

## **Abstract**

The thesis models interactions in the system of states. Fundamental research question asked what consequences for success of strategies and prospects of cooperative behavior have particular settings and properties of the system. Thesis includes two features peculiar to international relations that did not appear anywhere else before: (i) determination of interaction occurrence with help of distance and power; and (ii) emergence of (dis)trust out of the previous interactions. The model is based on three elements: agents, environment, and rules. Players interacted in the Hobbesian Prisoner's Dilemma environment as described by realists, but thanks to payoff shift representing emergence of (dis)trust I also formalized constructivist argument of different cultures of anarchy and of mutually constitutive agent-structure relationship. Multi-agent computer simulations set within the abductive reasoning framework were chosen because lack of heterogeneous enough data and impossibility of experiments made this data generating method a necessity. The source code is written in C#. I translated 62 Axelrod's behavioral rules and then added several others that seemed promising. Three new strategies mirroring usual behavior of states were proposed too. To secure robustness of the results, application was run hundreds of times under different settings (including variable uncertainty and shift speed) and always for 10 000 iterations.

As regards structural variables, neither power nor distance changed overall ranking of strategies. It was only payoff shift that wielded significant influence. Strong relationship at the level of actors appeared between overall gains received and average number of mutual cooperations. All five most successful rules were highly generous. These victorious strategies achieved the highest payoffs even in control simulations, where other actors had randomly assigned cooperation probability after four possible outcomes of the game. But the new balance of threat strategy surprisingly won by a large margin. Average level of cooperativeness was no longer correlated with overall gains here, but cooperators still found their way to each other. To sum it up, it seems that properties of the system lead political actors towards cooperative behavior. Using inference to the best explanation, if the model is right, then generous cooperation is not a passing occasional phenomenon, balancing against threats is the best way how to cope with heterogeneous environment, and for causes of war one should rather look at the level of states' interactions. Simply, the war is not here because of the system.

**Keywords:** Prisoner's Dilemma, Multi-Agent Simulations, Constructivism, Distance, Power, Cooperation, Balance of Threat