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Incentives and the Structure of Communication*

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Abstract

This paper analyzes the issue of implementing correlated and communication equilibria when pre-play communication is restricted to a particular network (*e.g.*, a hierarchy). When communication between the mediator and the players is not direct and private, as assumed when invoking the revelation principle, there may be incentives for other players in the communication network to misbehave while players report their private information to the mediator and the mediator sends suggested actions to the players. To remedy this issue, we provide necessary and sufficient conditions on the topology of the network of communication such that restricting communication between the mediator and the players to a particular network does not restrict the set of (communication equilibrium) outcomes that could otherwise be achieved. We show that for any underlying game and any equilibrium outcome available when communication is direct, there exists a communication scheme restricted to a particular network that implements all such outcomes (*i.e.*, does not induce players to deviate in the communication phase) if and only if that network satisfies our conditions. (JEL C72, D82, D83, D85).

Keywords: Communication, Incentives, Information Transmission, Networks, Communication Equilibrium, Secure Communication.

1 Introduction

It is well known that the set of equilibrium outcomes can be largely expanded when players have the ability to communicate with an impartial third party prior to playing a game of complete or incomplete information.

The revelation principle is a powerful tool that characterizes exactly what outcomes can be achieved in this

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