

Accepted Manuscript

Evolutionary game theory using agent-based methods

Christoph Adami, Jory Schossau, Arend Hintze

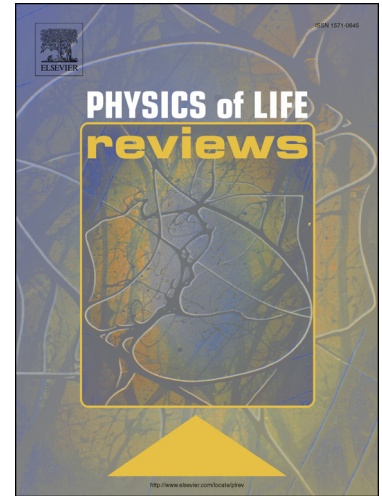
PII: S1571-0645(16)30088-4
DOI: <http://dx.doi.org/10.1016/j.plrev.2016.08.015>
Reference: PLREV 791

To appear in: *Physics of Life Reviews*

Received date: 4 November 2015
Revised date: 2 August 2016
Accepted date: 25 August 2016

Please cite this article in press as: Adami C, et al. Evolutionary game theory using agent-based methods. *Phys Life Rev* (2016), <http://dx.doi.org/10.1016/j.plrev.2016.08.015>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Highlights

- Evolutionary Game Theory can only be treated exactly (mathematically) in limits that are unrealistic for evolving populations
- Agent-based simulations can go beyond mathematics. Using the methods we are able to show that:
 - Realistic populations are in the weak selection strong mutation limit, which is not mathematically tractable. Results change dramatically when going from the weak mutation to the strong mutation limit
 - Stochastic strategies can be stable even if the corresponding mixed state is unstable.
 - The encoding of decisions into genetic loci can affect evolutionary trajectories.
 - Stochastic conditional strategies that are stable in the SSWM regime may be unstable in the WSSM regime
 - Punishment in Public Goods Games leads to meta-stable phase transitions and hysteresis

Download English Version:

<https://daneshyari.com/en/article/8207009>

Download Persian Version:

<https://daneshyari.com/article/8207009>

[Daneshyari.com](https://daneshyari.com)