



Contribution ID : 160

Type : Oral presentation

Emergence of scaling and organization in microblogging platforms: the emblematic examples of BlueSky and Truth Social

We present an analysis of the complex network structure of some microblogging platforms, comparing their internal organizations and, for the case of BlueSky, its growth during a period of massive migration from X/Twitter. Topological differences are the result of platforms' functionalities and of individuals' behaviors. At the same time, the sudden increase of users in BlueSky acts as a large perturbation to the platform's dynamics and provides a unique opportunity to explore how the mesoscale organization in a decentralized environment changes, giving rise to scaling laws. Using a dataset of 21 million users, we investigate the differences introduced by the migration "shock" and compare BlueSky's network features with those of other platforms, including Truth Social, Gab, Mastodon, Parler, and X/Twitter, as well as a previous snapshot of BlueSky updated to March 2024. Notably, BlueSky's use of "starter packs" facilitates connectivity and may significantly impact user behavior and collective behavior. Preliminary results reveal the emergence of scaling relations between the number of followers and followees, such as which is of interest due to its effect on the bursty dynamics of online collective attention[1]. Additionally, we report on higher-order topological correlations, conveying information on the hierarchical structure[2], and (dis)similarities in mesoscale organization, such as community structure and network robustness, specifically comparing Truth Social with BlueSky. This ongoing study contributes to understanding how users behavior impacts the emergence of network topology and how the decentralized microblogging platforms adapt to external, large-scale, shocks and evolve under non-equilibrium conditions, offering insights into the interplay between structure and dynamics in complex social networks. structure of the mobility network varies depending on the approach used to model the spreading process.

[1] De Domenico, Altmann Scientific Reports 10, 4629 (2020). [2] Artime, d'Andrea, Gallotti, Sacco, De Domenico, Scientific Reports 10, 14392 (2020).100 101 102 103

Keywords/Topics

Scaling theory social networks complex network analysis

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Session Classification : Statistical approaches for clustering and community detection in complex networks

Track Classification : Statistical approaches for clustering and community detection in complex networks