

# Conclusions

This monograph has presented the notion of naming game, in various versions, specifically the minimal naming game with infinite or finite size of agent memories (Chaps. 2 and 3), naming game with group discussions (Chap. 4), naming game with learning errors in communications (Chap. 5), naming game on multi-community networks (Chap. 6), naming game with multiple words or sentences (Chap. 7), and naming game with multiple languages (Chap. 8).

As a typical computer game model for studying language creation and development, as well as opinion spreading and consensus alike, naming game provides a powerful and efficient model for simulation and analysis. Along with several variants, the naming game is useful for exploring the emergence and evolution of shared information (e.g., object names, social conventions, personal opinions, individual ideas, and human knowledge) within a population of communicating agents. Agents in the population are connected in a certain communication topology, determined by their social relationships, thus the mathematical graph theory provides useful tools for the study.

Since human language is an extremely sophisticated and complicated system consisting of creation, acquisition and maintenance, with the properties of productivity and displacement, relying on social environments and human learning, and is evolving and diversifying over time, the various naming games studied in this treatise is clearly taking only the very first step and playing a very premature role in the study. On one hand, it is not possible to expect being able to truly mimic the real language development scenario, and yet, on the other hand, it paves the way to gain a basic understanding with some fundamental knowledge about relevant social and language studies. It also leaves the door widely open for more and better investigations towards a comprehensive investigation on the important research subject of naming game.

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