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Marketing Impact on Diffusion in Social Networks

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Abstract

The article proposes a way to add marketing into the standard threshold model of social networks. Within this framework, the article studies logical properties of the influence relation between sets of agents in social networks. Two different forms of this relation are considered: one for promotional marketing and the other for preventive marketing. In each case a sound and complete logical system describing properties of the influence relation is proposed. Both systems could be viewed as extensions of Armstrong's axioms of functional dependency from the database theory.

1. Introduction

1.1. Social Networks

In this article we study how diffusion in social networks could be affected by marketing. Diffusion happens when a product or a social norm is initially adopted by a small group of agents who later influence their peers to adopt the same product. The peers influence their peers, and so on. There are two most commonly used models of diffusion: the cascading model and the threshold model. In the cascading model [18, 12] the behaviour of agents is random and the peer influence manifests itself in a change of a probability of an agent to adopt the product. In the threshold model [24, 14, 11, 1], originally introduced by Granovetter [10] and Schelling [19], the behavior of

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