When does simple mediation improve upon cheap talk?

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Abstract

We study communication via a neutral mediator between an informed sender and an uninformed decision maker with conflicting preferences in the framework of Crawford and Sobel (1982). We ask under what conditions introducing the mediator can provide higher ex-ante payoff to the decision maker than the most informative one-shot unmediated communication. Our model allows for players' preferences and distributions of the private information that generalize the commonly used uniform-quadratic specification. We identify intuitive sufficient conditions on the environment under which there exists a simple mediated equilibrium that strictly improves upon unmediated communication. As we show, the possibility of improving mediation depends crucially not only on the intensity of the conflict of interest between the players, but also on its sensitivity to the sender's private information.

JEL classification: C72, D81, D82, D83

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Extended Abstract

This paper investigates mediated communication in the general framework of Crawford and Sobel (1982, hereafter CS). Two players with conflicting preferences—a privately informed sender and an uninformed decision maker (the receiver)—communicate via an uninformed and neutral (i.e., disinterested) mediator. The main role of the mediator is to privately collect information from the sender in order to give nonenforceable recommendations about decisions to the receiver.[1] By properly distorting the sender's information, the mediator can

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[1]Because a neutral mediator has no interest in the outcome of communication, he is equivalent to a mechanism, which privately collects information from the sender, and then processes and stochastically transmits it to the receiver according to a predetermined algorithm.

potentially provide the sender the incentive to reveal more information. The main question of the paper is: under which conditions can introducing the mediator in the communication process strictly improve the efficiency of communication relative to direct (i.e., unmediated single-round) talk? In general, the answer to this question is not clear due to the main trade-off in mediation. Formally, the mediator attempts to enforce the sender reveal more information by introducing noise over recommendations to the receiver. Thus, if the marginal benefits of more precise information from the sender are outweighed by the noise over recommendations, the mediator is useless (it is shown, for example, by Matthews and Postlewaite (1989) in double auctions, and by Alonso and Rantakari (2013) in direct-talk communication under some conditions).

The efficiency of the mediator in principal-agent models has been previously investigated only under restrictive assumptions. These include, for example, the uniform-quadratic setup (Blume et al., 2007; Goltsman et al., 2009; Ivanov, 2010), a specific functional relationship between the distribution of the state and players' preferences (Alonso and Rantakari, 2013), or an extreme conflict of interest (Ivanov, 2014). We relax all these assumptions by considering the model with: 1) the generalized quadratic form of players' preferences, which is a commonly studied setting in the literature on other schemes of conflict resolution;[2] 2) a continuous distribution of the state under mild regularity conditions; and 3) a non-constant sender's bias. As a consequence of this generalization, our findings cannot be captured in the aforementioned models.

In this paper, we demonstrate that for a broad range of scenarios there exist mediated equilibria which are strictly more efficient than all equilibria in direct communication. We provide sufficient conditions for direct-talk equilibria be improvable by the mediator. In particular, we demonstrate that the difference between ideal decisions of the sender and the receiver (the sender's bias) plays qualitatively different roles in direct and mediated formats of communication. While the efficiency of direct communication depends on the value of the bias, the effectiveness of mediated communication also depends on the sensitivity of this bias to the sender's information.

We also construct several classes of improving mediated equilibria. Intuitively, the marginal benefits of the mediator in these equilibria come from exploiting the variation of the sender's bias across states. In particular, the mediator extracts more information from the sender's types with a lower bias compared to the internal cutoff types in direct-talk equilibria (CS cutoff types). In order to achieve this goal, the mediator distorts the sender's information in such a way that the types with low bias are provided with additional incentives to separate themselves from nearby types. (A similar logic for the lowest sender's type is used by Chen, Kartik, and Sobel (2008) for selecting the most informative direct-talk equilibria).

[2] The setting with generalized quadratic preferences has been used, for example, by Alonso and Matouschek (2008) for studying delegation, and by Kovác and Mylovanov (2009) for investigating arbitration.

As a result, the variation of the bias across states determines the structure of improving equilibria. In some equilibria, the efficiency of communication is improved by separating the lowest types and, thus, partitioning the state space into a bigger number of subintervals. In other equilibria, the mediator incentivizes the sender to reveal more information by introducing noise in sender's information without changing the number of subintervals. Also, we construct a new class of equilibria in which the mediator separates intermediate types near an internal CS cutoff. At the same time, all these equilibria are simple in the sense that each sender's type is randomly mapped into at most two decisions, and the overall number of induced decisions exceeds the number of decisions in a direct-talk equilibrium by at most one.

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