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Threshold model with multiple initiators[1] P. SINGH, S. SREENIVASAN, B. SZYMANSKI, G. KORNISS, RPI — In social networks, adoption of a new behavior or opinion by an agent strongly depends on its neighborhood. We study the threshold model where every node is in one of two possible states (0 or 1) and a node in state '0' changes to '1' if at least a threshold fraction ϕ of its neighbors are already in state '1'[M. Granovetter, AJS, Vol. 83, No. 6]. Initially all nodes are in state '0' except initiators. Previous studies have shown that a small seed of such initiators can give rise to large cascades if ϕ is less than some critical ϕ_c. The focus of our work is the effect of the size of the initiator fraction p on the size of the cascade for different threshold values, on empirical networks as well as stylized models of social networks. We observe that global cascades are possible for arbitrary values of ϕ, if p is sufficiently large. We find that there exists a critical p_c (unique for every ϕ), such that $p \geq p_c$ results in global cascades whereas for $p < p_c$, cascades are only local.

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