

Ordinary people can be influential

With the support of the National Natural Science Foundation of China, Prof. Lan YueHeng (兰岳恒), Xiao JingHua (肖井华) and their student Wang XiaoChen (王笑尘) at the School of Science, Beijing University of Posts and Telecommunications, revealed that ordinary users can sometimes spread news more efficiently than highly connected hub-users, which favors anomalous dendritic message-propagating paths through social networks. This work was published in a recently-launched journal *Nature Human Behaviour* (2019, 3: 709—718).

The growth of online social media has initiated the move from the era of mass media to that of interpersonal communication, where everyone is allowed to post his own writings, share information and thus has an influence on others' opinions and decisions. How to identify the influence among heterogeneous individuals and quantify their roles in social contagions has attracted much interest of the scholars in the field of economics, sociology, physics, finance and management. Studies of this type could potentially help develop efficient strategies for containing rumors or for better marketing of desired merchandise.

In the article, the authors collected diffusion data of the online news in Sina-Weibo and used symbolic transfer entropy to characterize the information flow between users with different follower counts, which can be used as an index to distinguish influential users (High follower count users, H-users) from ordinary users (Low follower count users, L-users). After investigating the roles of the two types of users, L-users are found to play dominant roles in certain cases, which is in sharp contrast to the common belief that the H-users are much more efficient in information spreading. In these special cases, the diffusion of news in a social network follows remarkable dendrite-like paths that reach far, leading to a non-Gaussian distance distribution. When the H-users dominate, however, the distribution is Gaussian and the diffusion path is short (see the Figure below). Through detailed comparison, the authors found that when a message is of discussion type, ordinary users tend to talk a lot to his peers, which is the key to enhancing their interactions to keep the message running.

For this interesting work, Prof. Damon Centola from the University of Pennsylvania wrote a comment titled “Influential networks” in *Nature Human Behaviour* (2019, 3: 664—665), which indicates that the authors' exciting discovery filled a long-lasting gap between the empirical data and the current social influence theory based on contagion types and agent identities.

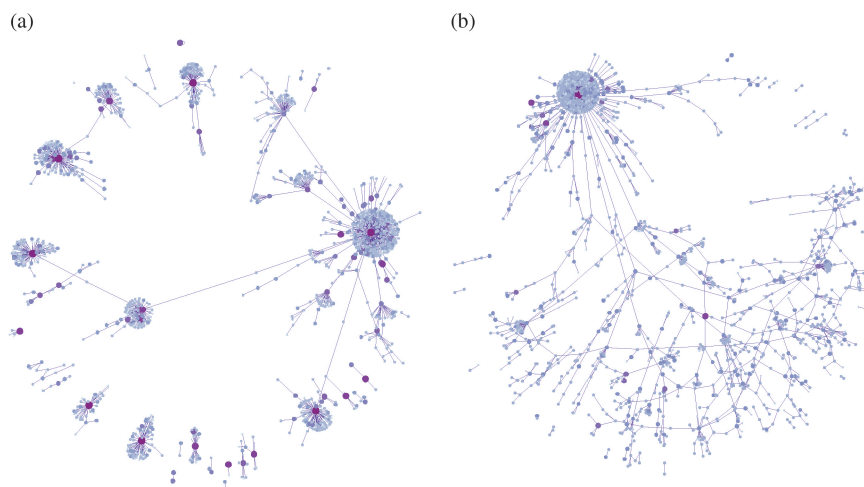


Figure A sample of news diffusion network when (a) H-users dominate and (b) L-users dominate.