

Science and Technology Group
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Xinying Jia
Science and Technology Associate

1 Introduction

In my research, I intend to elucidate the dynamics of cooperation involving the social sentiments of fear, shame, and guilt. These three types of incentive cultures are well documented by cultural anthropology. To date, game-theoretical models addressing the social dynamics and evolution of incentive systems have largely restricted attention to the mechanisms associated with fear-based cooperation, ignoring the crucial roles played by other social sentiments. I investigate under which conditions fear-, shame-, and guilt-based cooperation are expected to emerge through cultural evolution and how transitions between and mixtures of these different incentive cultures are likely to occur. My study will contribute to the understanding of the complex social dynamics underlying fear-, shame-, and guilt-based cooperation.

The project is planned to proceed in three steps. First, reviewing the literature to identify empirical evidence and sociological assessments of the mechanisms enabling fear-, shame-, and guilt-based cooperation. This includes analyzing the relative strengths and weaknesses of these mechanisms, as well as the differential conditions under which they are likely to function, falter, or fail. Second, developing a series of innovative game-theoretical models that capture the key insights established by this review. These models will enable studying the complex social dynamics underlying fear-, shame-, and guilt-based cooperation. Third, considering how to integrate these models into an overarching framework that will allow me to investigate under which conditions fear-, shame-, and guilt-based cooperation are expected to emerge through cultural evolution and how transitions between and mixtures of these different incentive cultures are likely to occur. Particular attention will be given to the cultural evolution leading to the gradual internalization of incentive processes, as a society's dominant social sentiments shift from fear to shame and from shame to guilt.

2 Activities and Findings

Extensive literature review in the field of evolutionary game theory and psychological game theory related to dynamics of cooperation involving social sentiments of fear, shame, and guilt.

A game-theoretical model was developed capturing these three social-sentiments-based cooperation.

Computational experiments were conducted on a model which mainly focusing on fear-based cooperation in social learning through imitation, and through the computational experiments the model was eventually refined.

3 Collaborations

Collaborator: Ulf Dieckmann, OIST; Martin Jandl, Sigmund Freud Private University

4 Output

Presentation of the project at the STG forum in March 2022 and the Sigmund Private University in July 2022.