Behaviour Dynamics in Social Networks - Assignment 7

Maria Hotoiu, Federico Tavella

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Abstract

Verification by mathematical analysis of stationary points.

1 Determine equilibria for a constant stimulus 1

The values chosen for the parameters are: repetition=30, duration=30, η_1=0.4, η_2=0.3, μ_1=0.8 and μ_2=0.9.

1.1 Question 1

The final equilibrium values for the states rep, prep and feel based on observations in the simulation are:
rep: 1
prep: 0.991535551
feel: 0.89068188

1.2 Question 2

The observed equilibrium values based on observation in the simulation:
ω_1=0.832149364
ω_2=0.898285371

The predicted equilibrium values based on mathematical analysis:
ω_1=0.832149364
ω_2=0.898285371

The two sets of values for the connection weights are equal, therefore the accuracy is 100%.

1.3 Question 3

The differences between aggregated impact and values for the two adaptive connections for these equilibria vary from 0 to 0.2 in the first case (aggimpact-ω_1) and from 0 to 0.1 in the second case (aggimpact-ω_2).