Evolutionary games with continuous strategy spaces

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Abstract

The Continuously Stable Strategy (CSS) and Neighborhood Invader Strategy (NIS) concepts, originally developed as intuitive static conditions to predict the dynamic stability of a monomorphic population, are shown to be closely related to classical game-theoretic dominance criteria when applied to continuous strategy spaces. Specifically, for symmetric and non symmetric two-player games, a CSS in the interior of the continuous strategy space is equivalent to neighborhood half-superiority while an NIS is equivalent to full neighborhood superiority, a stronger condition. The CSS and NIS are also important for dynamic stability under the replicator and best response dynamics as well as for adaptive dynamics.

1Invited Session: Evolutionary Games