Critical threshold of rumor spreading in homogeneous social networks

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Abstract
The widespread use of the social media has recently created a lot of interest in research on human interactions, and how ideas propagate among individuals. We review the standard rumor model adopted from the literature. These models assume that people spreading the rumor (spreaders) keep spreading it, and those who hear the rumor (ignorant) can become a spreader with a certain probability. We present a generalized model wherein the spreader may change its attitude and become an ordinary member of the society after each contact. We utilize the techniques of the dynamical systems and calculate the stability for the spread of rumor in the phase-space of our generalized model. The model possesses transitions and critical behavior. We also perform computer simulations. The simulations fully support our theoretical calculations.

Keywords: spreading of information, complex networks

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