

How Bayesian Persuasion can Help Reduce Illegal Parking and Other Socially Undesirable Behavior

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Abstract:

We consider the question of how best to allocate enforcement resources across different locations with the goal of deterring unwanted behaviour. We rely on “Bayesian persuasion” to improve deterrence. For simplicity, we focus on the problem of how to allocate resources in order to reduce the extent of illegal parking. However, the same model can also be applied to many other types of socially undesirable behaviour. We show that the problem of how to allocate resources and then “persuade,” can be represented as a linear programming problem. Notably, optimal persuasion involves the use of only two messages, “high” and “low” that indicate that the amount of expected resources available is high and low, respectively. However, unlike standard results in Bayesian persuasion, it is only possible to achieve a “partially convex” objective function. We also obtain a full solution for a class of “monotone” problems.