
Bifurcation analysis of an opinion dynamics model coupled with an environmental dynamics

Anthony Couthures^{*1}

¹Centre de Recherche en Automatique de Nancy – Université de Lorraine, Centre National de la Recherche Scientifique – France

Résumé

We consider an opinion dynamics model coupled with an environmental dynamics. Based on a forward invariance argument, we can simplify the analysis of the asymptotic behavior to the case when all the opinions in the social network are synchronized. Our goal is to emphasize the role of the trust given to the environmental signal in the asymptotic behavior of the opinion dynamics and implicitly of the coupled system. To do that, we conduct a bifurcation analysis of the system around the origin when the trust parameter is varying. Specific conditions are presented for both pitchfork and Hopf bifurcation. Numerical illustration completes the theoretical findings.

Mots-Clés: Bifurcation, Opinion dynamics, Competitive systems

^{*}Intervenant