

# Dynamic Threats to Credible Auctions\*

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## Abstract

A seller wants to sell a good to a set of bidders using a credible mechanism. We show that when the seller has private information about her cost, it is impossible for a static mechanism to achieve the optimal revenue. In particular, even the optimal first-price auction is not credible. We show that the English auction can credibly implement the optimal mechanism, unlike the optimal Dutch auction. For symmetric mechanisms in which only winners pay, we also characterize all the static auctions that are credible: They are first-price auctions that depend only on the seller's cost ex post via a secret reserve and may profitably pool bidders via a bid restriction. Our impossibility result highlights the role of public institutions, and helps explain the use of dynamic mechanisms in informal auctions.

Keywords: Credibility, dynamic deviation, informed principal, mechanism design.