444 Lecture 20

O'Connor Chapters 7-10

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23 March, 2023

Day Plan

Network Models

Bounded Rationality

Changing Values

Networks and Ecosystems

- So far we've used models where in each round, everyone interacts with everyone. (Or with a randomly selected portion of everyone; it won't matter for modeling purposes.)
- In a network model, people have 'neighbors'.
- In general we do not assume these are spatially arranged.
- My neighbors might include my literal neighbors, but also my workmates, the other parents at my kid's school, people I interact with socially (including online), and so on.

Networks

Interactions can have two effects.

1. They determine our payout in a given round.
2. They determine what we learn from for future rounds.

Network Models

This is a very promising way, I think, for modeling gender inequality.

- One thing about gender is that although there is a lot of discrimination that persists to this day, it is very unevenly distributed.
- In some fields, there is *relatively* little.
- In other fields, there is a lot.
- Using network models can give us the chance to model that.

Network Effects

In some of these models, you get some really strange effects.

- Sometimes there are real benefits to cutting off certain connections.
- By sticking in a smaller network for longer, sometimes you don't get sucked into the bad practices of the group.
- Of course, sometimes you build a bubble that is bad in lots of ways.
- It's hard to know in advance which will swamp.

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Two Kinds of Models

1. Everyone is perfectly rational, and this is common knowledge.
2. Everyone has a hard-wired strategy, and they will employ it even when it will obviously get them killed.

Bounded Rationality

Obviously there are situations where we'd like something in between those two situations.

Two Forms

1. No ability to anticipate; the future will be just like the past.
2. Limited memory.

A Third Form

You can easily mix these two.

- Maybe some agents will assume the future will look like the very recent past.
- Maybe some agents will have longer or shorter memories.

Extending the Model

The point is not that these are correct models of reality. That's not the aim.

- But they are different to both the hyper-rational and the hyper-mechanical models.
- And they do this without sending the computational complexity to infinity, or leaving too few constraints.

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Bicchieri

- I wanted to end by noting some relevant work by Penn philosoper(/economist/cognitive scientist) Christina Bicchieri.
- I had a note to mention how this work relates to Bicchieri's, then I got to chapter 9 and saw that O'Connor already made that connection. So I won't belabor the point.

Norms are Equilibria

- So here's one way a practice can become stable in a community.
- It's an equilibrium of a game that they are playing, so no one has an incentive to deviate.
- A very popular theory, one I think has got to be part of the true story, is that social norms typically arise in this way.

Norms are Special Equilibria

Bicchieri's point is that norms, as opposed to other conventions for dealing with regularities, do more than steer us to an equilibrium point.

- They change the payoffs.

Two Kinds of Equilibria

1. Everyone does X because it's valuable to do what everyone else does. Opening hours are like this.
2. Everyone does X because it's valuable to do what everyone else does *and you'll get punished for doing otherwise*.

Arguably gender is like this.

Policing Gender Norms

- Part of the story about gender is that not only do people signal it fairly clearly (at least most people most of the time).
- But there are strong social sanctions - sometimes including violence - against people who do not signal in this way.
- It's very hard to model this using either kinds of games that O'Connor describes.

General Pattern

Here is a hypothesis about what is going on here.

1. Gender norms developed for the kind of game-theoretic reasons that O'Connor describes.
2. But over time, people internalised those norms, came to see them as the way things should be done, and developed a disposition to punish non-conformers.

These stories are not incompatible; one is a story about generation, the other about persistence.

Why Two Stories

- We need to explain relative stability of norms over time.
- O'Connor complains that rational choice models can't deliver this explanation.
- But going all the way to mechanical biological models seems like overkill.
- A model of people internalising the norms, and thereby changing the payout structure, seems more promising.

Where to Go Next

- And thinking about changing payouts might be a more effective way of moving to new solutions.
- At least, it's a different way than trying to push people to different equilibria of the same game.