
Approximating Equilibria in Sequential Auctions with Incomplete Information and Multi-Unit Demand

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Errata

There was an error in a step of the proof of Theorem 1. This corrected proof yields the same result.

Theorem 1. *Given such a black box, if (π, T) is an α -optimal δ -stable MDP assessment for the sequential auction Γ , then π is a symmetric ϵ -Bayes-Nash equilibrium for Γ , where $\epsilon = 2D(\delta) + \alpha$.*

Proof. Let $T_\pi = \text{Induced}(\pi)$, and let π^* be such that (π^*, T_π) is an optimal MDP assessment.

$$U(\pi, T_\pi) \geq U(\pi, T) - D(\delta) \tag{1}$$

$$\geq U(\pi^*, T) - (\alpha + D(\delta)) \tag{2}$$

$$\geq U(\pi^*, T_\pi) - (\alpha + 2D(\delta)) \tag{3}$$

Lines 1 and 3 hold because (π, T) is δ -stable. Line 2 holds because (π, T) is α -optimal.