Effective minimax values in extensive form games with almost perfect information

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ABSTRACT

We define three minimax values—standard, effective, and strongly effective—in extensive form games with almost perfect information. A player's (strongly) effective minimax value is his least possible payoff under the condition that he and other players who have equivalent payoff functions maximize their payoffs. His effective minimax value coincides with his standard minimax value if the NEU condition is satisfied, but the former may be greater than the latter otherwise. We prove that a player's strongly effective minimax value is a lower bound of his payoffs in subgame perfect equilibria. We also prove that this bound is approximately valid even if payoff functions are perturbed slightly. We apply these results to repeated games and integrate seemingly different types of Anti-Folk Theorems.