Cosmo Grant

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MIT Linguistics and Philosophy, 77 Massachusetts Avenue, 32-D808, Cambridge, MA, 02139, USA

Current Position

Instructor and Digital Learning Lab Fellow, Department of Linguistics and Philosophy, MIT, September 2019 – present

Education

PhD in Philosophy, Massachusetts Institute of Technology, September 2019
MMathPhil in Mathematics & Philosophy, Merton College, Oxford, July 2013
BA in Mathematics & Philosophy, Merton College, Oxford, July 2012

Areas of Specialization

Epistemology, Decision and Game Theory, Philosophy of Science

Areas of Competence

Logic, Philosophy of Language

Publications

"Mistakes about conventions and meanings", forthcoming, *Topoi*, Special Issue: Foundational Issues in Philosophical Semantics (eds. Pavese and Iacona)

Public Philosophy

Research Fellow at the Jain Family Institute, working on algorithmic fairness and statistical inference, spring 2019

Articles written for their online publication, *Phenomenal World,* aimed at a general audience:

- "On Neyman-Pearson hypothesis tests", forthcoming
- "Is it impossible to be fair?", August 2019
- "Who cares about stopping rules?", October 2018

Talks And Workshops

Central APA Symposium Session, February 2020
"Against long-run defenses of decision rules"

International Rationality Summer Institute, Irsee, Germany, September 2018
An interdisciplinary workshop on the theme of group rationality.

Philosophy and Physical Computing Workshop, Virginia Tech, June 2018
An interdisciplinary workshop on machine learning, formal learning theory, and causal inference.

Topoi in Turin: Foundational Issues in Philosophical Semantics, May 2018
"Mistakes about conventions and meanings in signaling games"

Society for Exact Philosophy, May 2018
"When will people play a Nash equilibrium?"

Joint Meeting of the SCSP/NCPS, March 2018
"Mistakes about conventions and meanings in signaling games"

Brown Graduate Philosophy Conference, November 2015
"Misrepresentation in signaling games"

Awards

Presidential Fellowship, MIT, 2013—2014
Postmaster, Oxford University, for sustained academic excellence, 2012
Gibbs Prize, Oxford University, for outstanding performance in philosophy, 2012
Exhibition, Oxford University, for performance in first-year examinations, 2010
Won the Law Society Of Scotland Donald Dewar Memorial Debating Tournament, 2009

Teaching

Instructor

Philosophy of Statistics (designed and delivered undergraduate course), MIT, Spring 2020
Mini-courses given over MIT's winter break:

- Primer on Statistics, January 2018
- Primer on Epistemic Game Theory, January 2017

Mini-courses for Splash, an annual educational program for high school students:

- Significance Testing and its Problems, November 2017
- How to Model States of Mind, November 2016

Teaching Assistant

Paradox and Infinity (on edX), Summer 2019
Problems of Philosophy (on edX), Summer 2019
Problems of Philosophy (Byrne), Spring 2018
Modal Logic (Yablo), grader, Fall 2016
Philosophy of Religion (Spencer), Fall 2016
Problems of Philosophy (Hare), 2 sections, Fall 2015
Philosophy of Quantum Mechanics (Skow), grader, Spring 2015
Paradox and Infinity (Rayo), Fall 2014

Guest Lectures

"Neyman-Pearson Hypothesis Testing", Foundations of Probability (White), May 2019
"Bisimulations and the Standard Translation", Modal Logic (Yablo), October 2016
"Psychological Egoism", Philosophy of Religion (Spencer), October 2016
"Inductive Logic", Introduction to Logic (Fitelson, at Northeastern), April 2016
"Meaning in Signaling Games", Metaphysics (Spencer), December 2015
"When do wave-functions collapse?", Philosophy of Quantum Mechanics (Skow), April 2015
"Recursive Functions and Computability", Paradox and Infinity (Rayo), November 2014

Other Teaching

Tutor at Debate Chamber, a summer school designed to introduce talented high school students to university-level mathematics, summers 2013—2016.

GRADUATE COURSEWORK (* = audit)

Epistemology and Metaphysics

Independent Study: Epistemic Game Theory (Stalnaker), Spring 2015
Independent Study: Foundations of Meaning (Yablo), Fall 2014
Theory of Knowledge (White), Spring 2014
Materialism (Spencer), Spring 2014*

Language and Mind

Introduction to Semantics (Hackl and Schwarzschild, Linguistics Section), Fall 2017
Fragmentation (Rayo), Spring 2016*
Kripke (Stalnaker), Spring 2015*
Vagueness (McGee), Fall 2014*
Modals and Conditionals (Khoo), Fall 2013

Logic and Mathematics

Introduction to Stochastic Processes (Bufetov, Math Department), Spring 2018
Logic II (McGee), Spring 2016*
Fundamentals of Probability (Tsitsiklis, Computer Science Department), Fall 2015*
Model Theory (McGee), Fall 2014
Modal Logic (Stalnaker), Spring 2014

Other

British Moralists (Schapiro), Fall 2015
British Empiricists (Simmons, at Harvard), Spring 2015
Proseminar II (Rayo and Stalnaker), Spring 2014
Introduction to Moral Philosophy (Hare), Fall 2013
Proseminar I (Byrne and Yablo), Fall 2013

SERVICE

Referee for *MIND*
Session chair at the APA Eastern Division Meeting, January 2017
Co-organizer of reading group on logic, language, metaphysics and mind, 2015—2016
Co-organizer of MIT philosophy colloquia, 2016—2017
Co-organizer of MITing of the Minds Conference, January 2014 and 2016
Organizer of philosophy film series at MIT, 2014—2015

DISSERTATION ABSTRACT

Title: *Foundations and Philosophical Applications of Game Theory*

I investigate three questions. The first belongs to game theory: When will people play a Nash equilibrium? The second, to decision theory: Why maximize expected value? The third, to the philosophy of language: How wrong can we be about the meanings of our own words? The questions complement each other, for I take a decision-theoretic approach to games and a game-theoretic approach to meaning.

An aim of game theory is to recommend strategies in a given game. On the decision-theoretic approach, recommending strategies in a game is taken to be a special case of recommending actions in a decision problem. The approach is illuminating: it lets us formally represent various conditions (say, common knowledge of rationality) and work out what people will do under those conditions. In some landmark results, theorists identified under what conditions people will play a Nash equilibrium (an outcome in which no one benefits by unilaterally changing her strategy).

In Chapter 1, I argue that theorists have slipped between two interpretations of Nash equilibrium. As a result, they've drawn unwarranted conclusions from their results, making Nash equilibrium look more important than it actually is. Second, more broadly, I defend the decision-theoretic approach to games over the classical approach.

On the decision-theoretic approach to games, we analyze games just like decision problems. But what should you do in a decision problem? A standard answer is that you should maximize expected value, because that does best in the long-run. The long-run defense might seem attractive. After all, following good advice should yield good results, else what would be the value of the advice? Besides, long-run defenses are reassuringly popular across a wide range of disciplines.

In Chapter 2, however, I argue that the long-run defense of maximizing expected value isn't sound. I adapt an idea well-known in economics but little-known in philosophy to show that rival advice—maximizing expected growth rate—also has a long-run defense. The key idea is that talk of "the long-run" is ambiguous: on *one* way of repeating a decision problem, maximizing expected value does best; on *another* way, maximizing expected growth rate does best. There is no reason to privilege one way of repeating a decision problem over the other.

So neither long-run defense is sound. I also show how to formalize a new conjecture, a conjecture with an interesting philosophical upshot: that long-run defenses are cheap.

In Chapter 3, I take for granted the decision-theoretic approach to games and apply it in the philosophy of language. Setting aside cases of semantic externalism and the like, it's natural to think that speakers know what terms of their own language mean. After all, we *make* the meanings, so surely we know what they are. I argue that in fact speakers can be radically wrong about meanings.

David Lewis showed how conventions can arise from repeated *coordination games*, and, as a special case, how meanings can arise from repeated *signaling games*. I build on and modify Lewis's framework, in light of the decision-theoretic approach to games. I construct coordination games in which the players can be wrong about their conventions, and signaling games in which the players can be wrong about their messages' meanings. The key idea is straightforward: knowing your own strategy and payoff needn't determine what the others do, so leaves room for false beliefs about the convention and meanings. The examples are simple, explicit, new in kind, and based on an independently plausible meta-semantic story.

REFERENCES

Robert Stalnaker (adviser)
Professor Emeritus, Department of Linguistics and Philosophy, MIT, stal@mit.edu

Vann McGee
Professor, Department of Linguistics and Philosophy, MIT, vmcgee@mit.edu

Roger White
Professor, Department of Linguistics and Philosophy, MIT, rog@mit.edu

Alex Byrne (teaching reference)
Professor, Department of Linguistics and Philosophy, MIT, abyrne@mit.edu