Dynamics of Asymmetric Conflict: Pathways toward terrorism and genocide

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Computational linguistics analysis of leaders during crises in authoritarian regimes

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Computational linguistics analysis of leaders during crises in authoritarian regimes

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We investigated linguistic patterns in the discourse of three prominent autocratic leaders whose tenure lasted for multiple decades. The texts of Fidel Castro, Zedong Mao, and Hosni Mubarak were analyzed using a computational linguistic tool (Coh-Metrix) to explore persuasive linguistic features during social disequilibrium and stability. The analyses were guided by the elaboration likelihood model of persuasion, which contrasts central versus peripheral routes to persuasion. Results show these leaders utilize the central persuasion route, with more formal discourse patterns during times of crises versus non-crises. A significant interaction between leader age and armed conflict revealed interesting adaptive characteristics. Specifically, leaders’ formality decreases over time in both crises and non-crises times, but this attenuation is less prominent during crisis periods. The implications of these results are discussed in the context of using computational linguistics analyses to generate potential predictive models of social disequilibrium and to advance our understanding of authoritarian regimes.

Keywords: political discourse; social disequilibrium; persuasion; computational linguistics; Coh-Metrix

Persuasion is a hallmark of politics, both democratic and authoritarian. This is because political elites, in the pursuit of power, must mobilize opinions to their advantage and capture the consent of its audience. There is a growing body of research suggesting that language is an illuminating reflection of politicians attempting to achieve persuasion goals (e.g. Menegatti & Rubini, 2013).

Aside from persuasion, social science researchers have identified how the language of political leaders and terrorists can reveal psychological states, cognitive functioning, and more macro-level social dynamics (Bligh, Kohles, & Meindl, 2004; Boydstun, Glazier, & Pietryka, 2013; Gadarian, 2014; Hancock et al., 2010; Matsumoto & Hwang, 2013; Pennebaker & Chung, 2008; Pennebaker & Lay, 2002; Smith, Suedfeld, Conway, & Winter, 2008; Young & Soroka, 2012). These findings are in line with previous research in other areas where language and discourse have proven useful in detecting psychological and social phenomena, such as personality, psychological functioning, social tension, deception and emotion (D’Mello, Dowell, & Graesser, 2009; Dowell, Cade, Tausczik, Pennebaker, & Graesser, 2014; Duran, Hall, Mccarthy, & McNamara, 2010; Hancock, Woodworth, & Porter, 2013; Tausczik & Pennebaker, 2010).

There is considerable variation among the different approaches to investigate political discourse, but researchers have been increasingly incorporating corpus linguistics and
computational techniques (Chung & Pennebaker, 2014; Hancock et al., 2010). More specifically, innovative advances in computational linguistics include Coh-Metrix (Graesser, McNamara, Louwerse, & Cai, 2004; McNamara, Graesser, McCarthy, & Cai, 2014) and Linguistic Inquiry Word Count (Tausczik & Pennebaker, 2010), both of which provide a new framework for analyzing linguistic patterns and psychological states in political discourse. Among the many benefits of these tools is their ability to be applied systematically and to provide the capacity to analyze substantial amounts of information spanning many years (Grimmer & Stewart, 2013; Hancock et al., 2010). The current work adopts the Social Language Processing (SLP) approach, which is a research framework that marries social and psychological theory with computational techniques for modeling the relationship between discourse and social dynamics (Hancock et al., 2010). An interdisciplinary approach that combines these novel methodologies with theoretically grounded psychological frameworks opens a world of possibilities that addresses gaps in the political science and leadership literature.

One particularly potent linguistic construct is linguistic complexity, or what some researchers call formality (Biber, 1988; Graesser et al., 2014). The degree of formality versus informality in discourse has been shown to play an important role in signaling socially significant meaning, such as authority, persuasion, politeness, solidarity, and closeness (Brennan & Clark, 1996; Brown & Levinson, 1978; Dijk, 1998; Stephan, Liberman, & Trope, 2010). Given the important psychosocial significance of this linguistic formality construct, it is worthwhile investigating its role in political leadership during times of crisis.

The present study adopted computational linguistic methodologies to analyze formality in the context of armed crises versus stability. Vehicles of attitude change in politics surface during times of crisis to ensure that citizens are supportive of a leader’s policies. Wars are costly, so leaders often have to sell the idea of war through persuasive speeches. The leader needs to identify potential gains, mitigate or downplay potential losses, and effectively marginalize the enemy. With this in mind, we explored the linguistic patterns of formality during stability and varying degrees of armed conflict intensity in the discourse of three prominent autocratic political leaders whose tenure lasted for multiple decades. The findings are interpreted from the standpoint of theoretically grounded strategies of persuasion put forth by Petty and Cacioppo (Petty & Cacioppo, 1984; Petty, Cacioppo, Strathman, & Priester, 2005).

Theoretical persuasion frameworks, such as the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1984; Petty et al., 2005), lend themselves nicely to explorations of political strategies during social disequilibrium and stability. According to this dual processing model, the persuasive influence of a message is contingent on how deeply the message is processed. It is under this assumption that Petty and Cacioppo proposed two potential routes to persuasion, namely the central and the peripheral (Petty & Cacioppo, 1984; Petty et al., 2005). The central route occurs in circumstances when the message arguments are carefully and thoughtfully scrutinized and likely to be elaborated by the receiver. The peripheral route prevails in situations when individuals do not carefully deliberate on the message arguments, but instead base evaluations on simple cues, such as the perceived attractiveness or credibility of the speaker. In line with this principle, the bases and processes of influence are dependent on the motivation and ability to process the message. For example, individuals who are not highly motivated (e.g. the argument is not personally relevant) or have low ability (e.g. limited time, knowledge, or intelligence to process) are influenced primarily by the peripheral route. According to the ELM model, people are typically persuaded from peripheral cues because they are inclined to expend
the minimum amount of effort (being cognitive misers) to process messages (Fiske & Taylor, 1984). The peripheral route to persuasion primarily convinces the masses, whereas those persuaded through central processing (presumably the educated audience) form attitudes that are more coherent, stronger, stable over time, and resistant to counter information.

The ELM framework has been an important paradigm in the social psychology attitude change literature during the last few decades, generating a rich body of empirical research that has investigated attitude strength, stability, and change. While most of this research is based on attitudinal surveys and memory task performance, some projects have investigated specific linguistic markers of messages that result in either the central or peripheral attitude judgments (Allen & Preiss, 1997; Jae, 2010; Kaakinen, Salonen, Venäläinen, & Hyölä, 2011; Lee & Leets, 2002). The most relevant findings show that the characteristics of messages that emphasize the central route resemble formal language. More specifically, this research suggests messages delivered via the central route are characterized by coherent, logical, expository discourse (formal), while peripheral route messages are characterized by entertaining, narrative, syntactically simpler discourse that is easier to comprehend (informal) (Allen & Preiss, 1997; Jae, 2010; Kaakinen et al., 2011; Lee & Leets, 2002). In the context of this theoretical framework, political leaders could use either the central or peripheral persuasion routes during times of crisis.

According to one body of research, during times of uncertainty and ambiguity created by crisis events, there is an increased need for leaders to make a pitch, offer coherent solutions, present solid evidence, exercise novel strategies, and establish conceptual clarity to the current situation (Mumford, Friedrich, Caughron, & Byrne, 2007). This work suggests that leaders would pursue the central route to persuasion, at least initially, to mobilize public opinion to their advantage and secure credibility for themselves and their institutions. While this strategy results in strong attitude change, it is limited to an educated audience and thus comes at the cost of having a lower persuasive impact on the uneducated masses. However, a small winning leadership coalition is the relevant audience in an autocratic regime, so the central route would have advantages for autocratic leaders.

However, more complex predictions are also plausible. For example, cognition and behavior are allegedly not static, so it is possible that political elites adapt and change their strategies over time with the accumulation of experience (Mumford et al., 2007; Shamir, 2011). This would be consistent with research showing political knowledge as the strongest predictor of expert–novice differences in political cognition (Fiske, Lau, & Smith, 1990). Perhaps autocratic leaders use the central route to persuasion during times of armed conflict early in their careers, but adapt toward more peripheral strategies as they gain more experience and discover that the peripheral route has its advantages in persuading a higher percentage of the audience. While research has started to address these topics, we still know very little about the processes of leading in and through these critical periods (Mumford et al., 2007). On the basis of previous literature, the following hypotheses were made:

**Hypothesis 1:** Autocratic leaders will use the central route to persuasion during times of crisis. Specifically, times of crisis will be associated with an increase in formality compared with periods of stability.

**Hypothesis 2:** The use of central route persuasion strategies will decrease over time as leaders accumulate experience. Specifically, there will be an interaction between crisis and the autocratic leader’s age, wherein the influence of crisis on political leader’s formality will depend on the leaders’ age.
The present study set out to make four primary contributions to the literature. First, we address questions of leadership processes within the context of crises (versus non-crises) and how these situational variables guide the discourse of social influence (Mumford et al., 2007). Second, we examine the temporal dynamics of leadership to advance current understandings of how leadership unfolds over time (Shamir, 2011). Third, we add to the limited body of research that has investigated leadership phenomena outside the boundaries of western political leaders (Bligh & Robinson, 2010; Ferrari, 2007; Masters & ’t Hart, 2012; Robinson & Topping, 2012). And fourth, we tested our predictions with objective measures of political discourse provided Coh-Metrix (McNamara et al., 2014), an automated system at the intersection of computational linguistics and the social sciences (described more in the methods section). These contributions, taken together, highlight the benefits using an SLP research framework to explore notoriously less transparent political entities, such as authoritarian leaders.

Methods

Authoritarian leader corpora

Authoritarian leaders are operationalized as political leaders who have presided over politically closed regimes. The autocratic leaders used in the current study – Fidel Castro, Zedong Mao, and Hosni Mubarak – were selected based on their lengthy tenure. The long-lasting tenure of these three autocratic leaders makes them ideal for exploring interactions between the leaders’ level of experience and strategies of influence. Further, it should be noted that their long-lasting power makes them arguably distinct from other political leaders, and as such it is not our goal to make comparisons or extend the findings beyond this population, but rather to shed light onto the strategies of influence that were utilized by this successful subset of autocratic leaders.

Commander Fidel Castro

Commander Fidel Castro’s corpus consisted of 1172 English-translated texts delivered between 1959 and 2008. The texts were obtained using the Castro Speech Database maintained by the Latin American Information Center at the University of Texas at Austin and Discursos e Intervenciones de Fidel Castro (“Castro Speech Database – LANIC”, 2010, “Discursos e Intervenciones del Comandante en Jefe Fidel Castro Ruz”, 2010).

Chairman Zedong Mao

Chairman Zedong Mao’s corpus consisted of 365 English translated texts delivered between 1926 and 1970. The speeches from 1926 to 1957 were collected from the Selected Works of Mao Zedong (Tse-Tung, 2001), while the speeches ranging from 1958 to 1970 were collected from the Selected Works of Mao Zedong (Tse-Tung, 1990).

President Hosni Mubarak

President Hosni Mubarak’s corpus consisted of 307 English translated texts delivered between the years of 1996 and 2011. The texts were obtained using the Egypt State Information Service site (2011).

Data collection was considered complete when all available English texts from each source were collected.
Text information and handling

All analyses were conducted on translated English texts of these autocratic leaders. The genres of texts included speeches, statements on major issues, and addresses in which the leader was the sole speaker. Information that was not a part of the actual discourse (e.g. audience reactions, editor comments) was removed in a cleaning process. Each speech was labeled by date and put into a text file format and analyzed using a computational linguistic facility. Finally, each speech was given a unique increasing relativized number that varied from 0 to 1 according to formula 1, using month as the unit of analysis:

\[
T_x = \frac{[Y_x \times 12 + M_x] - [Y_{min} \times 12 + M_{min}]}{[Y_{max} \times 12 + M_{max}] - [Y_{min} \times 12 + M_{min}]}
\]

The expressions in this formula include the relative time of speech (\(T_x\)), the year the speech was given (\(Y_x\)), the number of months in a year (12), the month that the speech was given (\(M_x\)), the year that the first speech was given (\(Y_{min}\)), the month that the first speech was given (\(M_{min}\)), the year the last speech was given (\(Y_{max}\)), and the month the last speech was given (\(M_{max}\)). This relativized metric for time was used because the intervals between speeches were not homogeneous and we wanted to compare leaders relative to each leader’s career duration.

Computational linguistic tool

Coh-Metrix is an automated linguistics facility that analyzes features of language and discourse (Graesser et al., 2004; McNamara et al., 2014). Coh-Metrix incorporates automated computational methods of natural language processing, such as syntactic parsing and cohesion computation, to capture language characteristics at the word level, sentence level, and deeper levels of discourse. Coh-Metrix provides hundreds of measures at multiple levels, including genre, cohesion, syntax, word characteristics, as well as other aspects of language and discourse (Graesser & McNamara, 2011; Graesser, McNamara, & Kulikowich, 2011). Recently, Graesser et al. (2011) conducted a principal component analysis (PCA) that uncovered eight orthogonal dimensions that accounted for 67% of the variance in a large corpus of 37,520 texts. These Coh-Metrix dimensions align with multilevel theoretical frameworks of language and discourse that differentiate structures, strategies, and cognitive processes at different levels of language and discourse (Graesser et al., 2011; Kintsch, 1998; Snow, 2002). The five major PCAs of Coh-Metrix are listed and succinctly defined below, starting with the most global level (genre) and ending with a dimension of words.

1. **Narrativity.** Narrative texts tell a story with characters and events, which are closely affiliated with everyday oral conversation.
2. **Deep cohesion.** The extent to which the ideas in a text are connected with causal, intentional, or temporal connectives at the deeper situation model level.
3. **Referential cohesion.** The extent to which discourse contains explicit words and ideas that overlap across sentences and the entire text.
4. **Syntactic ease.** Sentences with fewer words and simple, less embedded syntactic structures are easier to process and understand.
5. **Word concreteness.** The extent to which words evoke mental images and are more meaningful to the reader than abstract words.
For the purposes of the current investigation, the five Coh-Metrix dimensions were used to compute one composite measure of formality (see Equation (2)).

\[
\text{Formality} = \frac{\text{Expository} + \text{Deep Cohesion} + \text{Referential Cohesion} + \text{Syntactic Complexity} + \text{Word Abstractness}}{5}
\]

That is, this metric of formality increases with abstractness of words, syntactic complexity, cohesion (referential and deep), and the informational expository genre (as opposed to narrative). At the other end of the continuum, informal discourse tends to have concrete words, simple syntax, low cohesion (because knowledge-based inferences can fill the gaps), and high narrativity. We therefore computed a composite score of formality that integrated the five major dimensions of Coh-Metrix, wherein five dimensions were weighted equally (Graesser et al., 2014). Descriptive statistics indicated the average formality per speech for all leaders was similar, namely Mubarak ($M = .18$, $SD = .19$), followed by Fidel with ($M = .17$, $SD = .22$) and Zedong Mao ($M = .11$, $SD = .29$).

**Crisis data**

The crises data for Cuba, Egypt and China were derived from two popular political science data sets: the Armed Conflict Location and Event Dataset (ACLED; Raleigh, Linke, Hegre, & Karlsen, 2010) and Correlates of War Dataset (Sarkees & Wayman, 2010). There is considerable overlap between these data sets, namely that they provide exact locations, dates, and additional characteristics of individual events. However, both were needed to cover the entirety of tenure for all autocratic leaders. Specifically, both data sets cover civil and international conflict events, but the Correlates of War Dataset v4 covers 1816–2007 (Sarkees & Wayman, 2010), while the ACLED covers 1960–present (Raleigh et al., 2010) and allowed for the inclusion of the most recent events in Egypt.

To merge each country’s conflict data with each respective autocratic leader’s linguistic data, we used the start/end dates provided in the conflict data and coded the leaders’ speeches that had a date within that range. There were instances in which multiple conflicts occurred in the same time period, which resulted in the conflict measure being a continuous measure reflecting the number of conflicts that were underway when a particular speech was given. Descriptive statistics indicated the average number of crises per speech varied among leaders, namely Mubarak ($M = 1.27$, $SD = 2.57$), followed by Mao ($M = .80$, $SD = 1.18$) and Fidel with ($M = .65$, $SD = 1.13$).

**Statistical analyses**

A mixed-effects modeling approach was used for all analyses given the repeated measures and unbalanced nature of the leaders’ speech and crisis data. Mixed-effect modeling has become increasingly popular because of the flexibility offered in handling this type of data, the nesting of observations, and its suitability for handling longitudinal leadership phenomena (Ployhart, Holtz, & Bliese, 2002). Mixed-effects models include a combination of fixed and random effects and can be used to assess the influence of the fixed effects on dependent variables after accounting for any extraneous random effects and nesting of observations.
Results

One mixed-effects model was constructed with \( \text{formality} \) as the dependent variable and \( \text{armed conflict count}, \text{leader age} \) and \( \text{armed conflict count} \times \text{leader age} \) as the independent fixed effect variables. The random effect in the present analysis was \( \text{autocratic leader} \). This analysis procedure yields a very stringent test on the effect of crisis and on formality because it controls for variance associated with individual leader differences. More specifically, this approach allows us to test our primary question of interests, namely the impact of crisis on the autocratic leaders’ formality.

It is important to mention one additional detail pertaining to these mixed effects regression models. In addition to constructing the model with armed conflict count and leader age as fixed effects (\textit{conflict models}), \textit{null models} with the random effects (\textit{autocratic leader}) but no fixed effects were also constructed. A comparison of the null models with the conflict model allows us to determine whether conflict or any potential age interactions significantly predicts formality scores above and beyond the random effect of autocratic leader. This approach allowed us to reveal patterns of formality (central or peripheral persuasion route) and potential adaptive characteristics in these strategies depending on age of leaders, above and beyond individual leader characteristics.

Table 1 summarizes the results of the analyses. Akaike Information Criterion (AIC), \( \text{Log Likelihood (LL)} \) and a likelihood ratio test were used to determine the best-fitting and most parsimonious model. Likelihood ratio tests indicated that the conflict model yielded a significantly better fit than the null model, \( \chi^2(3) = 330.05 \). The conflict model revealed that crisis had a significant main effect on formality of language. Consistent with our hypothesis 1, social disequilibrium was associated with an increase in formality. Specifically, further inspection of fixed effects estimates indicates that with each unit increase in instability (as determined by number of crises) political leaders significantly increase their use of formal language (central route). These findings illustrate that the patterns of formality in the autocratic leaders’ speech is different during periods of crises compared to non-crisis.

The formality of the leaders’ language also decreased over time. The significant interaction between age and armed conflict provided additional information regarding this pattern. In particular, the significant interaction shows the estimated influence of armed conflict on formality depended on the number of armed conflicts as well as the age of autocratic political leaders. This pattern is illustrated in Figure 1, which shows a steeper decreasing slope for formality across crisis periods when compared to the more gradual

<table>
<thead>
<tr>
<th>Model</th>
<th>Parameters</th>
<th>LL</th>
<th>AIC</th>
<th>ES</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null model</td>
<td>3</td>
<td>-201.02</td>
<td>-197.02</td>
<td>.152* (.020)</td>
<td>[.06, .24]</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conflict model</td>
<td>6</td>
<td>-531.07</td>
<td>-527.07</td>
<td>.143* (.069)</td>
<td>[.39, .87]</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td>-.01** (.0004)</td>
<td>[-.01, -.007]</td>
</tr>
<tr>
<td>Conflict</td>
<td></td>
<td></td>
<td></td>
<td>.061** (.017)</td>
<td>[.03, .09]</td>
</tr>
<tr>
<td>Conflict ( \times ) Age</td>
<td></td>
<td></td>
<td></td>
<td>-.0008** (.0002)</td>
<td>[-.001, -.0003]</td>
</tr>
</tbody>
</table>

Note: \( N = 1844 \). AIC, Akaike information criterion; CI, confidence interval; ES, fixed effect estimate; LL, log likelihood. Standard errors are in parentheses. * \( p < .05 \), ** \( p < .01 \).
attenuation observed over non-crisis times. In line with our hypothesis 2, these findings show the use of central route persuasion strategies decreases over time as leaders get older and accumulate experience.

Discussion

Times of crisis may be the most defining moments of leadership and constitute one of the most important contexts to study leadership processes. Autocratic leaders are particularly vulnerable during times of crisis, and our investigation of how they use language to navigate these moments has yielded some important insights. In this study, we used an SLP research framework to explore the language and discourse patterns of political leaders during times of social disequilibrium and aligned those patterns with theoretical routes to persuasion. The findings provide insights into how autocratic leaders navigate these socially and historically significant times and reveal interesting adaptive characteristics of these processes over time.

Specifically, the results indicate that the leader’s language initially reflects the use of central route persuasion cues, namely the expository, cohesive, syntactically complex and abstract discourse that constitutes formal language. However, an intriguing interaction occurred between age and armed conflict which provides a clearer picture. As leaders grow older, they adapt their use of central persuasion strategies and tend to have more informal language over time. This is an important contribution to the literature because it may reflect dynamics concerning leader–follower relationship and differences in novice versus experienced leader approaches. We theorize two potential explanations for why this pattern emerged.

According to the first explanation, leaders initially use the central route because this is the most effective persuasion strategy for the educated audience and theoretically results in deeper and more stable attitude change. At the outset of a conflict, leaders must clearly identify the enemy and the threats that the country faces which necessitate military engagement. Central route strategies may serve novice leaders well in acquiring power because they are initially attempting to persuade a smaller group of individuals who are both highly invested and able to processes the issues (Mesquita, Smith, & Morrow, 2003).

Figure 1. Estimated formality scores over time for peace and armed conflict periods. This figure shows that language could be predictive of social tension.
This would be in line with the elaboration likelihood framework (Petty et al., 2005), which states that processes of influence are determined by two main factors, namely an individual’s motivation and ability to process the message. However, after leaders acquire power their persuasion goals might be altered because they are communicating to the masses. This change in audience and persuasive goals might account for the observed attenuation of central route strategies over time.

According to a second explanation, the findings might be reflecting interesting leader-follower relationship dynamics. Within the realm of social interaction, the common ground perspective is a widely accepted theoretical framework of communication (Knapp & Daly, 2002). Common ground refers to the knowledge and beliefs communication participants assume each other shares. According to Brennan and Clark’s (1996) framework, common ground plays a central role in determining many aspects of the interaction between individuals, including the communication style.

A critical element of this communication framework that might be especially relevant to political discourse over time is the principal of accumulation. The principal of accumulation refers to the building of common ground between people, wherein common ground is built incrementally on the history between communicators (Brennan & Clark, 1996). Drawing on this research the lessening of central route over time could be reflecting an increase in common ground between leaders and constituents.

An inherent limitation in all leadership discourse studies is the difficulty discerning the influence of speechwriters. Given that leaders are responsible for any repercussions, it seems plausible to assume they play a critical role in the final decisions regarding the content of the speech. However, the involvement of leaders in the actual speech-writing process is likely to vary. From this perspective, the weight of speechwriters’ influence on individual leaders’ language remains an empirical question (Bligh et al., 2004). To fully understand the impact of speechwriters’ on political discourse additional research is needed that quantitatively identifies any potential differences in the linguistic patterns between political leaders’ public and private communication.

Another limitation is that this work was conducted on translated English texts of these autocratic leaders. We used the translated versions because we can measure more linguistic constructs that allow use to adequately measure our theoretical hypotheses. However, we have examined the cohesion of these speeches in the original language (Arabic, Chinese and Spanish) and findings were on par with those obtained in the translated versions. Additionally, recent research further exploring the translation issue has shown Google English translation was highly correlated with both human English translation and the original Chinese texts (Li, Graesser, & Cai, 2014). Therefore, we have confidence that these translated versions reflect what would be found in the original texts.

Autocratic leaders routinely engage in acts of asymmetrical aggression and conflict. Our investigation of the linguistic patterns of autocratic leaders over the course of their careers, including during times of crisis and conflicts, may provide predictive patterns of behavior that will help scholars, policymakers, and the security community to better understand how autocracies navigate political disruptions. From a policy perspective, this information could be used for crisis forecasts, both in detecting emerging conflicts and monitoring of ongoing contentious interactions through theoretically driven linguistic data mining. Given that autocratic societies are subject to the whims of their leaders, using computational linguistic techniques, like Coh-Metrix, can reveal individual-level patterns of behavior that provide additional clarity, even in an anarchic system. From a theoretical perspective, this leader-category approach is also useful for understanding system-level patterns, especially pertaining to conflict involvement. Whereas political science scholarship has traditionally
relied upon country-level indicators to evaluate conflict behavior, a leader-category approach can provide more nuanced information about countries’ conflict involvement. Because of their tremendous exclusionary power and influence over country policies, autocratic leaders and their linguistic patterns merit much future study.

This research presents a novel approach to the study of autocratic leaders during periods of social disequilibrium and stability. The Social Language Processing (SLP) paradigm applied in the current study highlights the advantages of an interdisciplinary approach that uses language to assess social dynamics. Not unlike any other organization, aggressive political entities rely on language and discourse to communicate with each other in order to coordinate their actions and beliefs, and to communicate with the public the narrative that expresses their agenda. The content and style of such communication can reveal insights about the psychological states of the individual actors in the organization, including personality traits, emotional states and strategies of influence. Further, the linguistic patterns of communication can also provide clues about the social dynamics and functioning of the group, such as social status and the overall cohesion of the group. The SLP research framework provides a promising way to act as a remote sensor of social and cognitive dynamics for these otherwise opaque political elites and organizations, including autocratic leaders, non-state actors, and rebel groups. From this perspective, we feel this research serves as an example of the many promising applications afforded by the inclusion of computational methodologies in leadership research.

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No potential conflict of interest was reported by the authors.

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