Bayesian Persuasion with Costly Information Acquisition*

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Abstract

A sender who chooses a signal to reveal to a receiver can often influence the receiver's subsequent actions. Is persuasion more difficult when the receiver has her own sources of information? Does the receiver benefit from having additional information sources? We consider a Bayesian persuasion model extended to a receiver's endogenous acquisition of information under an entropy-based cost commonly used in rational inattention. A sender's optimal signal can be computed from standard Bayesian persuasion subject to an additional constraint: the receiver never gathers her own costly information. We further determine a finite set of the sender's signals satisfying the additional constraint in which some optimal signal must be contained. The set is characterized by linear conditions using the receiver's utility and information cost parameters. The new method is also applicable to a standard Bayesian persuasion model and can simplify, sometimes dramatically, the search for a sender's optimal signal (as opposed to a standard concavification technique used to solve these models). We show that the 'threat' of additional learning weakly decreases the sender's expected equilibrium payoff. However, the outcome can be worse not only for the sender, but also for the receiver.

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