Dynamics of an SIS-like audience applause model

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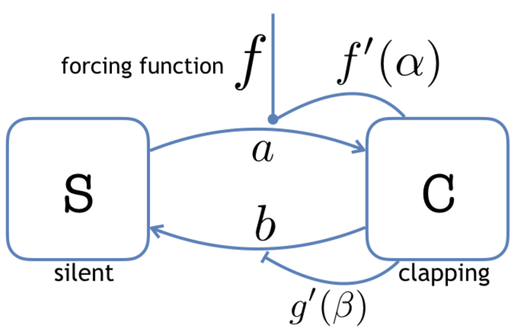
The Compartmental Model



The compartmental model of audience applause based on the SIS epidemic model.

States, parameters, and functions

Agents transition between states S and C with probabilities a and b.

$$\mathrm{R}_1 : \mathrm{S} \longrightarrow \mathrm{C} \tag{1}$$
$$\mathrm{R}_2 : \mathrm{C} \longrightarrow \mathrm{S} \tag{2}$$

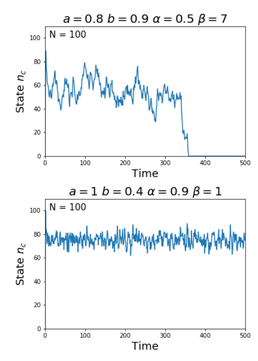
f is a function that forces the transition R_1.
f'(α) is a feedback function the encourages R_1 depending on the fraction of agents in state C.

$$f'(\alpha) = \alpha \frac{n_c}{N-1}, \tag{3}$$

$g'(\beta)$ is a modulation function that inhibits R_2 taken from the michaelis-menten equation

$$g'(\beta) = \frac{1}{1+\beta\ n_C/(N-1)} \tag{4}$$

Simulations



Simulations with a trivial (above) and non-trivial (below) steady-state

A figure

Description of the figure

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