

DIFFUSIONS AND CASCADES IN RANDOM NETWORKS

Marc Lelarge, INRIA, marc.lelarge@ens.fr

Emilie Coupechoux, Laboratoire d'Informatique de Paris 6, emilie.coupechoux@lip6.fr

The spread of new ideas, behaviors or technologies has been extensively studied using epidemic models. Here we consider a model of diffusion where the individuals' behavior is the result of a strategic choice. We study a simple coordination game with binary choice and give a condition for a new action to become widespread in a random network. Our results differ strongly from the one derived with epidemic models and show that connectivity plays an ambiguous role: while it allows the diffusion to spread, when the network is highly connected, the diffusion is also limited by high-degree nodes which are very stable. In a second part, we study a model of random networks that has both a given degree distribution and a tunable clustering coefficient. We analyze the impact of clustering on the cascades (size and frequency).