The effect of dynamic active-inactive agents on spreading phenomena[*]

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Abstract

In this work a novel model of spreading processes is presented. The model is an upgrade of a previously introduced model of information spreading [1]. Here we take into account that agents of the network are not always active during a spreading process. So information can flow only through those agents of the system that are currently at their active state. In order to suit our work to other findings related to spreading phenomena we describe our model using the classical terminology of disease spreading. Namely our model can be viewed as an SRS/SIRI model of disease spreading [2]. Based on this model we carried out computer simulations showing that the activity of agents highly affect the process. The results of the work can be used to qualitatively predict what would be the effect if the activity of agents change in a social system e.g. in a social network.

Keywords: cellular automata, spreading, active nodes

MSC: 68U20, 91D10, 91D30

References

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