Deceit and Trust in Intercultural Trade

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1 Introduction[1]

Business transactions incur cost on transaction partners, thus reducing the value for the party bearing the cost. Due to bounded rationality, contracts cannot specify solutions for all contingencies that may occur. Contract incompleteness offers partners opportunities to defect. As Williamson [1] asserts, not every contract partner will take full advantage of every opportunity to defect. However, it is the uncertainty about a contract partner's opportunism that incurs transaction cost.

An agent may deliver according to contract, or fail to do so intentionally (opportunism) or unintentionally (by incompetence or a flaw of its quality control system). At the same time, an agent may either monitor the other party's delivery and check if it is according to contract, or trust and accept without checking. Klein Woolthuis et al. [2] studied the relationship between trust and contracts. They concluded that trust can substitute or complement contracts: if trust is high, contracts can either be rather incomplete, because parties do not expect deceit, or more complete but not actively monitored and enforced, as a signal confirming the trusting relationship; if trust is low, a contract can either be rather complete as a safeguard against opportunism, or incomplete because of opportunistic intentions.

This paper presents a multi-agent simulation where an agent's decision to deceive is modeled as a Bernoulli variable with probability of deceit *p*(deceit) depending on opportunity, rationale and moral threshold to deceive. For the purpose of the simulation, Klein Woolthuis et al.'s [2] narrow definition of trust is adopted: a customer's trust in a particular supplier is defined as the customer's estimate of the probability that the supplier will cooperate and deliver according to contract, even if the supplier has a rational motive and an opportunity to defect. In the simulations, the agents develop experience-based trust relations. Honesty is modeled to decay over time to some minimal level, and to be reinforced by punishment in case of revealed deceit.

Human decisions to deceive and to trust are not strictly rational; they are influenced by emotions [3] and depend on cultural background [4, 5]. The present paper proposes a computational model to simulate the integrated effect of G. Hofstede's five dimensions of national cultures [6] on decisions to deceive end trust in trade. Culture's consequences are modeled as parameter adaptations in the decision functions for deceit, trust and belief updates. Culturally relevant relational attributes (common group memberships and status difference) are modeled as agent labels, visible to all other agents.

Results of example simulations indicate that culturally differentiated agent behavior at the micro level has impact on macro level statistics. The tendencies are as expected. For example:

- testing frequency is high in uncertainty avoiding and masculine societies, indicating low trust; frequent testing is effective in these societies to reduce cheating;
- in short-term oriented societies opportunity to deceive is given to high-status members; they are not tested and seize the opportunity;
- in feminine societies honesty is not enforced but the deceit frequency remains low because of the strong inclination to cooperate in these societies.

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2 Conclusion

Culture is known to have its effects on honesty in trade, and on trust as a mechanism to compensate for the inevitable incompleteness of contracts. Occurrence of deceit, and mechanisms and institutions to reduce it, vary considerably across the world. For research into these mechanisms, multi-agent simulations can be a useful tool.

In intelligent agent research, much attention has been paid to trust. Little research has been published about the simulation of deceit. Publications such as [11] and [12] modeled deceit as a rational strategy to gain advantage in competitive situations. A strictly rational approach of deceit neglects the emotional impact that deceit has, not only on the deceived, but also on the deceivers. Feelings of guilt and shame result from deceiving [4]. The extent to which these feelings prevail is different across cultures [4]. People have emotional thresholds for deceit, that cannot be explained from rational evaluation of cost and benefit, but that are based on morality and cooperative attitudes [3, 7, 9]. Once deceived, people react to an extent that goes beyond rationality [3], especially when they are prosocial rather than selfish [9]. In human decision making a model based on fair trade prevails over a model of opportunistic betrayal [10]. In addition to psychological factors, rational economic motives can be given for the human inclination to cooperative behavior [8].

This paper contributes by introducing an agent model of deceit and placing it in a cultural context. It takes human deceptive behavior as a point of departure. Building on work that modeled single dimensions of culture, this paper proposes an integrated model of culture's effects on deceit and trust. Example results have been generated that verify the implementation and illustrate that cultural effects can be simulated. However, for realistic experiments, the model has to be tuned to and calibrated by observations and results of experiments, for instance to simulate effects like the ones reported by Triandis et al. [4] from human experiments on deceit across cultures. That work remains for future research.

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