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Abstract

We examined the relationship between language and political aggression by examining the words used by world leaders and leaders of ideologically motivated groups when talking about their despised opponent out-groups in their speeches. We searched the archives for records of such speeches, anchoring them to an identified act of aggression or nonaggressive resistance, and analyzed speeches at three points in time prior to those acts. We tested three hypotheses about linguistic differences in speech content separately for groups that committed an act of aggression and those that did not. Support was found for all three hypotheses, indicating that speeches associated with aggression had different linguistic markers than speeches associated with nonaggression. These findings highlighted the function of speech in providing glimpses into the mind-set of the speech makers as their groups ramp up to violence or not.

Keywords

aggression, political aggression, pronouns, cognitive complexity, dehumanization

Researchers have long been interested in the association between language and aggression (see, e.g., March 2012 special issue on language and verbal aggression, this journal). Indeed, identifying the linguistic markers of aggression has both theoretical and practical implications. Theoretically, the identification of such markers would improve our understanding of the mental state of the expressor and the psychological processes involved in communication related to aggression. Practically, the identification of such markers would provide a way to assess the potential for aggression by others, making possible the development of early warning systems or methods to monitor the dynamic nature of intergroup relationships.

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Recent research has made considerable inroads in this area. Studies have examined the relationship between language and attitudes and positions about war (Abe, 2012), expressive writing after terrorist attacks (Fernandez, Paez, & Pennebaker, 2009), testosterone (Pennebaker, Groom, Loew, & Dabbs, 2004), which is associated with aggression, and swear words (Tausczik & Pennebaker, 2010). These studies have provided interesting insights into the relationship between language and aggression.

One limitation of the recent studies, however, is the lack of research exploring the relationship between language and actual aggressive acts. Examining this relationship is important because it links expressive behavior that is reflective of internal mental states with actual behaviors and not with intermediary attitudes, opinions, or beliefs that may or may not lead to actual behavior. Language associated with physical aggression may also be different than the language of verbal aggression.

This study addresses this gap in the literature by examining the language associated with political aggression expressed by leaders of groups. Studying political aggression is particularly illuminating as these are acts by groups with a cause against other groups. Studying the language used by group leaders in inciting their groups to aggress or not is informative because such communication typically has specific functions—to communicate group leaders' appraisals of the actions of out-groups, to lay the groundwork for potential future actions, and to motivate others. As such the language used needs to provide moral or ethical justification for aggression and increase social cohesion and identity. That communication has specific expressors—group leaders—and audiences—in-group subordinates, and their out-groups. Thus, speeches by leaders of groups are quite different than opinions expressed by individuals in online blogs, e-mails, or diaries, which are some of the commonly used sources of study in this area.

Previous studies provide some empirical basis for predicting differences in language use by leaders of groups that aggress compared with those that do not. One concerns the use of pronouns. Abe (2012) compared linguistic styles expressed in an online discussion forum after September 11, 2001 between individuals who were pro-versus antiwar and reported that prowar texts contained more third-person pronouns (e.g., he, they), whereas antiwar texts contained more first-person plural pronouns. Pronouns are known as function words, and one of their functions is to allocate attention (Chung & Pennebaker, 2007). The use of "I," for example, suggests an attention to the self, whereas the use of "we" suggests attention to one's group. Because the writers examined in Abe's (2012) study expressed personal thoughts, feelings, and opinions and were not doing so as representatives of a group, it makes sense that antiwar texts contained more references to first-person plural pronouns. Had the writers been communicating as a representative of a group, however, their attentional focus should have been different. We predict that leaders of pro-aggression groups would use relatively more first-person plural pronouns and relatively less first-person singular pronouns, as their focus would be on their social identity with their group. "We" engenders feelings of closeness, similarity, belongingness, and sharing a common date with others more than the use of "I." Consistent with this idea, Chung and

Pennebaker (2007) have reported that the use of first-person plural pronouns increased across every study, and they have conducted dealing with cultural and/or community-wide upheaval.

A second area of research that is relevant is cognitive complexity, which refers to the degree to which a person differentiates among multiple competing solutions and is attempting to integrate those solutions (Abe, 2012). In the study described above, Abe (2012) reported that prowar texts contained significantly more words related to cognitive complexity than antiwar texts. Research on integrative complexity, which refers to the degree to which verbal output reflects the recognition that more than one legitimate viewpoint exists with regard to a particular topic and that the differing viewpoints are related to each other somehow (Suedfeld & Bluck, 1988; Suedfeld & Tetlock, 1977; Suedfeld, Tetlock, & Ramirez, 1977) also speaks to this point. When integrative complexity is measured in speeches across time, it decreases from 2 to 6 months immediately prior to the outbreak of war, conflict, or surprise attacks (Suedfeld & Bluck, 1988). Thus, we predict that speeches by leaders of aggressive groups would contain greater words related to cognitive complexity than speeches of nonaggressive groups.

A third area of research that provides a basis for making predictions about differences between aggressors and nonaggressors is that on inhumanization and the dehumanization of objects of hatred or aggression (Cortes, Demoulin, Rodriguez, Rodrigues, & Leyens, 2005; Haslam, 2006; Leyens et al., 2000). Aggression is easier when out-groups are dehumanized, creating social distance between the aggressor and victim. This process should be reflected in the words used to refer to social connections with others. Pennebaker et al. (2004) conducted two case studies examining the relationship between testosterone levels and words related to social connections expressed in e-mails and a private journal and reported that higher testosterone levels were associated with lower frequencies of words referring to social connections. Consistent with this idea we predict that speeches by leaders of aggressive groups would contain significantly less words related to social connections.

We tested the above notions in a study examining the words used by world leaders and leaders of ideologically motivated groups talking about their despised opponent out-groups in their speeches. These archives serve as a potentially rich source of information that allows us to examine whether the language used in these speeches differentiate groups that eventually aggress against others or not. We scoured the archives for records of such speeches, anchoring them to an identified act of aggression, and selected for analysis those speeches that were available at three points in time prior to those acts. We tested speeches across time to examine if the predicted differences occurred throughout the time sample or only at specific times (such as that reported by research on integrative complexity reviewed above). We annotated the speeches for mentions of the opponent out-group to examine if the predicted differences occurred differently according to whether or not the out-group was being discussed. We also included for comparison a small group of acts and speeches of ideologically motivated groups that had despised opponent out-groups but did *not* result in violence. We analyzed the

speeches using the same widely used computerized text analysis method used in the studies reviewed above (Linguistic Inquiry and Word Count [LIWC]; Pennebaker, Francis, & Booth, 2001), which produced variables that allowed for the testing of the hypotheses below. We tested the differences in that content separately for groups that committed an act of aggression (AoA) and those that did not, which we labeled an act of resistance (AoR).

Hypothesis 1: AoAs will contain a significantly greater amount of first-person plural words and less first-person singular words than AoRs.

Hypothesis 2: AoAs will contain significantly less amount of words related to cognitive complexity than AoRs, especially in the time frame immediately prior to the target event.

Hypothesis 3: AoAs will contain significantly less words related to social connections than AoRs.

Method

Source Acquisition

We first identified events associated with AoAs committed by ideologically motivated groups. Although there are many such groups that are motivated by an ideology, it is also the case that some groups are not as clearly defined as a government or a political or religion-based group, such as al-Qaeda or Hamas. In some cases, groups are defined by their affinity or disaffinity, such as cause-based groups like Operation Rescue, which opposes all types of abortions and has been connected with various acts of violence against those who perform abortions and their patients and clinics. AoAs were identified using the following criteria: (a) The act was motivated by ideological motives, including racial and political; (b) the act of aggression was not an immediate response to an act of aggression by the other party, such as a surprise attack or immediate retaliation; and (c) the act of aggression was a violent action against a defined out-group, with the intent of causing physical harm, reduced quality of life, and/or denial of basic human rights. For comparison purposes we also identified nonviolent AoRs using the following criteria: (a) The act was motivated by ideological motives, including racial and political; (b) the act of resistance was a nonviolent action against a defined out-group with the intent to NOT cause physical harm, reduced quality of life, and/or the denial of basic human rights of others. For both AoAs and AoRs, a further criterion for inclusion in this study was that there was a clear leader of the group who made speeches across multiple points in time (which necessitated our exclusion of immediate or retaliatory acts).

We were interested in obtaining a broad, representative spectrum of historical timeframes and groups representing a diverse array of geographies, languages, and cultures. Many historical events, such as the start of the World Wars, major acts of terrorism such as 9/11, the numerous Nazi acts of aggression, the bombing of Pearl

Harbor, and others suggested themselves automatically. We also consulted historical subject matter experts, accessed published resources with lists of historical and contemporary acts of aggression and resistance, reviewed web-based resources of governmental agencies such as the CIA and FBI, as well as nongovernmental websites such as Globalconflict.org; and contacted authors of books or papers on related subjects to seek guidance both about which subjects to consider and to learn of sources for textual data. We also used news of current events from U.S. and international news media sources.

Even with these criteria the identification of source material was not cut and dry, and readers are cautioned to interpret the findings with this caveat. For example, although we did not include battles that were part of an ongoing war, we did include the U.S. bombings of Hiroshima and Nagasaki as we considered these unique acts. There are also confusing lines of difference between aggression, defense, and resistance. Probably no group in world history has felt that their attacks were unprecedented and labeling an act one of aggression or defense becomes somewhat a political judgment (e.g., the British declaring war on Germany in World War I, the Easter Rising, or the British entering World War II). Instead, our core definition of acts of aggression involve inflicting physical harm on an out-group or harming their quality of life and basic human rights at that particular date, regardless of ideology.

When potential AoAs and AoRs were identified, we then searched for texts or videos of speeches by the leaders of the groups at three different points in time: 3, 6, and 12 months before the event. We considered 1 year an adequate range of time to see if changes in the language occurred across time. For the purposes of this study, we included only those AoAs and AoRs for which a speech text or video was found for all points in time; in many cases, there was more than one speech in the same time frame; these were also included in the analyses. This resulted in the following list of events:

Acts of Aggression (38):

1830	U.S. Indian Removal Act
1914	Britain declares war on Germany (World War One)
1916	Easter Rising (Irish Rebellion against British Government in Ireland)
1917	Bolshevik Russian October Revolution against Tsar Government
1922	March on Rome by Dictator Benito Mussolini and Fascist Party
1937	Great Purge—Height of mass internal purge of government
1938	“Kristallnacht”—Night of Broken Glass—anti-Jewish pogrom in Nazi Germany
1939	Nazi Invasion of Poland
1939	Britain declares war on Germany (World War II)
1945	U.S. bombing of Hiroshima and Nagasaki
1960	U.S. U-2 plane shot down by Soviet military

- 1961 Bay of Pigs Invasion
- 1962 Cuban Missile Crisis empowers Castro/ends counter-revolutionary movements
- 1965 Escalation of War in Vietnam
- 1966 China's Cultural Revolution: Mao deploys the Red Guard
- 1980 Shining Path declaration of war against Peruvian State
- 1989 Fall of Berlin Wall
- 1990 U.S. Persian Gulf War
- 1994 First Chechen War
- 1996 IRA Cease Fire Bombing
- 1998 Bombing of U.S. embassies in Kenya and Tanzania
- 2000 2nd Palestinian Intifada
- 2003 Renewed Taliban insurgency in Afghanistan
- 2003 U.S. Invasion of Iraq
- 2003 Australian Invasion of Iraq
- 2006 Fall of Mogadishu-Government forces oust Islamic Courts Union
- 2006 Lebanon War
- 2007 Operation Orchard
- 2007 Israeli-Gaza Conflict (Israel)
- 2007 Israeli-Gaza Conflict (Palestine)
- 2008 Operation Cast Lead/Gaza War
- 2008 South Ossetia War (Russia)
- 2008 South Ossetia War (Georgia)
- 2008 Mugabe Auto-Coup
- 2008 Chinese Response to Tibet Protests (China)
- 2009 Assassination of Dr. George Tiller (doctor who performed late-term abortions)
- 2009 LTTE Leader Killed by Sri Lankan Military
- 2010 Operation Seabreeze

Acts of Resistance (10):

- 1930 Salt Satyagraha (first campaign of nonviolent protest against British rule in India)
- 1932 Mahatma Gandhi authors Civil Disobedience Congress resolution
- 1963 March on Washington, DC
- 1964 Civil Rights Act of 1964
- 1968 Poor People's Campaign 2-week protest in Washington DC
- 1972 Leaders oppose Marcos regime's declaration of martial law
- 1977 Establishment of Spanish Constitution
- 1994 End of Apartheid in South Africa

- | | |
|------|---|
| 2008 | Pro-Tibet supporters 2008 Olympics opening day of protest against China |
| 2008 | Chinese Response to Tibet Protests (Tibet) |

Although many of the events identified above were in English, a number were not. Thus, for consistency, all non-English source materials were translated into English by a professional translation company, which had no idea of the study or hypotheses. The non-English languages included Hebrew, Arabic, Russian, Georgian, Sinhala, Mandarin, and Spanish.

Out-Group Identification

For events where the source materials were videos, these were transcribed to produce text documents. Once all materials were rendered to text, it was necessary to identify the specific segments of each speech that were related to the out-group because many speeches were about various issues, much of which had nothing to do with the out-group. To determine that a text contained references to the out-group and to mark what those references were, coders were trained in the background of the events and how to identify instances when the speaker was referring to the out-group. In doing so, it was important to capture not only direct nominal references to the out-group—such as Osama bin Laden using the words United States, America or Zionists—but also more subtle, categorical references such as “infidel,” “imperialist,” or “enemies of freedom.” Coders were also trained in identifying oblique references that more sophisticated modern politicians might make when referring to an out-group, including references to a group because of a problem they create for the in-group (e.g., when Russian prime minister refers to “threats to the safety and well-being of former citizens of the Soviet Union in the Caucasus” when referring to Chechen rebels, or when a Chinese leader talks about the “territorial integrity of China,” which may refer to dissent in one of a number of regions, such as Tibet and Taiwan).

Two separate teams of coders performed these annotations, one for the events that were originally text-based and one for those that were video-based. For the former, two coders independently read each document and annotated the start and end points of text passages in which the out-group was mentioned. The coders then compared annotations and produced an arbitrated listing of them in which both agreed. For the latter, four coders performed the annotations, splitting the corpus of the speech texts evenly among them. Interrater reliability was calculated on a randomly selected sample of 10% of the corpus at the beginning of coding, and another 10% in the middle of the coding. Reliability was computed using Gwet’s (2008) AC1 and was acceptable both times (.88 and .79). The coders arbitrated speech samples used for reliability assessment to produce a final set of annotations for those texts. The total across all speeches and events included 17,398 sentences and 371,821 total words. (Of these, 3,099 sentences and 70,650 words came from AoRs.)

Linguistic Analyses

Because there were multiple speeches for many single events and time frames, we merged all speeches for the same event and time frame into a single document. This ensured that each event and time frame contributed only one text document to the analysis, avoiding problems of independence of the data. We then divided the text for each event and time frame into two subtexts, one including only sentences that contained references to the out-groups and one not.

We used the LIWC on these texts (Pennebaker et al., 2001), which is a widely used and well-validated program that counts the number of words in a body of text that correspond to various categories of meaning and converts the tallies into percentages of the total text. The program uses an internal dictionary composed of several word categories to classify how much a group of words relate to a particular topic (the 2007 dictionary was used here). This dictionary is composed of about 4,500 words and word stems, each of which defines one or more nonmutually exclusive word categories in a hierarchical order (e.g., anger words are categorized as anger, negative emotion, and overall emotion words). The LIWC word categories have adequate psychometric properties (Pennebaker et al., 2001).

Each word in the source document is compared with words in the dictionary file, and if a match occurs, the appropriate category(ies) for that word is tallied; various structural composition elements (e.g., word count and sentence punctuation) are also counted. Output categories include: general descriptors (total word count, words per sentence, percentage of words captured by the dictionary, and percent of words longer than six letters), linguistic dimensions (e.g., pronouns, articles, auxiliary verbs, etc.), psychological constructs (e.g., affect, cognition, biological processes), personal concerns (e.g., work, home, leisure activities), paralinguistic dimensions (assents, fillers, nonfluencies), and punctuations (periods, commas, etc.; for a more complete description of the LIWC processing procedures and its development, see Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007). Of these categories of data we selected variables that were directly related to our hypotheses. For Hypothesis 1, we used First-Person Singular and First-Person Plural. For Hypothesis 2, we computed Cognitive Complexity as the sum of Exclusive and Negations, per Chung and Pennebaker (2007; variables were standardized prior to summing). For Hypothesis 3, we used four variables produced by the LIWC output: Social Processes, Family, Friends, and Humans. Each was computed separately for each of the AoAs and AoRs, and within each event, separately for the three time frames and out-group–no out-group texts.

Results

Hypothesis 1

We computed mixed Event (AoA vs. AoR), Time Frame (3, 6, and 12 months prior to the event), and Out-group Mention (Out-group vs. No Out-group) three-way

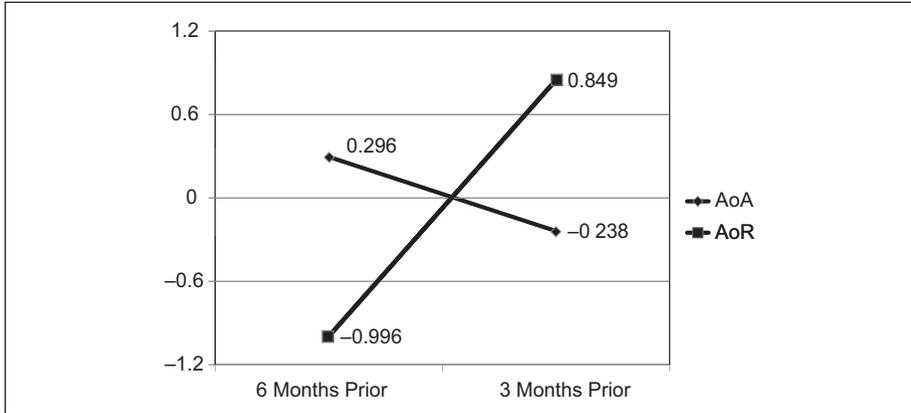


Figure 1. Changes in cognitive complexity across time for acts of aggression (AOAs) and acts of resistance (AORs)

analyses of variance (ANOVAs) on First-Person Singular. The main effect of Event was significant, $F(1, 44) = 14.27, p < .001, \eta^2_p = .25$, indicating that AoA speeches ($M = 1.34, SD = 1.33$) contained less of these words than AoRs ($M = 2.87, SD = 2.31$). The three-way interaction was also significant, $F(2, 88) = 4.07, p < .05, \eta^2_p = .09$; simple effects of Event separately for each Time Frame and Out-group Mention produced the same differences as the main effect (all $ps < .05$), indicating differences in degree, not direction.

A similar three-way ANOVA on First-Person Plural words also produced a significant main effect of Event, $F(1, 44) = 4.47, p < .05, \eta^2_p = .10$, indicating that AoA speeches ($M = 2.75, SD = 1.78$) were associated with greater usage of these words than AoRs ($M = 1.98, SD = 1.61$). No interaction involving Event was significant. Thus, Hypothesis 1 was supported, AoA speeches contained significantly more First-Person Plural words and less First-Person Singular words than AoR speeches. Effect sizes associated with these differences were moderate to large.

Hypothesis 2

The same three-way ANOVA on Cognitive Complexity produced a marginally significant interaction between Event and Time Frame, $F(2, 88) = 2.59, p < .08, \eta^2_p = .06$. A planned simple interaction contrast comparing two levels of Time Frame (6 vs. 3 months prior to the event) and Event was significant, $F(1, 46) = 5.40, p < .05, \eta^2_p = .11$. As predicted, AoAs decreased in Cognitive Complexity from 6 to 3 months prior to the event whereas AoRs increased (Figure 1). Thus, Hypothesis 2 was supported; AoA speeches decreased in Cognitive Complexity across time nearer the focal event, whereas AoR speeches produced the opposite pattern.

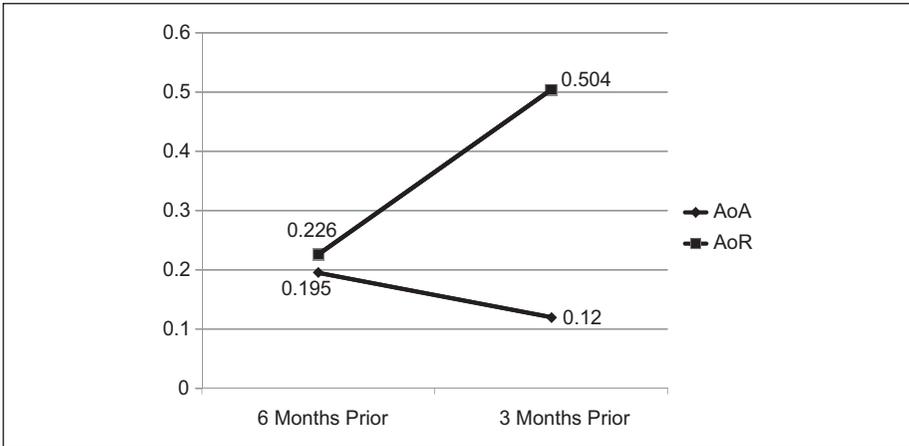


Figure 2. Changes in family across time for acts of aggression (AOAs) and acts of resistance (AORs)

Hypothesis 3

We computed the same three-way ANOVAs on Social Processes, Family, Friends, and Humans. No effects involving Event were significant for Social Processes or Friends. For Humans, the ANOVA produced a significant main effect of Event, $F(1, 44) = 16.53, p < .001, \eta_p^2 = .27$, indicating that as predicted, AoA speeches ($M = 0.93, SD = 0.78$) contained less of these words than AoRs ($M = 1.64, SD = 1.39$). No interactions involving Event was significant. The effect size was large.

For Family, the Time Frame by Event interaction was significant, $F(2, 92) = 3.14, p < .05, \eta_p^2 = .07$. We thus computed a simple interaction contrast comparing two levels of Time Frame (6 vs. 3 months prior to the event) and Event. This interaction was significant, $F(1, 46) = 4.54, p < .05, \eta_p^2 = .09$, indicating that, as predicted, AoA speeches decreased in their use of Family from 6 to 3 months prior to the event, whereas AoR speeches increased during this same time period (Figure 2). Thus, Hypothesis 3 was partially supported.

Discussion

This study was not conducted without limitations, the first of which concerned differences in the amount of source material across time frames. Although a considerable amount of time was spent searching for source material, the amount of materials differed across time frame within the same event, sometimes considerably. Analysis of more comprehensive sets of records, perhaps not available in open sources, may provide more reliable estimates of language use across a more balanced set of materi-

als and should be addressed in the future. Relatedly the sample size of AoRs was considerably smaller than AoAs (although the amount of source material analyzed was not insubstantial), and future studies involving greater sampling of AoRs should provide more reliable estimates of their language use as well. A final limitation was our reliance on translations of non-English source material. It was possible that the exact content of these speeches was not conveyed validly in the translations, which may have confounded the results. Future studies of non-English texts conducted in the target language without translation can address this important issue. Notably, LIWC is available in some, but not all, of the languages included in this study and for consistency we used the English version of LIWC.

Regardless of these limitations, the findings provided support for all three hypotheses. As predicted by Hypothesis 1, speeches for AoAs contained fewer first-person singular (e.g., “I”) words and more first-person plural (“we”) words than AoRs. We predicted this finding based on the notion that function words allocate attention and that the attention of first-person plural pronouns is on the social identity with a group, increasing a sense of belongingness (Chung & Pennebaker, 2007). Leaders of groups that eventually committed AoAs need to emphasize their social identity with their group so that their interpretations of the acts of their despised out-groups become the group’s interpretations. Increasing social identity and a sense of belongingness with the group is essential for increasing cohesion and solidarity around the messages conveyed by the leader. Increasing social identity is also important so that the leader not be seen as a rogue by group members, but instead representatives of the group communicating the group’s attitudes, values, and opinions. These are all important functions for a group to commit AoAs so that the group claims ownership of the acts and, in some cases, is motivated to commit those acts.

As predicted by Hypothesis 2, and consistent with previous research on cognitive and integrative complexity (Abe, 2012; Suedfeld & Bluck, 1988; Suedfeld et al., 1977), speeches for AoAs decreased in cognitive complexity immediately prior to the target event, whereas speeches for AoRs increased. It makes sense that the speeches of AoAs decrease in cognitive complexity because the AoA itself becomes the solution and there is less need to consider or express multiple, competing perspectives and solutions when the solution—aggression—is increasingly apparent. Speeches of AoRs, however, need to maintain, or according to our data increase, their levels of cognitive complexity so that aggression does not occur and that peaceful AoRs do.

Hypothesis 3 predicted that speeches of AoAs would contain fewer words related to social connections. Consistent with this hypothesis, speeches of AoAs contained fewer words related to humans and family than did speeches of AoRs. The relatively less use of words related to humans and family is consistent with the notion that acts of aggression are easier to commit against dehumanized targets; fewer references to humans and family would address this function. Speeches of AoRs, however, do not have as strong a need to dehumanize others and in fact may require the opposite in order to avoid aggression.

Some interesting nonfindings also deserve attention. For instance, despite the fact that we had separated texts according to whether or not they mentioned the opponent out-groups, out-group mentions did not interact with event type in any of our analyses. This suggests that the differences in the linguistic indicators we reported occurred within the speeches as a whole and were not specific to when the opponent out-group was discussed. Future studies should explore whether the indicators were associated with specific themes or topics we did not assess. Also, the findings concerning first-person singular and plural pronouns did not vary across time frame. This also suggests the possibility that what we report is not so much a marker of aggression but a linguistic style of the expressors. Future studies examining speeches across a wider range of time or topics may address this possibility. Note that this was not an issue for cognitive complexity or family mentions, as these interacted with time and thus could not have been merely reflective of overall linguistic style. Finally, the nonfindings on Social Processes or Friends suggest that the dehumanization represented in the speech samples were specific to mentions of Family or Humans, but not to other social categories.

The findings reported above have practical implications. That the language used by leaders of political groups contains linguistic indicators of whether or not the group will commit an act of aggression in the future leads to the possibility of developing technology to evaluate the words used by those leaders as early warning systems. Such technologies can also be used to assess the reactions of leaders of political groups to other groups' actions against them. These glimpses into the mental processes underlying the words of group leaders provide the potential for gaining additional insight about those leaders that can be used to further the interests of national security.

It is interesting to note that the findings reported here were obtained in samples that varied across a substantial period of time, most across a span of a century, and across many different cultures, languages, and specific events. That the findings occurred from this diverse sample is very suggestive of cross-cultural and cross-generational functions of the language of political aggression. Future studies will need to replicate these findings in specific, different languages, as well as examine the very interesting possibility that the same markers of political aggression we report here also occur on the level of individual aggression. It is very possible, for example, that the linguistic markers of cognitive complexity decrease and dehumanization increase in individuals prior to their personal acts of aggression. (The use of first-person singular vs. first-person plural pronouns may differ on the level of individuals because they are not representative leaders of groups.) The results of this study demonstrate the potential utility of the analysis of linguistic indicators of individual- and political-level aggression, and open the door to much future work in this area.

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References

- Abe, J. A. A. (2012). Cognitive-affective styles associated with position on war. *Journal of Language and Social Psychology, 31*, 212-222.
- Chung, C., & Pennebaker, J. (2007). The psychological functions of function words. In K. Fiedler (Ed.), *Social communication* (pp. 343-359). New York, NY: Psychology Press.
- Cortes, B. P., Demoulin, S., Rodriguez, R. T., Rodrigues, A. P., & Leyens, J.-P. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup, and the outgroup. *Personality and Social Psychology Bulletin, 31*, 243-253.
- Fernandez, I., Paez, D., & Pennebaker, J. W. (2009). Comparison of expressive writing after the terrorist attacks of September 11th and March 11th. *International Journal of Clinical Health Psychology, 9*, 89-103.
- Gwet, K. L. (2008). Computing inter-rater reliability and its variance in the presence of high agreement. *British Journal of Mathematical and Statistical Psychology, 61*, 29-48.
- Haslam, N. (2006). Infrahumanization: An integrative review. *Personality and Social Psychology Review, 10*, 252-264.
- Leyens, J.-P., Paladino, P. M., Rodriguez-Torres, R., Vaes, J., Demoulin, S., Rodriguez-Perez, A., & Gaunt, R. (2000). The emotional side of prejudice: The attribution of secondary emotions to ingroups and outgroups. *Personality and Social Psychology Review, 4*, 186-197.
- Pennebaker, J. W., Chung, C. K., Ireland, M., Gonzales, A., & Booth, R. J. (2007). *The development and psychometric properties of LIWC2007*. Austin, TX: LIWC.net.
- Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). *Linguistic inquiry and word count*. Mahwah, NJ: Lawrence Erlbaum.
- Pennebaker, J. W., Groom, C. J., Loew, D., & Dabbs, J. M. (2004). Testosterone as a social inhibitor: Two case studies of the effect of testosterone treatment on language. *Journal of Abnormal Psychology, 113*, 172-175.
- Suedfeld, P., & Bluck, S. (1988). Changes in integrative complexity prior to surprise attacks. *Journal of Conflict Resolution, 26*, 626-635.
- Suedfeld, P., & Tetlock, P. E. (1977). Integrating complexity of communications in international crises. *Journal of Conflict Resolution, 21*, 169-184.
- Suedfeld, P., Tetlock, P. E., & Ramirez, C. (1977). War, peace, and integrative complexity. *Journal of Conflict Resolution, 21*, 427-442.
- Tausczik, Y. R., & Pennebaker, J. W. (2010). The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology, 29*, 24-54.

Bios

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