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From alternative conceptions of honesty to alternative facts in communications by U.S. politicians

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The spread of online misinformation is increasingly perceived as a problem for societal cohesion and democracy [6, 9]. Much attention has focused on the role of social media as a vector of misinformation spreading among citizens [8]. The role of political leaders has attracted less research attention, even though leaders demonstrably influence media coverage [7] and public opinion [1], and even though politicians who "speak their mind" are perceived by segments of the public as authentic and honest even if their statements are unsupported by evidence or facts [10, 11, 3]. In this work, we show that in the last decade, U.S. politicians' conception of truth, as expressed through social media communication on Twitter, has undergone a distinct shift, with authentic but evidence-free belief-speaking becoming more prominent and more differentiated from evidence-based truth seeking.

We analyze communications by politicians in the US between 2010 and 2022. To this end, we collect the full timelines of 1278 Twitter accounts of members of the 114^{th} to 118^{th} U.S. Congress on Twitter, resulting in a corpus of 3,897,032 original tweets. To analyze this corpus, we developed a text analysis method to measure "belief-speaking" and "truth-seeking" in text. The method is based on reference word lists that are combined with embedding models in the Distributed Dictionary Representation (DDR) approach [2], providing a measure of belief-speaking and truth-seeking similarity between tweets and the reference dictionaries. We validated this approach against human raters, achieving AUC=0.824 for belief-speaking and AUC=0.772 for truth-seeking. This interpretable method allows us to understand the features of the language of politicians associated with these two conceptions of truth, as illustrated in the scattertext plot [4] for Democrats and Republicans in Figure 1. We apply this method to the tweets written by politicians and also to the text of news articles linked from the tweets of politicians. Additionally, we measure the degree of trustworthiness of information shared by politicians by using the NewsGuard database ratings of domains of links contained in the tweets of the Twitter account of each politician. Therefore, each tweet containing a link has both a belief-speaking and truth-seeking similarity score as well as a news quality score derived from NewsGuard. We then fit a linear mixed effects model with random slopes and intercepts for every account to assess the relation between belief-speaking, truth-seeking, and information trustworthiness.

The results of this analysis show that political speech has fractured into two distinct components related to belief-speaking and evidence-based truth-seeking, respectively. Both belief-speaking and truth-seeking have increased substantially throughout the last decade (see Figure 2, top panels) but Democrats and Republicans make different use of these speech patterns at different points in time. Democrats showed a marked increase in belief-speaking soon after the election of Donald Trump, maintaining an elevated level until Joe Biden was elected. Republicans show a steady increase in belief-speaking language over a decade, reaching levels slightly higher than democrats in the last years. Both parties display an increased level of belief speaking in the run-up to the last presidential election. Democrats also showed an increased level of truth-seeking after the election of Donald Trump, but this did not last as much as the increase in belief-speaking. Interestingly, the time series of truth-seeking shows a spike for both parties during the early months of the COVID-19 pandemic, while no spike can be seen

for belief-speaking. This works as a face validity check, as the high-uncertainty situation at the beginning of the pandemic should have motivated the truth-seeking of political elites.

Our analysis of individual politician accounts shows that belief-speaking—but not truth-seeking—can be associated with the sharing of untrustworthy information (see Figure 2, bottom panels). Our regression model shows that, for tweets by conservative members of Congress, an increase in belief-speaking of 10% is associated with a decrease of 12.7 points of trustworthiness in the sources shared in tweets as measured by the NewsGuard scoring system. However, no significant associations were found for liberals in the relationship between belief-speaking and source trustworthiness. In addition, we find that an increase of belief-speaking language by 10% in the shared articles themselves, not in the tweets, is associated with a decrease in NewsGuard score of 7.9 points for members of both parties (not shown in the figure). By contrast, an increase in truth-seeking language in tweets and articles is associated with an increase in quality of sources for both parties. To test the robustness of our findings to the choice of Newsguard as a measure of source trustworthiness, we replicated these results using an independent database of domain trustworthiness ratings [5].

The results support the hypothesis that the current dissemination of misinformation in political discourse is in part driven by a new understanding of truth and honesty that has replaced reliance on evidence with the invocation of subjective belief. This is part of a wider theoretical perspective in which misinformation spreading in social media is a symptom of a deeper problem of changing ontologies of truth that can erode the public trust in media and institutions necessary for a functioning democracy.

References

[1] J. T. Carmichael and R. J. Brulle. Elite cues, media coverage, and public concern: an integrated path analysis of public opinion on climate change, 2001–2013. *Environmental Politics*, 26(2):232–252, 2017.

[2] J. Garten, J. Hoover, K. M. Johnson, R. Boghrati, C. Iskiwitch, and M. Dehghani. Dictionaries and distributions: Combining expert knowledge and large scale textual data content analysis. *Behavior research methods*, 50(1):344–361, 2018.

[3] O. Hahl, M. Kim, and E. W. Z. Sivan. The authentic appeal of the lying demagogue: Proclaiming the deeper truth about political illegitimacy. *American Sociological Review*, 83:1–33, 2018.

[4] J. S. Kessler. Scattertext: a browser-based tool for visualizing how corpora differ. In *Proceedings of ACL-2017 System Demonstrations*, Vancouver, Canada, 2017. Association for Computational Linguistics.

[5] J. Lasser. List of domain accuracy and transparency scores v1.1, 2022.

[6] S. Lewandowsky. Wilful construction of ignorance: A tale of two ontologies. In R. Hertwig and C. Engel, editors, *Deliberate Ignorance: Choosing Not to Know*, pages 101–117. MIT Press, 2020.

[7] S. Lewandowsky, M. Jetter, and U. K. H. Ecker. Using the president's tweets to understand political diversion in the age of social media. *Nature Communications*, 11:5764, 2020.

[8] S. Lewandowsky, L. Smillie, D. Garcia, R. Hertwig, J. Weatherall, S. Egidy, R. E. Robertson, C. O'Connor, A. Kozyreva, P. Lorenz-Spreen, Y. Blaschke, and M. Leiser. Technology and democracy: understanding the influence of online technologies on political behaviour and decision making. Technical report, 2020.

[9] K. Müller and C. Schwarz. Fanning the flames of hate: Social media and hate crime. *Journal of the European Economic Association*, 19(4):2131–2167, 2021.

[10] B. Swire, A. J. Berinsky, S. Lewandowsky, and U. K. H. Ecker. Processing political misinformation: comprehending the Trump phenomenon. *Royal Society Open Science*, 4:160802, 2017.

[11] B. Swire-Thompson, U. K. H. Ecker, S. Lewandowsky, and A. J. Berinsky. They might be a liar but they're my liar: Source evaluation and the prevalence of misinformation. *Political Psychology*, 41:21–34, 2020.

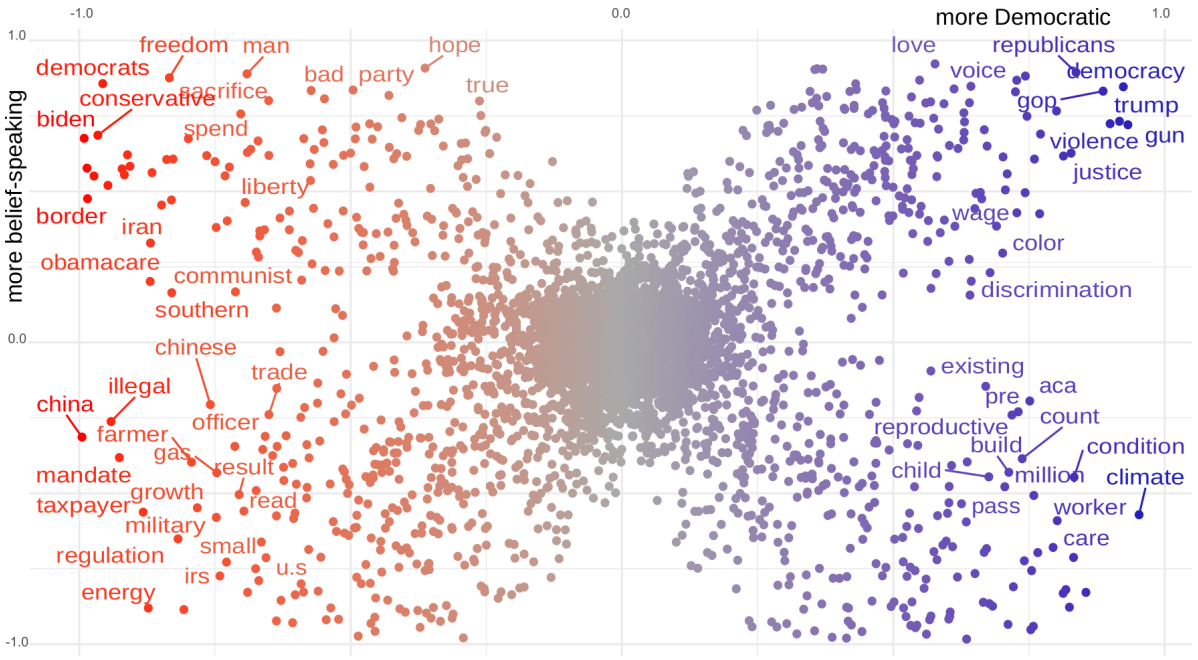

Figure 1: Distribution of reference words on a textual scatterplot. Every term is a dot with two coordinates associated with party (x-coordinate) and honesty component (y-coordinate) keyness. Word colors correspond to the association between word occurrences and Twitter account party for each word.

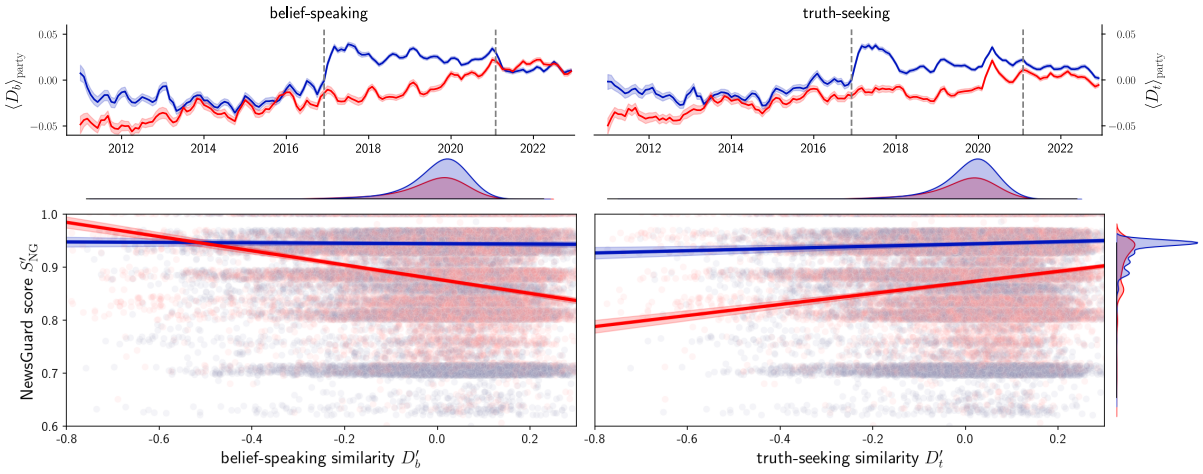

Figure 2: The upper panels show micro averages over all tweets of belief-speaking similarity $\langle D_b \rangle_{party}$ and truth-seeking similarity and $\langle D_t \rangle_{party}$ over time. Timelines have been smoothed with a rolling average of three months. The 95% confidence intervals were computed over 1,000 bootstrap samples. Dashed vertical lines indicate dates of presidential elections in 2016 and 2020. The lower panels show the rescaled NewsGuard score S'_{NG} of links posted by individual U.S. Congress members over centered belief-speaking (D'_b) and truth-seeking (D'_t) similarity measured in tweet texts, respectively. The lines and shaded areas indicate NewsGuard score predictions and 95% confidence intervals from a linear mixed effects model.