 to November 6, 2009. This was designed to be consistent with polarizing measures such as DW-Nominate for the U.S. (Cho and Kwon, 2010). The process for generating the Donga-A Ilbo data is as follows: the roll-call data set was created and organized as a network matrix; each cell in the matrix represents an agreement/disagreement of particular bill between dyadic relations, and a legislator is ranked according to how similarly s/he votes to his/her peers. We use the available data for the 19th National Assembly. Our sample size diminishes considerably when we align the Dong-A Ilbo measures with our Twitter data because Korea's most recent Assembly began on April 11, 2012 and, thus, a number of newly elected (and tweeting) legislators lack voting measures. We convert the conventional -1 (for most liberal) to +1 (most conservative) scale to absolute values. To assess the effects of different Twitter-based communication strategies on audience size, we also use as a dependent variable the number of Twitter followers as of July 15, 2012.

4. Results

The results presented in Table 1 focus on the differing patterns between the conservative and liberal parties in Korea with regard to positioning tweets and tweets which

direct the user to additional information. To address potential bias from high- and/or low-frequency tweeting MOAs, we also regress the dependent variable on each MOA's Twitter user ID. This technique is employed for each regression presented below. Our first hypothesis – that conservative MOAs are more likely than liberal MOAs to position tweet – is confirmed with the results presented in column 1 of Table 1. Conservative MOAs are also distinct from liberal MOAs in that the latter, shown in column 2 of Table 1, are much more likely to provide additional information to their followers through Twitter. In other words, those MOAs who are most likely to polarize via Twitter, i.e., conservatives, are not likely to direct their followers to additional information about an issue.

Table 1. Twitter-based communication as a function of conservativeness

	(1) Positioning	(2) Directing to information
Conservative party	0.42***	-0.13*
	(0.08)	(0.08)
User ID control included?	Yes	Yes
N	4,303	4,303
Chi2	27.71***	6.16**
Pseudo R^2	0.005	0.001

Note: Cell entries are logit regression coefficients where Positioning = 1 and Directing to information = 1. Standard errors are within parentheses; ***, **, and * represent statistical significance at the 1, 5, and 10 percent levels, respectively.

Having established that positioning is occurring and with different tendencies across parties, we now test for a positive correlation between positioning statements and positioning actions. To this end, we regress polarized voting – i.e., Dong-A Ilbo scores – on the interaction between positioning tweets and each party (see Table 2). This is shown in column 2 where the second row represents the effect of liberals who position tweet and the interaction in the third row represents the effect of conservatives who position tweet. We calculate the effects of each party from the OLS regression output by using the effect of liberals as a baseline (-0.00) and the effects of the conservative party by adding/subtracting to/from the baseline (0.09). This shows that positioning statements via Twitter predict significantly more polarized voting in the Assembly for conservatives. In other words, neither party is necessarily inconsistent between their communication via social media and their actions. Moreover, the evidence allows us to infer that the conservative MOAs are in fact being sincere in their positioning communication. This is further confirmed when we consider instances in which liberals and conservatives provide information via Twitter, shown in column 3: liberals who provide information show a decrease of 0.03 in their polarized voting score. Conservatives providing information show an even greater decrease of 0.06.

Table 2. Polarized voting in the Assembly as a function of party and Twitter-based communication

	(1) Polarized voting	(2) Polarized voting	(3) Polarized voting
Conserv. party	-0.08***	-0.12***	-0.05
	(0.02)	(0.03)	(0.03)
Positioning		-0.00	
		(0.02)	
Conserv. party* positioning		0.09*	
		(0.05)	

Providing info			-0.03*
			(0.02)
Conserv. party* providing info			-0.06
			(0.04)
User ID control included?	Yes	Yes	Yes
N	687	687	687
Chi2	15.75***	9.06***	10.21***
R^2	0.044	0.050	0.06

Note: Cell entries are OLS regression coefficients. Constant is excluded. Standard errors are within parentheses; ***, **, and * represent statistical significance at the 1, 5, and 10 percent levels, respectively.

We found no indication that communicating with positioning tweets is significantly associated with the size of an MOA's audience. This is shown in Table 3, column 2, where the second row represents the effect of liberals who position tweet and the interaction in the third row represents the effect of conservatives who position tweet. Like above, we calculate the effects of each party from the OLS regression output by using the effect of liberals as a baseline (0.00) and the effects of the conservative party by adding/subtracting to/from the baseline (0.05). The same technique is used to determine how providing information via Twitter is differentiated by party. In this case, the association with the size of one's Twitter-based following are quite strong for liberals (0.11 for column 3 in Table 3) and nearly zero for conservatives (0.11-0.11=0).

Table 3. Followers on Twitter as a function of positioning and providing information

	(1) Log followers	(2) Log followers	(3) Log followers
Conserv. party	-0.46***	-0.49***	-0.41***
	(0.05)	(0.03)	(0.07)
Positioning		0.00	
		(0.04)	
Conserv. party* positioning		0.05	
		(0.10)	
Providing info			0.11***
			(0.04)
Conserv. party* providing info			-0.11
			(0.10)
User ID control included?	Yes	Yes	Yes
N	4,301	4,301	4,301
Chi2	837.78***	418.85***	421.42***
R^2	0.280	0.286	0.281

Note: Cell entries are OLS regression coefficients. Constant is excluded. Standard errors are within parentheses; ***, **, and * represent statistical significance at the 1, 5, and 10 percent levels, respectively.

The comparative effect of each Twitter speech act on the size of one's following is presented graphically in Figure 2. The stacked column is the result of OLS regression results where the log of the number of followers is the dependent variable and each piece of the stack is the result of interactions between party (0 for liberal, 1 for conservative) and the five different Twitter actions; $F(9, 4301)=191.52$, $R^2=0.287$. The results show that conservative MOAs are not especially effective at attracting followers on Twitter except via positioning. Conservatives are predicted to lose followers when announcing the details of their day. Liberal MOAs, on

the other hand, gain followers when they use Twitter as a vehicle for narrating their daily activities and providing information. Requests for action by liberals repels followers and, shown already in Table 3, the association between using Twitter to position and the size of a liberal MOA's following is negligible.

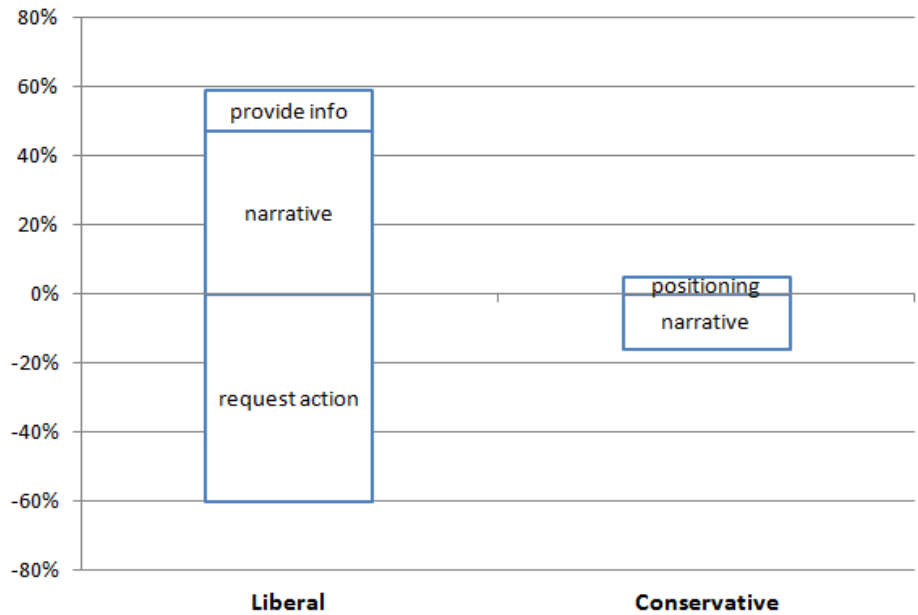

Figure 2. Action tweets' effect on number of followers (percentage change)

Note: A Twitter user ID control is included in these calculations.

5. Discussion

Our work shows that political statements made via social media present a position across an ideological scale, in contrast to previous claims (Gentzkow & Shapiro, 2011). As well, politicians are not strictly using Twitter to direct constituents to relevant information (Golbeck et al. 2010), but they use it in a variety of ways. These communication strategies not only correlate with party attributes but, most importantly, to the likelihood that MOAs will exhibit polarizing voting behaviors. Yet, the correlation is not

negative, as we hypothesized, but positive. In Korea, neither party is necessarily inconsistent between their communication via social media and their legislative actions.

While it is clear that conservative MOAs rely much more on positioning tweets, it is encouraging that there is no significant association with the size of one's following. However, we expect that as Twitter becomes more and more popular and as we ride the cycles into and out of each election, we will witness a public much more interested in what MOAs have to say, especially via Twitter. Given that conservatives dominate the use of polarizing speech acts via Twitter, will liberals embrace the option of preventing further rightward shifts of the median voter by ramping up their positioning rhetoric? For the time being, our results indicate that liberals are much more likely to continue to provide information via Twitter above all else.

The fact that potentially polarizing forms of communication are occurring with extreme voting – at least for conservative MOAs – does not necessarily indicate that the public will know all there is about politicians from their Twitter posts. This raises normative questions of whether and how much the public should care about figuring out which communications are in fact extreme. Publicly available vehicles for sharing this information with the general public are largely under-reported in the media despite their promotion by data providers (see, for example, http://truthy.indiana.edu/politics). With the low-cost, high-frequency use of social media by elected officials, it is imperative that we continue to study connections between communication and action by elected officials. This is especially important as we consider key events like the election cycle.

In terms of implications for the median voter model, the balancing act between the two communication strategies of interest – communicating to attract followers and communicating to differentiate oneself from members of the other party – can lead to shifts in the median voter if the second strategy is employed predominantly by just one party (in a seemingly two-party system). We observe such behavior by members of the conservative party in the Korean National

Assembly. However, the median voter may also shift because s/he is uninformed or misinformed, resulting from being inundated with polarizing information from the media or elsewhere. At the very least, we can say with certainty that the amount and nature of the polarizing speech acts conveyed via social media are distinct between parties and worth further scrutiny in terms of their effect on the median voter model.

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