

Opinion formation in time-varying social networks: The case of Naming Game

Suman Kalyan Maity, T. Venkat Manoj, Animesh Mukherjee

(Submitted on 5 Apr 2012)

We study the dynamics of the Naming Game as an opinion formation model on time-varying social networks. This agent-based model captures the essential features of the agreement dynamics by means of a memory-based negotiation process. Our study focuses on the impact of time-varying properties of the social network of the agents on the Naming Game dynamics. We investigate the outcomes of the dynamics on two different types of time-varying data - (i) the networks vary across days and (ii) the networks vary within very short intervals of time (20 seconds). In the first case, we find that networks with strong community structure hinder the system from reaching global agreement; the evolution of the Naming Game in these networks maintains clusters of coexisting opinions indefinitely leading to metastability. In the second case, we investigate the evolution of the Naming Game in perfect synchronization with the time evolution of the underlying social network shedding new light on the traditional emergent properties of the game that differ largely from what has been reported in the existing literature

Comments: 12 pages, 15 figures and 1 table

Subjects: **Physics and Society (physics.soc-ph)**; Social and Information Networks (cs.SI)

Cite as: [arXiv:1204.1160](https://arxiv.org/abs/1204.1160) [physics.soc-ph]

(or [arXiv:1204.1160v1](https://arxiv.org/abs/1204.1160v1) [physics.soc-ph] for this version)

Submission history

From: Suman Maity [[view email](#)]

[v1] Thu, 5 Apr 2012 09:35:05 GMT (477kb)

Which authors of this paper are endorsers?

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

[physics.soc-ph](#)

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1204](#)

Change to browse by:

[CS](#)

[cs.SI](#)

[physics](#)

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))



Science
WISE