

Tytuł: Modelowanie agentowe plotki: organizacja, sieci, reputacja i współpraca
Title: Agent-based modeling of gossip: organization, networks, reputation and cooperation
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Streszczenie w języku angielskim

Summary in English

This dissertation is a work best placed between sociology and computational social science. The goal is to study how gossiping influences behavior in organizations and results in Trust Game. Based on an extensive review of findings of gossip literature, different social mechanisms of diffusion were implemented into two agent-based models. Those two models were designed to answer two research questions divided into six hypotheses. The first question concerns distribution of gossip knowledge (information spread by the means of gossiping) and the consequences it has on organizational culture. The second question is about comparison of two reputational systems (gossiping and parallel transmission) and their ability to foster cooperation in a dyadic Trust Game.

The thesis consists of five parts. First part introduces research questions, theory and methodology. Second part dives into research traditions of studying gossip and reflects on main findings applicable to formulating agent-based models. It is where theories and ideas from wonderful authors come together, such as: Peter Hedström, Richard Swedberg, Max Gluckman, Niko Besnier, James C. Scott, Robin Dunbar, Tamas David-Barrett, Rosaria Conte, Mario Paolucci, Francesca Giardini, Karoly Takács, Lea Ellwardt, Jose Luis Estevez, Rafael Wittek and Siegwart Lindenberg. Third part presents key aspects of the first model, its sensitivity analysis and it answers the first research question. It also serves as an introduction to subsequent research focused on gossiping as a driver of network formation processes. Fourth part focuses on role of availability of reliable social information on cooperation. It uses an established Trust Game framework to test the influence different systems of reputation have on payoff structure and behavior of agents. The fifth part is a summary of findings and an outline of research plans.

There are four main findings of this work. Relatively simple mechanisms of transmission encourage highly unequal distribution of gossip knowledge with most central nodes gathering the most gossip, while more realistic ones don't seem to produce any purely structural pattern. Gossip as a way of shaping reputations has a potential to swing them either way, but the result depends heavily on initial relational situation of the target, which reproduces reputational shield and

reputational trap phenomena. The effect gossiping has on organizational culture rests heavily on the fraction of negative in all gossip that is being disseminated, but overall the organizations with higher cultures show more fragility to deterioration. Realistic gossiping in Trust Game is not as effective in helping cooperators as parallel transmission is, but it generates higher values of resources.