

How to solve a signaling problem?

The sender/principal/leader has private information about a characteristic (type) and offers a mechanism at stage 1. The receiver/agent/follower does not know the type but his payoff depends on its realization. He observes only the mechanism and makes a decision at stage 2. This is a sequential game to solve by backward induction.

At stage 2, the agent observes and makes inferences, then given those inferences, he makes a decision. The decision is made to maximize the expected payoff of the agent where the expectations are taken with respect to the updated distribution of types. At stage 1, the principal anticipates the inferences and the decisions of the agent and designs the mechanism. It is designed to maximize the payoff of the principal.

Step 1: determine possible inferences given what can be observed, as well as the subsequent optimal decisions of the agent.

Step 2: conditional on the inferences and decisions of the agent, determine the optimal decision of the principal.

References: signaling games, buyer-seller application, problem set 4.