"Truth Contagion" in U.S. Political Debate

Extended Abstract

The spread of online misinformation is increasingly perceived as a problem for societal cohesion and democracy (Lewandowsky, 2020; Müller & Schwarz, 2021). Much attention has focused on the role of social media as a vector of misinformation (Lewandowsky, Smillie, et al., 2020). The role of political leaders has attracted less research attention, even though leaders demonstrably influence media coverage (Lewandowsky, Jetter, & Ecker, 2020) and public opinion (Carmichael & Brulle, 2017). During the last decade, in several western democracies such as the US and UK, political leaders have been able to make numerous inaccurate and false statements without seemingly suffering political or electoral setbacks. This has been ascribed to segments of the public considering politicians to be honest despite being routinely inaccurate or misleading because they are perceived to "speak their mind" and to be "authentic" (Swire-Thompson, Ecker, Lewandowsky, & Berinsky, 2020; Hahl, Kim, & Sivan, 2018).

Accordingly, analysis of the speech of U.S. politicians (members of Congress) has shown that politicians' conception of truth has undergone a distinct shift, with authentic but evidence-free belief-speaking becoming more prominent and more differentiated from evidence-based truth seeking.

Here we examine the downstream consequences of communications involving those two conceptions of honesty by examining how social media users engage with truth-seeking and belief-speaking posts from Democratic and Republican politicians on Twitter. We measured the conceptions of honesty of a sample of politicians' tweets and users' replies using a distributed dictionary representation of keywords (Garten et al., 2018) that were empirically shown to represent belief-speaking and truth-seeking, respectively.

We chose a random sample of 20,000 tweets published between January 1, 2016 and March 16, 2022, by members of the U.S. Congress as "seeds" for the ensuing conversations with the public. To reduce the influence of accounts that post a large number of tweets, we limited consideration to the latest 3200 tweets from every account. We obtained a total of 331,374 replies by users. After excluding any reply tweets that did not address the initial politician's tweet but rather other replies in the conversation and after removing users whose ideology we could not identify, we retained 97,329 replies to 10,113 different seeds published by 730 US politicians (Democrats = 388, Republicans = 342).

Our analysis focused on two aspects of the conversations between politicians and users: First, how did the conceptions of honesty in the seed tweets by politicians align with the language in replies by users? This analysis employed a regression model that used an index of honesty conception (H), defined as the difference in similarities of a given tweet with the belief-speaking and truth-seeking dictionaries. Values of $H > 0$ imply that a tweet engaged predominantly in belief-speaking whereas values of $H < 0$ indicate that a tweet was engaging in truth-seeking. We computed H both for seed tweets by politicians (H_t) and replies (H_r).

Second, we asked how did the conception of honesty in the seed tweet relate to the polarization scores of the replies, also assessed by dictionary (Simchon, Brady, & Van Bavel, 2022)? For these regression analyses we again computed similarity scores between tweets and the polarization dictionary (Pol_t and Pol_r for seed tweets and replies, respectively), which range from -1 (not similar at all; no polarization) to 1 (perfectly similar; extremely polarizing language).

As shown in Figure 1, we found that the conceptions of honesty used in replies aligned with those of the seed tweets, suggesting a "contagion" effect such that politicians determine the tenor of a subsequent conversation involving the public.

Figure 2 shows that increasing belief speaking (increasing values of H_t; panel A) by politicians is associated with increasingly polarized language in the replies, with that increase being greater for Democrat politicians. The figure also shows (panel B) that polarization decreases when the users' ideology (estimated by I, which is a good proxy for partisanship; ?, ?) aligns with the party of the politician.

Our results highlight that political leader play a crucial role in setting the tone of the conversation on social media. In particular, the results show how evidence-based communication by politicians could help focus the audience on evidence rather than belief and decrease audience polarization in online political debate.

References

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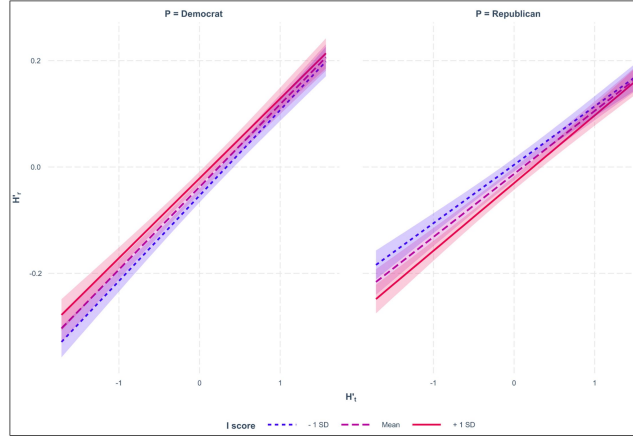
Figure 1: Three-way interactions between H'_t, I, and P. The lines present predictions from the regression model. The left panel is for seeds (H'_t) by Democrat politicians, whereas the right panel is for Republican politicians. On the x-axes, $H'_t = -1$ signals truth-seeking seeds, $H'_t = 1$ indicates belief-speaking seeds. The y-axes in both panels show the same values for replies (H'_r). The I score (users' ideology) line-types and colors are mapped on the +/- 1 standard deviation of I from its mean as well as on the mean itself.
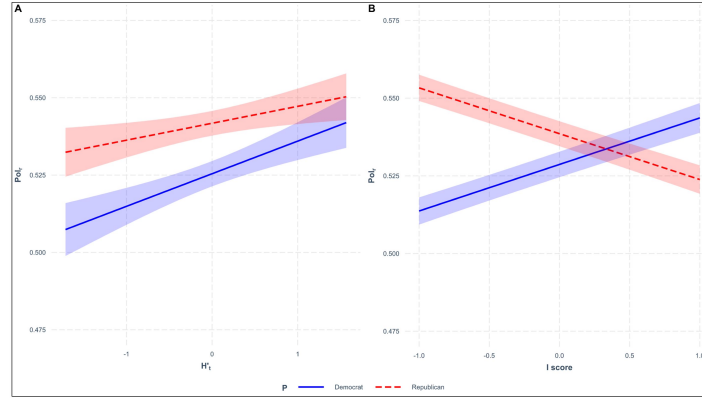

Figure 2: Interactions between H'_t (Panel A) and I (Panel B), and Pol_r. The lines present predictions from the corresponding regression model. Panel A shows how Pol_r increases with more belief-speaking, and that increase is greater for Democrat politicians. Panel B indicates that Pol_r decreases when the repliers' ideology aligns with the party of the politician who seeded the conversation, and increase when it does not. The line-types and colors are mapped on the party of the politicians who composed the seeds (dotted red=Republican; solid blue=Democrat).