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Cristina J. Montiel

Ateneo de Manila University, cmontiel@ateneo.edu

Joshua Uyheng

Ateneo de Manila University

Erwine Dela Paz

Ateneo de Manila University, edelapaz@ateneo.edu

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**The Language of Pandemic Leaderships:
Mapping Political Rhetoric during the COVID-19 Outbreak**

Cristina Jayme Montiel^{1*}, Joshua Uyheng^{1,2}, Erwine Dela Paz¹

¹ Department of Psychology, Ateneo de Manila University

² Societal Computing Program, Institute for Software Research, Carnegie Mellon University

* Corresponding address: <cmontiel@ateneo.edu>

Abstract

This paper maps political rhetoric by national leaders during the COVID-19 pandemic. We identify and characterize global variations in major rhetorical storylines invoked in publicly available speeches (N = 1201) across a sample of 26 countries. Employing a text analytics or corpus linguistics approach, we show that state heads rhetorically lead their nations by: enforcing systemic interventions, upholding global unity, encouraging communal cooperation, stoking national fervor, and assuring responsive governance. Principal component analysis further shows that country-level rhetoric is organized along emergent dimensions of cultural cognition: an agency-structure axis to define the loci of pandemic interventions, and a hierarchy-egalitarianism axis which distinguishes top-down enforcement from bottom-up calls for cooperation. Furthermore, we detect a striking contrast between countries featuring populist versus cosmopolitan rhetoric, which diverged in terms of their collective meaning-making around leading over versus leading with, as well as their experienced pandemic severity. We conclude with implications for understanding global pandemic leadership in an unequal world, and the contributions of mixed methods approaches to a generative political psychology in times of crisis.

Keywords: political rhetoric, leadership, COVID-19 pandemic, cultural cognition, populism, corpus linguistics, mixed methods

The Language of Pandemic Leaderships:

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During global crises like the COVID-19 pandemic, national leaders are responsible for communicating effectively with citizens (Chiriboga, Garay, Buss, Madrigal, & Rispel, 2020). How leaders address their followers sets the stage for how major problems are understood, strengthens the public's confidence in government competence, and elicits behavioral change aligned with key policy measures (Spector, 2020; Van Bavel et al., 2020). Burgeoning research from the early months of the pandemic shows that differences in leaders' talk are associated with divergences in outbreak control (Sergent & Stajkovic, 2020; Wilson, 2020). This suggests that political utterances represent a key facet of the broader national pandemic response.

In particular, this paper posits that leaders' political rhetoric shapes collective meaning-making around the pandemic (Elcheroth, Doise, & Reicher, 2011; Jong, 2017). A strong consensus in political psychology and allied fields suggests that leadership entails a reciprocal process of 'reading' public sentiment, as well as 'cueing' it in response to societal events (Mols & Jetten, 2020; Mudde & Rovira Kaltwasser, 2018). For instance, populist leaders were observed to invoke societal fractures to drum up public support for the government during the pandemic, while in the process diminishing the efficacy of both scientific and grassroots efforts to contain rising infections (Lasco, 2020). In this view, theories of rhetoric posit that the language of leaders does not only reflect underlying engagement with the norms and values of their followers, but also performatively reshapes public understandings of and responses to collective situations like global crisis (Finlayson, 2012; Turnbull, 2017). In this work, we focus on the language of leaders during the pandemic as a major component of these processes of collective meaning-making. We specifically ask: How did national leaders rhetorically use language during the COVID-19 pandemic?

To map rhetorical performances by national leaders worldwide, we engage their linguistic content through a generative mode of analysis (Fairclough, 2010; Rozin, 2009). We achieve this through a corpus linguistics methodology, which harnesses both quantitative and qualitative tools to derive shared and unique patterns in leaders' national addresses (Baker et al., 2008; Onwuegbuzie & Leech, 2005). Yet given this focus on language, we note that political rhetoric does not correspond straightforwardly to the implementation of pandemic measures. We therefore clarify that it is not our aim to test causal hypotheses linking rhetoric to actual policy execution and outbreak control. Instead, our exploratory inquiry seeks to generate emergent insights which may subsequently lead to the formulation of novel hypotheses (Power et al., 2020; Scheel, Tiokhin, Isager, & Lakens, 2020). In the following sections, we contextualize these research goals within the existing literature on leadership and political rhetoric during the COVID-19 crisis.

Leadership during the COVID-19 Pandemic

Upon the global onset of the COVID-19 pandemic, it fell on heads of state to achieve vital and challenging leadership tasks (Chiriboga et al., 2020; Van Bavel et al., 2020). Accordingly, extensive scholarship around the pandemic has probed the political and psychological dynamics of leadership (Haslam et al., in press; Spector, 2020). One major theme in this work concerns political communication, specifically with regard to how leaders effectively address their followers in the context of global crisis.

Leader-focused approaches looked at political utterances as reflecting facets of leadership. Some studies, such as Sergent and Stajkovic's (2020) work on state governors in the US, focused on discrete factors, like emotional expression. By measuring lexical features of governors' speeches, they demonstrate that female governors expressed more feelings, showed more empathy, and exuded more confidence relative to their male counterparts. This prompted the conclusion that "state residents might have responded to early stay-at-home

orders from women governors more positively [and] with greater volitional compliance than to such orders by men governors” (p. 776). From a more integrative standpoint, Crayne and Medeiros’s (2020) work presents a theoretical review of pandemic leadership styles. In their framework, charismatic leaders oriented toward a ‘brighter future’ and people-focused solutions, ideological leaders prioritized the past and ‘going back to normal’, and pragmatic leaders focused on the present to deal with situations as they arose.

Another major theoretical strand in this area takes an identity leadership view of governance during the pandemic (Reicher, Haslam, & Hopkins, 2005). This social identity-based approach shifts from a leader-centric to a more relational view of leaders and followers. More specifically, it asks how “leaders seek to shape identities” and “followers respond to these attempts” (p. 549). Within this framework, scholars suggest the importance of cultivating a shared sense of identity, mitigating group divisions, and foregrounding universal human values to normalize safe behavior and inspire behavioral change (e.g., Templeton et al., 2020). A summative review by Haslam et al. (in press) suggests that cultivating a sense of “us-ness” holds the key for crucial processes (i.e., the 5R’s) of reflecting on shared identity, representing shared identity through shared goals, realizing shared identity through policy, reinforcing shared identity through ongoing action, and readying the group for mobilization.

Finally, a third approach considers the framing effects of political rhetoric. A framing lens shifts analytical focus from actors (e.g., leaders and followers) back to the utterances themselves. Spector (2020), for instance, characterizes how leaders’ talk may strategically deploy meanings of crisis to advance political interests. By combining objective descriptions of extant problems with subjective ascriptions of urgency, certain objectives are legitimized over others. Likewise, Benziman (2020) scrutinizes dominant war frames of the pandemic. Observing that many leaders have spoken of the pandemic as a ‘battle’, his analysis critiques

how such rhetoric normalizes high casualties, harsh policy measures, and the relinquishment of personal agency.

Political Rhetoric and Collective Meaning-Making

Taken together, the foregoing literature points to the significance of leaders' political rhetoric in managing the COVID-19 crisis. In this work, we synthesize these perspectives by examining the collective meaning-making dimensions of political rhetoric. Jong (2017) posits that meaning-making lies at the heart of leadership in times of upheaval, encompassing individual leadership styles, relationships with the public, and the framing of emergent phenomena like pandemics.

Crucial to all these functions is the ways leaders use language. Although leaders speak as individuals, the politico-psychological potency of their words is embedded in the collective setting in which they operate (Elcherath et al., 2011). For instance, Turnbull (2017) argues that the language leaders use is not just about what they believe, but is also oriented toward how their followers understand and interpret the social world, and whether various political actions flourish within such societal settings (Nesbitt-Larking & Kinnvall, 2012). Similarly, in the context of the pandemic, Reicher and Stott (2020) valuably posit that outcomes of order or disorder do not depend on leaders' actions in isolation. Rather, they are situated in longer histories of state-public relations.

Conversely, this does not imply that leaders' utterances are static reflections of existing identities, ideologies, norms, and values. Instead, leaders rhetorically adopt and transform these collective resources to dynamically achieve political objectives "in the wild" (Finlayson, 2012, p. 751). Hence, paralleling the emergent nature of the COVID-19 pandemic itself, we are concerned with how leaders are engaged in not only "bringing concepts and proposals into harmony", but also "extending, retracting, or relocating" their significance during crisis (p. 754).

Corpus Linguistics as a Generative Methodology

Informed by this scholarship, the present research thus examines the pandemic rhetoric of national leaders with the following aims: (a) to characterize shared and distinct patterns in the language used by national leaders during the crisis, and (b) to organize global political rhetoric in contexts of varying pandemic severity based on emergent politico-psychological constructs. At this juncture, we note that our research does not aspire toward establishing causal relationships (Scheel et al., 2020). Instead, we affirm that while “merely” descriptive research is often sidelined, it forms a key ingredient for “forming concepts, developing measures, and establishing phenomena that need explaining” (p. 5; see also Rozin, 2009). Power and colleagues (2018) likewise advocate a synergistic relationship between confirmatory and exploratory work, whereby the “augmentative, generative, and experiential processes” of exploratory analysis helps produce rich insight and hypotheses for future work (p. 361).

Methodologically, however, standard quantitative frameworks may be ill-equipped for dealing with unstructured phenomena like political utterances without well-defined a priori measures. Conversely, a global orientation may increase the cognitive burden of more traditionally qualitative approaches as it translates to larger samples of talk and text. To address these challenges, we harness the methodological toolbox of corpus linguistics to analyze national addresses during the pandemic (Baker et al., 2008). Corpus linguistics takes large collections of text as its raw data and computationally identifies their organizing properties. Corpus linguistics does not fully account for the discursive complexities within individual texts as prioritized in more traditional qualitative approaches. Instead, its goal is to empirically identify wider patterns of shared and unique meanings between texts.

Although computational models of text have advanced significantly over the past two decades (e.g., Blei, Ng, & Jordan, 2003), the overall approach of using quantitative ‘corpus

linguistics' is itself not particularly new (e.g., Krishnamurthy, 1996). Rich scholarship has harnessed corpus linguistics to tackle politico-psychological questions around public discourses of religious othering, news coverage of refugee crises, and online conflicts in unequal societies (Jacobs & Tschötschel, 2019; Montiel & Uyheng, 2020; Törnberg & Törnberg, 2016).

In psychology, corpus linguistics has been linked to the interdisciplinary tradition of critical discourse analysis (CDA), which examines the use of talk and text as a means to socially construct meaning. CDA posits that the meaningful use of language follows regular, discernible patterns shaped by shared social realities (Fairclough, 2010; Wodak, 2001). These philosophical commitments form the basis for the mixed methods use of computational tools in corpus linguistics (Baker et al., 2008; Newman, 2020). Quantitative procedures of large samples of text with complementary qualitative analysis of the derived textual patterns treads an integrative line between probing overarching global patterns, as evident in more traditional experimental research, and deeper local meaning-making, as facilitated by in-depth interpretative analysis (Onwuegbuzie & Leech, 2005; Power et al., 2020).

By considering more diverse national settings, we expand current insights driven by existing, in-depth case analyses of pandemic leadership (e.g., Spector, 2020), and go beyond well-represented, often Western societies (Henrich, Heine, & Norenzayan, 2010). Moreover, a wider analytical net aligns with embedded understandings of political rhetoric, and offers broader descriptive analysis which considers “boundary conditions and auxiliary assumptions” (Scheel et al., 2020, p. 3). However, as practical considerations, we also note that a study of global political rhetoric is constrained by: (a) the availability of records of state heads' talk (e.g., leaders' speeches), and (b) analysts' capacity to interpret them (e.g., comprehension of multiple languages). We mitigate conceptual overreach in this work by focusing on descriptive analysis instead of causal inference (i.e., without claims of

generalizability or exhaustiveness), and by adopting a critical emphasis on shared meaning rather than in-depth interpretation.

Overall Method and Organization of Results

Our research followed a three-part sequence. In Part One, we asked about the general storylines of state leaders during the pandemic. Here all the speeches were aggregated and analyzed as a single data corpus. At the completion of Part One, we identified five general rhetorical themes uttered by political heads during the health crisis. In the second part of our study, we elaborated on the generated rhetorical storylines, turning to more complex research questions and computational strategies. We asked what each country leader talked about, or what the dominant storylines were for each politician. This segment of the study likewise investigated COVID-19 growth rates in relation to the 26 countries and five storylines. The final output of Part Two was a rhetorical map, with vectors signifying the storylines and COVID-19 growth rates, and points plotting the countries vis-a-vis these vectors. Part Three of our research posed a deeper conceptual question about underlying constructs that organized the rhetorical map into meaningful axes. In this last part of our study, we posited that rhetorical storylines during the pandemic can be meaningfully organized along two conceptual axes.

All three subsections of our study used the same data corpus. To facilitate reader friendliness, we sequentially combined the Methods and Results sections of each study part.

Data Source and Collection

To apply our corpus linguistics methodology, we acquired a novel corpus of political rhetoric during the early months of the pandemic. Table 1 summarizes key details of our corpus of public addresses ($N_{\text{speeches}} = 1,201$) from an international sample ($N_{\text{countries}} = 26$).

(Insert Table 1)

To select candidates for inclusion in the analysis, we manually performed a web search of government websites containing records of national addresses by heads of state between January 1, 2020 and June 30, 2020. For countries with a prime minister and a president, we viewed the prime minister as the state leader with decision-making power. Next, we removed countries with fewer than five available speeches. We augmented our dataset with national addresses from YouTube videos found using the name of the state head (e.g. Recep Tayyip Erdoğan) along with the word “speech” as search keywords. A full list of links to these online speeches is available in the Supplementary Materials.

Our convenience sample presents several analytical limitations given the uneven numbers of speeches from various countries. This reflects pragmatic challenges in obtaining standardized records of political utterances given bureaucratic differences across nations. The corpus also features a bias toward English-speaking countries, particularly lacking both Arab countries and sub-Saharan African countries. For non-English speeches from two out of 26 countries, we used translation software in line with prior advice in political science, which posits that such solutions may constitute acceptable procedures for aggregated textual analyses like those we perform here (De Vries, Schoonvelde, & Schumacher, 2018). Practically, these procedures assume that even if automated software does not provide perfect semantic translations, the relevant lexical markers (e.g., masks, vaccines) will be adequately translated. The Supplementary Materials provide additional details on all textual pre-processing. These caveats are important to bear in mind in unpacking the implications of this exploratory analysis, especially in extrapolating beyond the generative insights presented.

Part One Methods and Results:

What Did State Leaders Say during the Pandemic?

To identify political topics discussed by state leaders during the pandemic, we first combined all the speeches into a single set of utterances. By employing Latent Dirichlet

Allocation (LDA), a computational topic modeling algorithm for corpus linguistics (Blei et al., 2003), we then searched for words that frequently appeared together in the same speeches. Based on model fit, which we evaluate in the Supplementary Materials, the optimal LDA model was determined to contain five topics or word clusters over the entire data corpus.

Our mathematical output identified not only sets of words that co-located with each other, but also the most frequently uttered words, which contributed to labeling each word cluster. For instance, a lexical cluster might assign high scores to the words ‘testing’, ‘kit’, and ‘results’. We then shifted to qualitative or interpretative analysis, by making sense of the top-scoring set of words that appeared together. In this step, we crafted *rhetorical storylines*, or synthetic statements which parsimoniously summarize the unique topics invoked in the corpus. Rhetorical storylines are useful frames for making rich sense of computationally derived lexical patterns, and illustrate how a mixed methods approach goes beyond a straightforward application of computational results (Montiel & Uyheng, 2020; Törnberg & Törnberg, 2016).

Beyond identifying five storylines, we also wanted to show exemplars from specific political speeches ($N_{\text{Speeches}} = 1,201$) that best reflected the meaning of each topic. Our choice of exemplar utterances proceeded mathematically. For each word cluster, LDA assigned a numerical score to every speech. This indicated how much the speech aligned with the content of each rhetorical storyline. For instance, a hypothetical speech may receive scores of 0.05, 0.08, 0.12, 0.15, and 0.60, indicating that it aligns most closely with the fifth rhetorical storyline. Interested readers may refer to the Supplementary Materials to read the speeches which scored the highest for each rhetorical storyline, prior to our qualitative interpretation.

Table 2 encapsulates what state leaders said during the global health crisis. The five-topic LDA model assigned scores to each word in our corpus, quantifying the associations

between each word and their corresponding topics. We used the top-scoring words per topic as one way of interpreting what each topic in our corpus was about. The first column contains the brief analytical labels of each topic. In the second column, we list the top-scoring words for each topic in descending order of quantitative importance. Column 3 presents our qualitative synthesis of each storyline, derived by meaningfully stringing together the words in column 2, marked with underlines. We excluded some words from the storylines presented due to their synonymous or redundant nature with words otherwise included; however, all words are reported. Finally, in the fourth column, we see the prevalence of each topic, or how often each storyline was evoked in political speeches in our corpus.

(Insert Table 2)

Table 2 suggests notable differences in state heads' rhetorical construction, or how leaders did politics through their public utterances. During the pandemic, state leaders enforced systemic interventions, upheld global unity, encouraged communal cooperation, stoked national fervor, and assured responsive governance.

Enforcing Systemic Interventions

Corresponding to 32% of the speeches, the first storyline discusses *enforcing systemic interventions*. This rhetorical political activity attempted to regulate the spread of COVID-19 by mobilizing state institutions from the upper echelons of power. From the computation of top words associated with this theme, we construct a summarizing storyline and underline the high-scoring words, thus “To control the situation of the spread of the epidemic and the outbreak in cases, it will be necessary to order quarantines and other policies with the cooperation of ministries and companies.”

Speeches that weighed heavily on this first storyline accorded the state an active and primary role in intervention enforcement, thereby asserting authority to carry out these large-scale efforts, as well as the resources and competence to accomplish them. For example,

scoring 0.99 on this topic, one speech mobilized state resources by promising that “we are committed: to managing the public health situation during the coronavirus crisis; to maintaining public order; but also to alleviating the socio-economic problems of employees and the self-employed. We also need to prepare, step by step, for economic development and recovery as soon as this crisis is over.”

Interestingly, in poorer countries, the enforcement of systemic interventions may appear in the rhetorical form of heightened militarized patrols. Another speech, also scoring 0.99 on this topic, threatened, “That is the reason of the essence of the police power of the state, to come up with measures to protect public interest, public health, public safety, it’s all there. If you do not obey the law, well that’s your problem.” Contrary to a technocratic approach to health and economic policy in more developed countries, systemic interventions in poorer countries may emphasize social control predicated on police power. In this view, systemic intervention rhetoric may elicit collective compliance based on two kinds of state-produced fear: fear of the virus, and fear of armed retribution.

Upholding Global Unity

In the second storyline featured in 29% of the speeches, politicians call on their local and international audience to *uphold global unity* in the context of an international society. National leaders address their publics not only to speak about substantive pandemic responses, but also to invoke shared global values of peace and unity. We construct one summary storyline by cohering and underlining the list of top-ranked words for this topic, describing how politicians claim that “Our nation looks to the development of a future as a member of an international society which hopes for unity and peace in this war against the pandemic.”

Endorsing such universal ideals appeals to the border-crossing nature of the pandemic. Speeches oriented toward this topic refer to other countries as neighbors,

emphasize connection over division; and broaden the notion of humankind in a universal rallying cry against the pandemic. Political rhetoric package a win-win argument, that helping one's country and international cooperation can be reached simultaneously, and may even be co-dependent on each other. For example, one speech scoring 0.99 on this topic claims that "Out of a strong sense of responsibility toward its own citizens and the international community, the ... government (institutions) have taken the most thorough and rigorous measures possible to fight the outbreak. These efforts are producing results." Another leader's rhetoric scoring 0.99 on this topic emphasizes co-dependence of local and international cooperation, pointing out that "Rather than regarding our neighbors as dangerous spreaders of the virus or enforcing nationwide lockdown measures, we chose to protect their safety for the sake of our own safety".

Encouraging Communal Cooperation

Not all leaders, however, accord primacy to ideals and policies linked to large-scale institutions and the global arena. In their national addresses, other leaders *encourage communal cooperation*, emphasizing the importance of citizen participation. This third storyline comprises 18% of the corpus. Here, rhetoric focuses on concrete everyday responses to the COVID crisis. We summarize the speech into one storyline, underlining the highest scoring words in this lexical cluster. State heads evoke political cooperation by calling upon their constituents, "During this COVID crisis, we ask that everyone – friends, workers, businesses – all stay home, take care, and keep safe in the days and weeks ahead."

By appealing to citizen cooperation through specific health-related actions, concerns of the pandemic are brought down to the level of everyday experience. Political utterances are likewise warmer and more personalized. For example, one speech scoring 0.90 on this topic empathized with the suffering sick, by pointing out how "we cannot forget that every number is someone's father, someone's mum, a relative and a friend and someone we have

all been united in an effort to protect and to save”. Such talk evokes the intimate nature of infections, highlighting stark contrasts against more depersonalized rhetoric of crisis and contagion. In contrast to more policy-focused talk in other storylines, speeches that emphasize communal cooperation likewise detail the personal strain of complying with quarantine and distancing protocols. Such elaborations are couched in highly familiar experiences, like working from home, canceling evenings, or limiting travel.

From a relational standpoint, such a storyline fortifies the communal solidarity needed during a pandemic. Moreover, participation in this common effort is valuably framed as challenging. Recognizing difficulties, however, seeks not to devalue cooperation, but to dignify collective agency in the face of the pandemic to exercise and uphold civic duty. By thanking citizens, speeches accord this shared identity with positive values and underscore the mutual accountability between the state and the people at curbing outbreaks.

Stoking National Fervor

In the fourth storyline, state heads engage their audiences by *stoking national fervor*. This entails rhetorical applause for the tremendous achievements of national efforts. About 11% of speeches contained this storyline. Speeches which politically performed in this manner were predicated not on ordinary cooperation, but grander narratives of national greatness. Stoking patriotic fervor promoted self congratulatory talk around effective anti-pandemic actions by the country’s leaders and followers: “Everybody, let us applaud ourselves, our secretaries, the police: it has been long and it took big money but what we have done is really incredible, tremendous, and something never been done before.”

Leaders reframed difficulties during the pandemic as signs not of vulnerability, but of agency. In particular, one speech scoring 0.99 on this topic claimed that the nation had the “greatest economy in the history of the world” before the pandemic. Yet when the pandemic struck, leaders asserted that “we could see what would happen and yet we did it” and “saved

literally hundreds of thousands of lives”. A speech scoring 0.98 on this topic, from another state head, framed such agency as both an essential (“as [we] have always done”) and exceptional trait of the people (“like few have seen before”).

Such meaning-making resonates with prior scholarship on populist rhetoric around an ‘authentic’ people (Mudde & Rovira Kaltwasser, 2018). As in other storylines, stoking national fervor also produces and relies on shared identity and welfare meant to unify collectives. However, unlike universalist ideals, values expressed here reinforce in-country status rather than build wider global solidarities. The rhetorical function of such performances further orients toward a notion of a nation’s essentialized exceptionalism, led under the heroic control of spectacular leadership (Crayne & Medeiros, 2020; Lasco, 2020).

Assuring Responsive Governance

Finally, the fifth storyline reflects leaders seeking to *assure responsive governance* during the pandemic. State heads performing in this manner emphasize the role of bureaucratic processes to fulfill the people’s needs during crisis. As rhetorical strategies, political utterances construct the state as not only well-resourced and competent, but more specifically, as constituted by well-equipped experts responsive to public need.

Around 10% of our corpus aligned with this storyline. The following commitment to accountability among leaders and expert advice-giving bodies summarizes this storyline: “In doing our jobs, the prime minister will think through the issues to ensure that the medical decisions and measures that are done in all the states follow the advice of the cabinet.”

Such linguistic performances serve both an informational purpose as well as a relational purpose of linking government affordances to public needs. Speeches here distinguish themselves by performing open communication regarding governance mechanisms and policy decisions. For example, in one speech scoring 0.99 on this topic, political actors like “prime minister” are framed as acting in conjunction with “the health

officers, chief medical officers of each of the states and territories . . . to form a national cabinet to deal with the national response to the coronavirus.” Another speech emphasizes that the purpose of such coordination is so that the people “know that there is a steady and responsible hand here.”

Part Two Methods and Results:

What Storylines and Pandemic Rates are Associated with Particular Countries?

Method

Measuring five storylines for each leader’s speeches. In order to detect the rhetorical orientation of each country leader, we returned to the speech scores, i.e., how much of each computed topic was present in each speech in the corpus. We then aggregated and derived averages of all the relevant speech scores that belonged to one state leader. For example, say Leader A delivered three speeches, and for Storyline X, Leader A’s speeches obtained speech-level scores of 0.2, 0.5, and 0.8. Then its state leader score for Storyline X is computed as the sum of these scores divided by three, which results in 0.5. The same procedure is employed for the other storylines as well. Since a state leader’s speeches are calculated relative to five storylines, a country’s single rhetorical score indicates how much of each storyline is contained in the state leader’s speeches. So for example, New Zealand had a rhetorical score of 0.5212 for the communal support storyline, but a rhetorical score of 0.0080 for national fervor. New Zealand state leadership thus invoked these storylines at relatively different rates, in speeches during the pandemic. Given the relative unevenness in speeches collected per country, our calculation of country-level means for each rhetorical storyline assumes that the national addresses available for sampling were most representative of official state rhetoric during the pandemic. The Supplementary Materials summarize all national scores.

Measuring COVID-19 rate in each leader's country. At this point of data analysis, each selected country had been measured on five dimensions, one for each storyline. In addition to storylines, we likewise needed to know the COVID-19 rate in each country, to contextualize the salience of various rhetorical performances. We reiterate that our research inquiry was not about rhetoric causing COVID-19 rates, and we do not ask whether political utterances decreased or increased public health conditions. We raise an associative rather than a causal question: What kind of political rhetoric arises alongside varying COVID-19 infection rates?

We derived our country-level COVID-19 growth rate data from the World Health Organization (2020). We obtained an average measure of national outbreaks' initial exponential rate of growth through least squares estimation, following a method similar to that described by Ma and colleagues (2014). Further details on the mathematical procedures used to calculate pandemic growth are provided in the Supplementary Materials.

Plotting the rhetorical map. Each of the 26 countries covered by our research had 6 scores indicating their COVID-19 growth rates and storyline weights or how much each leader's speeches weighed on the five derived storylines. Imagine a data matrix with 26 rows, one for each country, and 6 columns, for the pandemic rate and the storylines. To plot each country on a single rhetorical map, we applied principal component analysis (PCA) on this 26 x 6 data matrix, since we were interested in discovering associations between rhetoric and pandemic severity.

PCA reduced each country's rhetorical scores and COVID-19 growth into two principal components. The two component axes measured latent covariations of the storylines and pandemic rate, in relation to each other. The PCA output maps storylines and COVID-19 growth rate as vectors or arrows relative to their principal components.

On this same PCA map, one can likewise map countries, as computed scores or points in the principal component space. Based on the covariation of each country leader's speech with the five topics and pandemic rate, each country acquires its score on the first principal component as its x-coordinate, and its score on the second principal component as its y-coordinate. The rhetorical map shows which country leaders deployed similar political storylines and how the pandemic rates looked like in the respective domestic populations.

At this juncture, an alternative mode of analysis might be to perform a regression analysis relating COVID rates to national rhetorical scores as their predictors. Given our generative goals in this research, we note that regression analyses would be primarily limited by the low power of this sample on the national level. Convenience sampling likewise makes it difficult to interpret how the inferential statistics relate to a general population of countries. However, exploratory results are provided in the Supplementary Materials for interested readers.

Results

Figure 1 presents our PCA findings. We label and unpack the two *principal components* in another section of this paper. At this point, we advise the reader to merely look at the country *points* and storyline/pandemic-rate *vectors* of Figure 1.

(Insert Figure 1 here)

To what extent were political storylines related to each other? Figure 1 envisions how the five storylines overlapped. The nearer one vector is to another vector, the more co-located the two narratives are with each other; and vice versa. For example, Figure 1 shows that politicians who assured their constituents of responsive governance likewise upheld global unity or encouraged communal support. PCA results also indicate that leaders who implemented systemic interventions deployed this strategy as a singular stand-alone approach to the pandemic. We likewise point out that farthest away from each other are the vectors of

stoking national fervor on one side, and the narrative of upholding global unity on the opposite side of Figure 1. Such results imply that leaders who upheld global values toned down their nationalist rhetoric.

What did country leaders say during the pandemic? Let us now look at how countries in Figure 1 are plotted in relation to the storylines. For parsimony's sake, we cluster together countries that share the same storylines. Also for the sake of brevity, we cite countries only once, based on their primary storyline.

Let us proceed in a counterclockwise direction, starting at the upper right quadrant of Figure 1. Country leaders who did politics by stoking national fervor were the state heads of the US, United Kingdom, Turkey, Brazil, and India. Such nations can be labeled *populist hotspots*, not only because of their pandemic-related political rhetoric, but also because their leaders are classified as populist in the Blair Institute classifications (Kyle & Gultchin, 2018).

The upper left quadrant includes what we called *institutional enforcers*. Political rhetoric in these countries was most closely associated with systemic interventions. These institutional enforcers included Russia, Bangladesh, Iran, Singapore, Philippines, Bolivia, Israel, Spain, Italy, Belgium and Japan. We point out that countries in this category notably diverged on several contextual features, even as they carried the same storyline. High-income, democratic nations (e.g., Spain, Italy) shared latent positions with authoritarianism (e.g., Russia, Iran) and low-income, populist settings (e.g., the Philippines).

The bottom left quadrant contains countries whose leaders spoke about upholding global unity and sharing cross-border technologies. Figure 1 identifies these *universal collaborators* as Norway, China, South Korea, Georgia, Taiwan and Myanmar. Resonating with literature contrasting populist appeals with universal values, leaders here also showed the least affinity for talk of national fervor.

The bottom right quadrant in Figure 1 identifies country leaders who rhetorically performed in the political arena by encouraging communal support and assuring their constituents of a responsive governance during the health crisis. Narratives of *accountable democracies* marked the speeches of state heads from Canada, Denmark, New Zealand and Australia. One remarkable pattern across these countries is that they are all classified among the top 10 most democratic countries according to the Economic Intelligence Unit (2019).

How did COVID growth rates look like vis-à-vis dominant storylines? Utilizing a series of boxplots, Figure 2 visualizes the COVID-19 growth rates for countries across the four quadrants. For each quadrant, the general distribution of COVID-19 growth rates is depicted as a box, with median values indicated by the horizontal line in the middle of each box. Specific points correspond to the COVID-19 growth rates of individual countries. This provides a descriptive picture of which groups of countries experienced higher or lower pandemic severity.

(Insert Figure 2)

Within our dataset, during the initial months of the pandemic, the highest COVID-19 growth occurred in the populist hotspot countries. Correspondingly, this COVID rate boxplot is located near the highest point of Figure 2. The second highest COVID-19 growth rate in Figure 2 was seen among institutional enforcers. Finally, the lowest pandemic rates in Figure 2 were observed among countries with leaders advocating universal collaboration and accountable democracies.

Part Three Method and Results:

On What Underlying Constructs Can We Organize the Storylines and Countries?

Method

This last part of the research asks about the empirical organization of storylines and pandemic rates along latent measures. To arrive at these underlying constructs, we followed

principles described by Wodak (2001), which suggest that corpus linguistics go beyond the text to consider social theories which may embed "the communicative or interactional structures of a discursive event in a wider frame of social and political relations, processes and circumstances" (p. 65). We iteratively examine existing theories on political rhetoric and its relationships to societal conditions, and pragmatically identify which conceptual tools offer utility and insight into the problem at hand.

Wodak cautions, as in qualitative research more broadly, that this process of theoretical linkage is necessarily linked to the "background and contextual knowledge" of analysts (p. 65). Hence, alternative interpretations may also offer valid explanatory power. Crucial, then, for minimizing bias are offering triangulated evidence – which we attempt to do through our mixed methods approach – and transparency in our interpretative choices. Here, building on the prior results, we analyze the same principal components in Part Two of this paper, whereby rhetorical storylines are projected onto a shared latent space alongside national trajectories of pandemic control. The emergent principal components signify a summary of the six plotted vectors plotted on latent space, upon which we theoretically elaborate.

Two principal components explained 61.9% of the variance in the data. We label these computed components by looking at the vectors and points located at the high and low points of each component. Our output draws attention to underlying constructs that meaningfully cohere state leaders' storylines and pandemic rates.

Results

Refer to Figure 1 again, but this time, instead of looking at the vectors and points plotted on the space, consider the two principal components that divide the area or latent space into four quadrants. Storyline vectors and country cluster points acquire deeper meaning against the backdrop of these two principal axes. Findings indicate that political talk

during the pandemic can be organized along two dimensions: the loci of pandemic interventions (agency, structure), and hierarchical orientation (top-down enforcement, egalitarian solidarity).

In Figure 1, the horizontal line depicts the first component which we label *loci of pandemic interventions*. Explaining 40.2% of the variance in the data, the first principal component features a distinct agency-structure axis. State leaders exhorted their constituents to face the health epidemic by emphasizing systemic interventions or human agency. This dimension distinguished between the actions of individuals and groups, or *agentic rhetoric*, on the right (e.g., encouraging communal cooperation); and the activities of systems and institutions, or *structural rhetoric*, on the left (e.g., upholding global unity).

The second principal component is plotted along the vertical line, and explains an additional 21.7% of the variance. This second component traces rhetorical variation to latent *hierarchical orientations* of political talk during the health crisis. Such a concept borrows from what Douglas (1996) calls a hierarchical-egalitarian axis since storylines above emphasized *top-down enforcement rhetoric* (e.g., enforcing systemic interventions), versus more *egalitarian solidarity rhetoric* below (e.g., assuring responsive governance)

Discussion

This research explores political rhetoric by national leaders during the COVID-19 pandemic. Utilizing a corpus linguistics approach, we uncover shared and unique rhetorical storylines employed by national leaders to accomplish various political ends. Moreover, we surface emergent constructs, which organize the salience of rhetorical performances across countries facing the COVID-19 at varying levels of severity. Here, we note the particular distinctiveness of populist-led nations in terms of both political rhetoric and high infection rate. In the following sections, we present theoretical, practical, and methodological insights for political psychologies of the COVID-19 pandemic and global crises more broadly.

Mapping Pandemic Rhetoric as Cultural Cognition

Our analysis discerned two organizing principles to political rhetoric during the pandemic: an agency-structure dimension, and a hierarchy-egalitarianism dimension. Serendipitously, these findings resonate strongly with the framework of cultural cognition (Douglas, 1996). Important advances in cultural cognition theory were made toward understanding how societies navigate risk, based on collective valuations of individuals versus communities, and their orientations toward hierarchy versus equality (Douglas & Wildavsky, 1983). Cultural cognition theory posits that, based on these two dimensions, members of a society “select certain risks for attention and disregard others in a way that reflects and reinforces the particular worldviews to which they adhere” (Kahan & Bram, 2006, p. 152).

In the context of global crisis, we observe how these dimensions of cultural cognition rhetorically operate in how leaders emphasize distinct responses to the pandemic, and more fundamentally locate responsibility for successful pandemic control. Concretely, leaders appear to bifurcate in their talk with respect to promoting institutional responses (structure) or encouraging individual action (agency). Furthermore, a simultaneous consideration of hierarchical orientation demonstrates how rhetorical performances organize the exercise of power during crisis. In other words, leaders frame how the presumed agentic or structural responsibilities should be fulfilled – that is, through top-down interventions (hierarchy) or bottom-up collaborations (egalitarianism).

These intersecting problematiques of responsibility and power thus constitute major principles of collective meaning-making around the COVID crisis. Given that these factors were observed on the level of national leaders’ political rhetoric, future work may draw from these findings by examining how these facets of cultural cognition shaped the broader public’s perceptions or behaviors during the pandemic. Moreover, these results also offer

new ways of integratively rethinking previously studied psychological constructs within their practical political settings (Finlayson, 2012; Turnbull, 2017). For instance, it may be analytically useful to understand the efficacy of combative war frames against the pandemic in terms of their activation of collective agency, or how leaders' empathy can emotionally respond to citizens' resistance to structural hierarchy by projecting egalitarian relations between leaders and followers (Benziman, 2020; Sergent & Stajkovic, 2020).

Leading Over and Leading With: Populism versus Cosmopolitanism

A particularly striking result which arises from this rhetorical map of cultural cognition also pertains to the emergent opposition between populism and cosmopolitanism during the pandemic. Rich scholarship tackles the global ascendance of populism over the past decade (for a review, see Obradović, Power, & Sheehy-Skeffington, 2020). Among a vast collection of disciplines, political psychology has helped establish how populist leaders gain political support by fomenting social divides between the imagined 'authentic' people of a nation, and a vilified 'other', often leading to culturally nativist and anti-globalization attitudes (Mudde & Rovira Kaltwasser, 2018; Staerklé & Green, 2018). By contrast, cosmopolitanism has been conceptualized as consisting of cultural openness, global pro-sociality, and respect for cultural diversity (Leung, Koh, & Tam, 2015; Liu et al., 2020). In populist-led countries, cosmopolitan values have explicitly been shown to counter populist discourse (Uyheng & Montiel, 2020).

Populism and cosmopolitanism not only denote opposed concepts, but they also offer a compelling point of contrast within our understanding of pandemic leadership, suggesting enriching dialogue with the prevailing social identity view (Haslam et al., in press). For instance, rhetorical performances of both populism and cosmopolitanism appear to cultivate a sense of 'us'-ness. Yet in our data, populist hotspots sought to strengthen collectivity by privileging a specific people (agency) within an elite-positioned nation (hierarchy). On the

other hand, universal collaborators sought wider collectivity through unity (egalitarianism) with the global community (structure). Our descriptive findings thus indicate the importance of not just building shared identities, but also paying attention to how power is organized within these collectivities to weather crises like pandemics.

In short, do successful national leaders during the pandemic lead *over*, or lead *with*? Our findings suggest that elements of *both* vertical and horizontal relations between leaders and followers play an important role. Observe, for instance, how the national fervor rhetoric of populist leaders rhetorically pins pandemic control on the people's exceptional identities rather than their everyday actions. This presumes a vertical sense of national exceptionalism, but relegates systemic responsibility to the grassroots. By contrast, the cosmopolitan rhetoric of universal collaborators asserts an international identity committed to continued future action and responsibility. This bolsters egalitarian, collaborative relations, while also affirming accountability from governing bodies. Connections of leading over and leading with may thus be vital to forge on multiple levels, uniting not just individuals within narrow group boundaries, but also institutions (e.g., governments, nations) within wider scopes of solidarity (e.g., the international sphere). Tackling as all-encompassing a crisis such as a global pandemic may benefit from similarly comprehensive bases of collective behavioral change for effective pandemic response (Van Bavel et al., 2020).

Tentative Lessons for Political Rhetoric during Global Crises

Thus far, we have examined how national leaders have navigated the pandemic within a shared, relatively coherent system of collective meaning-making. However, the impacts of political rhetoric may be complicated amidst global inequalities in pandemic experiences (Chiriboga et al., 2020). For instance, accountable democracies like New Zealand exhibit political performances lauded in emerging scholarship about the pandemic, such as emphasizing collective effort and the role of expertise (Wilson, 2020). Yet all state heads

utilizing comparable talk in this study belonged to countries featuring among the highest democracy indices (The Economist Intelligence Unit, 2019). Conversely, high-income countries invoked systemic interventions in terms of well-resourced health and economic policies. But the same rhetorical performances highlighted some low-income countries' reliance on militarized lockdowns. Mindful of global inequalities, leaders' rhetoric thus represents a vital element of crisis response, but does not universally offer a political or psychological panacea.

Political rhetoric during global crises must therefore adapt to diverse societal conditions. Our generative analysis enriches prior work by affirming the importance of leadership which elevates strong institutions while mobilizing active cooperation among an empowered public (Sergent & Stajkovic, 2020; Spector, 2020). However, such recommendations may not only be effective in democratic and economically developed contexts; they might be more readily enacted in such settings as well. Conversely, we concur with prior studies illustrating the difficulties of recommending bottom-up responses such as social distancing in settings characterized by entrenched poverty and democratic instability (Wasdani & Prasad, 2020).

However, this does not imply that top-down militarized policing offers a solution to these issues, as authoritarian leaders worldwide weaponize crisis to tighten their grip on power (Kavanagh & Singh, 2020). We speculate that in developing countries, rhetoric emphasizing responsive governance may prove most democratically viable. In such settings, rhetoric reliant on purely top-down responses may prove difficult to sustain, especially in the shadow of authoritarian histories in the Global South (Chiriboga et al., 2020; Lasco, 2020). Furthermore, purely bottom-up responses may also leave local communities unsupported with necessary resources, which may aggravate inequalities in already materially scarce contexts (Wasdani & Prasad, 2020). Responsive governance rhetoric, emphasizing egalitarian

and accountable coordination of local and national agents, may thus offer an equitable way forward which balances both concerns. Such rhetoric by national leaders, even in resource-constrained settings, may open avenues for cultivating shared identity, attending to public needs, and informing context-sensitive deployment of more technical public health interventions (Chiriboga et al., 2020; Haslam et al., in press).

Yet especially during global crisis, political rhetoric not only looks inward, but outward as well. An important contrast evident in our analysis concerned not just how leaders managed local material and symbolic resources of pandemic control, but negotiated the wider-reaching, borderless nature of the crisis. The salience of the international community in our corpus of national addresses likewise suggests fruitful avenues for future work which expands prevailing politico-psychological inquiry currently focused on inward-looking leadership. From a practical standpoint, while remaining cautious of asymmetrical relationships with superpowers, countries especially in the Global South may also potentially gain from advancing solidarity with the global community, while learning from neighbors with shared social landscapes.

Generative Methods for Global Political Psychology

Our adoption of a mixed methods, corpus linguistics approach facilitated novel insights into global political rhetoric around the pandemic. In particular, this study offered new directions for understanding pandemic leadership, especially pertaining to the salience and organizing principles of shared rhetorical practices by national leaders worldwide. Future quantitative work may harness these insights through more confirmatory designs which test the impacts of variously structured political utterances on crisis behaviors, as well as the potential role of various country-level economic and political moderators in different societal contexts. More qualitative research may likewise valuably consider fine-grained, emic processes of social construction in the rhetoric of political leaders and their publics, which

may likewise engage the wide range of politico-psychological constructs examined in prior research, as well as those emergently derived here.

This work demonstrates the utility of mixed methods and corpus linguistics as tools for “strengthening the derivation chain” of generative political psychology (Scheel et al., 2020). Although politico-psychological dynamics of global crises may be grounded in well-understood social and behavioral processes (Van Bavel et al., 2020), they also require attention to both emergent and globally diverse phenomena (Chiriboga et al., 2020). Mixed methods synthesize the strengths obtained through both quantitative and qualitative research toward more holistic understanding of psychological constructs (Onwuegbuzie & Leech, 2005; Power et al., 2018). In particular, corpus linguistics locates these integrative benefits in language, thereby also offering the advantage of examining politics in its naturalistic context (Finlayson, 2012), while still engaging broader patterns across multiple societal contexts (Nesbitt-Larking & Kinnvall, 2012). Taken together, such methodological frameworks highlight opportunities for interdisciplinary and innovative research in political psychology as enabled by computational technologies. These tools open new and important research questions on unique datasets which depart from, yet complement, existing approaches.

However, while leaders’ words have power, they certainly do not capture a complete politico-psychological picture of pandemic leadership. How leaders use language may not always align with concrete interventions. Neither do leaders’ utterances deterministically dictate public attitudes or behavior. Hence, while our work aims to uncover shared patterns of meaning-making, it does not account for discrepancies in rhetoric and policy, or as we have previously reiterated, claim causal impacts of political rhetoric. We also acknowledge that as our methodology identifies broad rhetorical patterns in the data corpus, we do not fully capture the nuances of all linguistic performances by national leaders. Moreover, it is certainly possible that other potential rhetorical storylines never featured in national

addresses during the pandemic. Such silences, as well as how the rhetoric identified here may shift in the near future, will also be vital to track in future work. In this view, we highlight the turbulent setting presented by the pandemic for psychological knowledge production. Within months of this research, new rhetorical patterns may emerge in line with ever-changing international outbreak trajectories and concerns over worldwide vaccination campaigns. While our work thus provides a particular snapshot of rhetorical variations, these dynamics will continue to evolve as the pandemic maintains its global reach and transforms, alongside nations' responses to it.

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Table 1
Sample for Data Corpus

<u>Country</u>	<u>Speeches</u>	<u>Country</u>	<u>Speeches</u>
Australia	132	Japan	56
Bangladesh*	23	Myanmar	12
Belgium	30	New Zealand	21
Bolivia*	41	Norway	54
Brazil	6	Philippines	37
Canada	72	Russia	97
China	21	Singapore	25
Denmark	59	South Korea	101
Georgia	31	Spain	17
India	39	Taiwan	21
Iran	36	Turkey	18
Israel	36	United Kingdom	52
Italy	31	United States	133

Note: Asterisk after a country's name indicates sole reliance on the use of an automated translation software to translate state leader's speeches to English.

Table 2

Summary of Derived Rhetorical Storylines

<u>LDA Topics</u>	<u>Top Words</u>	<u>Rhetorical Storylines</u>	<u>Prevalence</u>
Enforcing Systemic Interventions	situation, necessary, ask, outbreak, spread, control, meeting, epidemic, quarantine, disease, including, ministry, companies, order, cases	To <u>control</u> the <u>situation</u> of the <u>spread</u> of the <u>epidemic</u> and the <u>outbreak</u> in <u>cases</u> , it will be <u>necessary</u> to <u>order</u> <u>quarantines</u> and other policies with the cooperation of <u>ministries</u> and <u>companies</u> .	32.16%
Upholding Global Unity	development, future, international, society, nation, war, political, peace, history, democracy, members, hope, united, republic, independence	Our <u>nation</u> looks to the <u>development</u> of a <u>future</u> as a <u>member</u> of an <u>international</u> <u>society</u> which <u>hopes</u> for <u>unity</u> and <u>peace</u> in this <u>war</u> against the pandemic.	29.25%
Encouraging Communal Cooperation	home, keep, everyone, covid, workers, care, days, jobs, friends, across, crisis, business, weeks, stay, safe	During this <u>COVID</u> <u>crisis</u> , we ask that <u>everyone</u> – <u>friends</u> , <u>workers</u> , <u>businesses</u> – all <u>stay</u> <u>home</u> , take <u>care</u> , and <u>keep</u> <u>safe</u> in the <u>days</u> and <u>weeks</u> ahead.	18.06%
Stoking National Fervor	really, big, thing, money, secretary, incredible, never, police, tremendous, something, ever, long, little, applause, everybody	<u>Everybody</u> , let us applaud ourselves, our <u>secretaries</u> , the <u>police</u> : it has been <u>long</u> and it took <u>big</u> <u>money</u> but what we have done is <u>really</u> <u>incredible</u> , <u>tremendous</u> , and <u>something</u> <u>never</u> been done <u>before</u> .	10.75%
Assuring Responsive Governance	minister, prime, think, place, advice, issues, states, ensure, done, cabinet, jobs, medical, course, decisions, measures	In doing our <u>jobs</u> , the <u>prime</u> <u>minister</u> will <u>think</u> through the <u>issues</u> to <u>ensure</u> that the <u>medical</u> <u>decisions</u> and <u>measures</u> that are <u>done</u> in all the <u>states</u> follow the <u>advice</u> of the <u>cabinet</u> .	9.78%

Note: Underlined words in the qualitatively derived rhetorical storylines represent the highest-scoring words for each cluster of our topic model. Words were cohered into a story that reflected their embedded meanings in the speeches.

Figure Captions

Figure 1. Global map of rhetorical variations at the outbreak of the COVID-19 pandemic. Countries in the data corpus are plotted as points on a map organized according to two principal components of political rhetoric during the pandemic. National measures are plotted as arrows, or vectors on the same map. Solid lines representing individual rhetorical storylines, and the broken line represents a measure of national COVID-19 growth rates. Countries are also grouped by the quadrants of the plot, representing distinct clusters of nations which employed different rhetorical storylines and experienced varying levels of pandemic severity.

Figure 2. Distributions of COVID-19 growth rates among countries in each of the rhetorical quadrants. Each quadrant of countries is given by a separate boxplot summarizing the distribution of COVID-19 growth rates in each cluster, with individual countries overlaid as points. Higher values on the vertical axis indicate faster national growth of COVID-19 during the period analyzed, indicating worse pandemic severity.



