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# A New Local Rule for Convergence of ICLA to a Compatible Point

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Abstract

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Many problems in the modern world have a decentralized and distributed nature. Irregular learning automata (ICLA) is a powerful mathematical model for decentralized problems applications. Convergence of ICLA to a compatible point is very important because this can provide efficient solutions for the problems. The local rule of ICLA can play a key role in convergence. A local rule that simply rewards or punishes learning automata just based on response of environment and actions of neighbors does not guarantee convergence of compatible point. In this paper, we present a new local rule that guarantees convergence to compatible point. Formal proofs for the convergence are provided and results of the conducted experiments support our theoretical findings.

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