

# Multi-agent learning dynamics

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# STELLINGEN

behorende bij het proefschrift  
*Multi-Agent Learning Dynamics*  
door Daan Bloembergen

1. A formal understanding of multi-agent learning dynamics is of vital importance to the practical application of learning agents in real-world domains (all chapters).
2. Lenience enables cooperation between self-interested agents who would otherwise be prone to defect (Chapter 4).
3. In spatially structured environments with local interactions, scale-free networks sustain higher cooperation levels than small-world networks in the continuous-action iterated prisoner's dilemma, with hubs playing a major role (Chapter 5).
4. There is no single best trading strategy in stock markets – instead, the performance of each individual strategy depends critically on external factors and on the frequencies of all possible strategies in the market (Chapter 6).
5. Research in artificial intelligence can serve two goals: increasing a computer's understanding of the world, and increasing our own understanding of intelligence. It is in the interplay between both that we can expect to make most progress.
6. Heterogeneous multi-agent systems, in which humans and artificial agents interact, may give us the best of both worlds: the creative strength of humans and the computational strength of agents.
7. Artificial intelligence is upper bounded by human intelligence.
8. Scientific inquiry should be driven only by a quest for truth and judged only on scientific value, free from social or economic concerns.
9. Smartphones connect us to the world, and disconnect us from the present.
10. Alleen fantasie heeft de kracht om de werkelijkheid te verbeelden (Kader Abdolah, lezing Studium Generale Maastricht, 2011).