

A Game Theoretic (GT) Graduate Student Project: Interplay between Evolutionary Game theory and Classical Game Theory in Nature

Henry Hexmoor, SIUC

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Application of game theory to biology by John Maynard Smith (1968) started a branch of GT called evolutionary game theory (EGT) (Easley and Kleinberg, 2010, Chapter 7). EGT has gained a recent popularity (Dall and Wright, 2009). EGT is mostly concerned with conditions for stability of strategy selection in the populations. We are interested in exploring the boundaries of the spectrum for EGT in Nature. Our prediction is that in a class of problems, classical game theory is more applicable than EGT.

References

S. Dall, J. Wright, (2009). Rich Pickings Near Large Communal Roosts Favor ‘Gang’ Foraging by Juvenile Common Ravens, In PLoS ONE, www.plosone.org.

D. Easley and J. Kleinberg Networks, Crowds, and Markets: Reasoning about a Highly Connected World.

By. To be published by Cambridge University Press, 2010.

J. M. Smith, 1968. Mathematical Ideas in Biology. Cambridge University Press.

Background on EDT: Simund/Novak primer, H. Gintis

Approach:

1. Use EGT to formulate the problem.
2. Use MAS testbeds like [netlogo](http://netlogo.com) to simulate a prototype.