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What is (still) going on in Brazil? A Political Tale from Tweets

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Expanded abstract

Brexit in Europe, Trump in the U.S., and Bolsonaro in Brazil are examples of the increasing polarization of political debates across the world [2]. Concurrently, we have been witnessing the key role played by online social platforms as they become the main media for campaigns, debates, and recruitment [1, 3, 4].

Here we use social media data and network analysis to understand and highlight population-level political behavior in Brazil, as groups evolve from campaign competitors to new government and opposition blocks. Our analysis reveals a transition from a phase before the vote with many polarized groups to a phase after the vote in which these votes coalesced around a government and an opposition cluster. We used the Twitter streaming API to track the 14 Brazilian presidential candidates of the 2018 elections, from Aug. 30, 2018 to Jun. 30 2022. For the 2022 elections, we tracked the 12 candidates and the 27 parties which have official accounts on Twitter, from Jul. 1 2022 to Feb. 28 2023. This yielded a collection of 432 million tweets from 9 million accounts. The data collection spans over a period of 1643 days and was active during 93% of the time.

The Twitter timeline in Fig. 1A highlights some visible changes in political engagement. In 2018, the activity increases until election day, followed by a drop in the period between the election results and inauguration day (Jan. 1, 2019), and then, the number of tweets and users stabilizes with few peaks around important events. The volume of messages was low 2020 until the pandemic. Then, several peaks related to COVID and politics. Finally, a sharp increase during from the beginning of 2022 until the election day. A similar drop between the election until the inauguration was observed again in 2022.

Despite the steady daily activity, Fig. 1D shows that more than three thousand new accounts join the Brazilian political conversation every day. This suggests an account churn rate of roughly 5%. In future research, we plan to investigate who are the accounts leaving the conversation. One possible interpretation is that the dynamics are driven by many bots, which are replaced by new ones when they are suspended by the platform. In the present analysis we did not evaluate bot activity for the newcomers.

Fig. 1B shows a 10% drop in the retweet rate from 71% before the final election to 61% after inauguration day. The number of replies, on the other hand, more than doubled, from 14% to 30%. These changes may represent two distinct behaviors: propaganda during the campaign, and debate during the mandate. The phenomena repeated in the 2022 cycle and it seems that the number of replies is steadily increasing.

To analyze polarization, we created daily weighted networks in which nodes represent accounts and an edge connects two accounts if one mentions, retweets, quotes, or replies to the other; the weight represents the number of interactions in a day. We also considered longer

periods, with similar results. A $k = 15$ network core of the most polarized day, the election eve, with clusters representing the candidates and their supporters was generated, but omitted due to lack of space. We also observed the increasing number of suspended accounts and bots towards the core of the network suggesting these malicious accounts played a significant role in the conversation (figure also omitted).

Finally, we analyzed how the Brazilian political scenario attracts international attention. We measured the percentage of messages per country and per day, using the country code metadata present in some of the tweets. Fig. 1E shows the standardized attention timeline, computed by the z-score of the relative volumes, for USA, Chile, Argentina, France, and Portugal. The timelines highlight the days with most activity for each country, suggesting that international attention was unevenly distributed due to distinct events. For instance, attention from the U.S. was higher during the first year of Bolsonaro mandate, and peaked on inauguration day.

References

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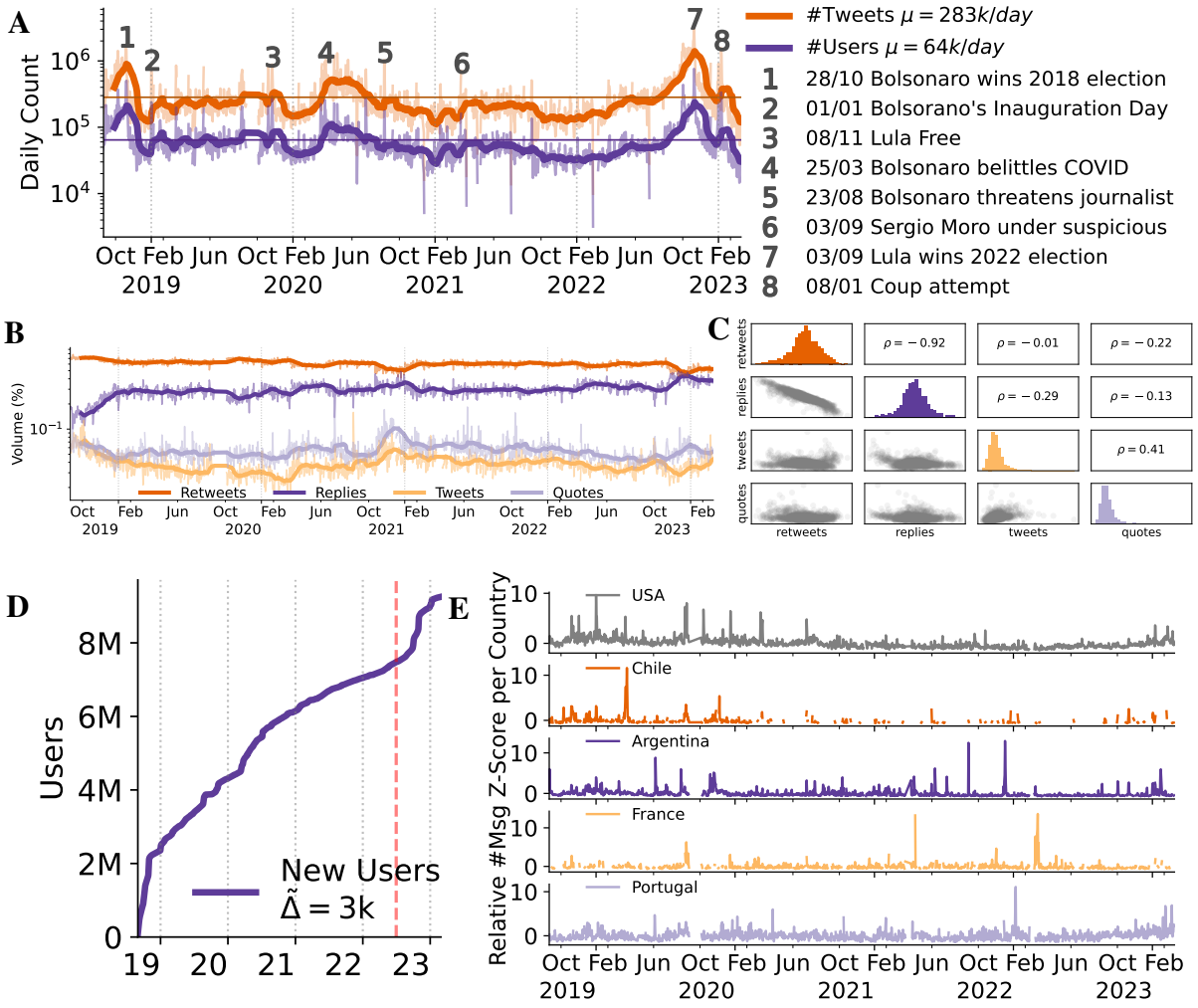

Figure 1: **A Political Tale from Tweets.** (**A**) Almost five-year timeline related to Brazilian politics highlighting a few peaking days. (**B**) 30-day moving average of percentages of types of messages. (**C**) *Retweets* and *replies* are negatively correlated ($\rho = -.92$); *tweets* and *quotes* are positively correlated ($\rho = -.41$). (**D**) Growth in number of users involved in the Brazilian politics conversation. The median growth is 3k new users per day. Red line indicates a new set of keywords to build the dataset. (**E**) Peaks in international attention towards Brazilian politics significantly differs among countries.