Multiagent Learning: dynamic games & applications

Propositions

Accompanying the dissertation "Multiagent Learning – Dynamic Games & Applications" by Daniel Hennes.

1. Fitness proportionate selection results in population dynamics that are independent of the behavior of individual learners (Chapter 3).

2. State-coupled replicator dynamics predict the dynamics of multiagent reinforcement learning in stochastic games (Chapter 4).

3. Decomposing complex strategic interactions into bilateral normal-form games facilitates the analysis of learning (Chapter 5).

4. Market returns do not monotonically increase as access to information increases (Chapter 6).

5. The reciprocal velocity obstacle allows for robust collision avoidance in heterogenous multiagent systems (Chapter 7).

6. The combination of differential and evolutionary game theory holds great potential for modeling multiagent reinforcement learning with continuous state and action spaces.

7. Mathematical models help to understand complex processes until they become too complex themselves.

8. There is a trade-off between predictability and optimality of behavior in multiagent learning.

9. Long-term autonomy requires lifelong learning.

10. If multiagent learning is the answer, we need to ask a better question.

11. Not the strategy, but rather the choice of vehicle determines the outcome in the game of chicken.