工程与应用

个体间相互影响的网络舆情演变模型

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摘要　　提出了一个社会网络中舆论形成的演化模型，模型考虑了网络中个体受其邻居影响的概率。假设个体A受到其他邻居影响的概率为$\alpha(A)$，并且所有k度个体具有相同的受影响概率为$\alpha(k)$，其中k是某个体邻居的个数。证明了如果概率α的分布满足对所有k满足$\alpha(k)=kp_kc$，那么持某种舆论个体的人数比例是一个鞅，即数学期望是一个常数。本模型有助于衡量某给定社会网络中舆论传播的快慢程度。

关键词　 舆论形成　 网络舆情　 鞅
分类号

Evolution model of network opinion with individual affected probability

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Abstract

This paper proposes an evolutionary model of opinion formation through the social network in which individuals are embedded.The model takes explicitly into account the probability that an individual is affected by its neighbor in the social network.It is assumed that each individual A will accept its neighbor's opinions at the probability $\alpha(A)$.And be supposed the affected probability of k-degree individuals are the same，denoted by $\alpha(k)$，where the degree k is the sum of the connections from one individual to the others.It is shown that if the distribution of the function α satisfies the condition $\alpha(k)=kp_kc$ for all k，the fraction of the individuals that hold a given opinion is a martingale，i.e.whose expectation is constant in time.The fraction is one of the most important measures of the popularity of opinions.The result can help to evaluate the speed of the opinion spread in the given social network.

Key words　 opinion formation　 network opinion　 martingale

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