



Ben-Gurion University of the Negev
Blaustein Institutes for Desert Research
Mitrani Department of Desert Ecology (MDDE)
The Swiss Institute for Dryland Environmental and Energy Research

Special Meetings on Game Theory

Prof. Aviad Haifetz, Open University, Israel*

The meetings will take place on Thursdays at 12:00.
If you are interested in joining the meetings, please contact [Dr. M. Seifan](#).

Dear all,

Prof. Aviad Haifetz chose to join our department for a semester as part of his Sabbatical leave.

During his stay with us, we are planning an informal, regular, meetings to introduce game theory and its potential applications to the scientific thinking of ecology and other disciplines.

This series of informal meetings is meant to spotlight several main insights from classical (non-cooperative) game theory, with the minimal math required to highlight each idea. This will be followed by an open discussion on analogies and potential relevance to research in ecology.

Topics may include:

1. **What is *not* a game?** Game Theory as a paradigmatic framework for thinking about interaction.
2. **The price of Anarchy.** When everybody does their best given what everybody else is doing, the result might be suboptimal for all. How bad can things get? Does group size mitigate or exacerbate negative externalities?
3. **Commit *not* to maximize fitness!** To actually enhance fitness in a strategic setting, does it pay to maximize fitness or rather to pre-commit to be somewhat "hothead" or "fat cat"? The answer depends not only on whether the game is of conflict or of cooperation, but also on whether the game is of strategic complements or substitutes.
4. **In coordination games not all stable behavioral patterns are born equal.** And better stability does not necessarily imply more efficiency. It is lower risk vis-a-vis mistakes or noisy information that enhances stability. But sometimes it is enough to just bypass a "critical mass" threshold to let you roll over towards efficiency.
5. **Co-opetition in contests.** Because contests involve both strategic complements and substitutes, they lead to implicit cooperation within the competition.
6. **Fake news are necessarily coarse, and credible news are costly to convey.** But how coarse, and how costly? And who pays most of the cost? The weak gets weaker, and time is (or can be) money/fitness.

./2





Special Meetings on Game Theory

-2-

7. **The limits of market design.** If you don't know everything about whoever out there you want to exploit, even with your best design they will retain some *information rent* for themselves.
8. **Norms based on threats are not robust.** In repeated interaction, punishment threats may induce more cooperation, but also less or no cooperation at all.
9. **Who is the Google key player?** When interaction takes place over a network, the most influential player is not necessarily the one who is directly most connected, but rather the one through which most influential interactions must pass. This self-referential notion is akin to scoring high on Google search.
10. **The wisdom of the mindless crowd.** How come games among mindless populations are (almost) the same as games among mindful creatures? How do evolutionary selection processes in the former relate to learning processes in the latter? How do "games among genes" relate to pre-commitment games of intelligent players?

[Aviad Heifetz](#) received his Ph.D. in mathematics at Tel Aviv University in 1995. He is currently a professor of economics at the Open University of Israel, where he has recently served as executive vice president for academic affairs (2014-2017). He was previously a visiting professor at Northwestern University (2009-2011) and California Institute of Technology (2000-2001). His research in game theory concerns the evolution of preferences, behavioral ecology, market design, bargaining, and interactive epistemology. He is the author of the textbook [Game Theory](#), Cambridge University Press, 2012.

A very productive semester to all,

Merav Seifan, Ph.D.

The Mitrani Department of Desert Ecology

Swiss Institute for Dryland Environmental and Energy Research

The Jacob Blaustein Institutes for Desert Research

Ben-Gurion University of the Negev

Sde Boker Campus, 84990, Israel

Tl: +972-8-6563485

