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# A Stochastic Binary Opinion Model

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***Abstract-*** With the development of technology and growth of social networking among individuals, the quantitative study of social dynamics has attracted a great interest from researchers. In this study, we propose a stochastic binary opinion model where agents are considered to hold an opinion of ``yes'' or ``no'' at each moment. In this model, the number of agents with opinion ``yes'' at time $t$ is considered to be a birth-death process, and the configuration of the opinions at each moment is determined by a probability distribution. The rate an agent changes his/her opinion depends on the influence of the group's current state on the agent, given with a social-impact function, and a scalar self-motivation coefficient. We analyze the stationary probabilities with regard to the social-impact function and the self- motivation coefficient. We present numerical results showing the cases of the dominance of an opinion as well as of balanced opinions.

*Keywords- Social Dynamics, Stochastic Models, Asymptotic analysis.*