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ON [NAME] STABLE EQUILIBRIA

Luciano Andreozzi

Università di Trento, Italy

luciano.andreozzi@unitn.it

A large population of individuals play repeatedly a symmetric game and settles on a compact set of Nash equilibria \mathcal{N} . Occasionally, they experiment with new strategies and, although initially the new strategies may earn a larger payoff, they cannot coexist stably among themselves. This happens either because they cannot settle on a different Nash equilibrium, or because they cannot enter a stable cycle of invasions. The population is thus pushed back towards the original set of equilibria \mathcal{N} . In this case we say that the set \mathcal{N} is [name] stable. We study the stability properties of [name] stable equilibria under the Best Response and the Replicator Dynamics. A set of NE that is [name] stable is not necessarily asymptotically stable under either dynamics. However, if initially most of the population play pure strategies that appear in \mathcal{N} , eventually only these strategies survive, in a combination that belongs to \mathcal{N} . In many applications, being [name] stable turns out to be more important than being evolutionarily stable.