

What makes a good ~~final~~
research project?

Let's start by reviewing our methodology

We typically do some subset of the following...

- Identify puzzles
- Develop model
- Use model to explain puzzles
- Demonstrate robustness
- Identify novel predictions from model
- Empirically validate model, test novel predictions, and document remaining gaps
- Identify practical and policy implications

Let's look at examples for each

Identify puzzles

Where do rights come from?

Why do North Indians find long pinky nails beautiful when we don't?

Why do people vote when they have at most a 1/10 million chance of swinging an election?

Why is Batman less morally wrong if he doesn't save the villain than if he kills him?

Develop model

Hawk-Dove-Bourgeois

Costly Signaling

Repeated PD

CWOL

Common Knowledge

Use model to explain puzzles

Rights are established by uncorrelated asymmetries

North Indians find long pinky nails beautiful because they are costly signals of high status jobs

Our moral judgment of Batman directs us on when to punish, and we only want to punish when there is CK

Demonstrate robustness

Reciprocal altruism doesn't depend on number of players

Costly signals emerge in evolutionary model

Costly signals emerge even if continuum of types

Identify novel predictions from model

Any uncorrelated asymmetry (evident event)
can establish rights

Dynamics lead to *efficient* costly signals

Omission / Commission differentially impact
higher order beliefs (HOB) and HOB impact
punishment

Empirically validate model, test novel predictions and document remaining gaps

Show that butterflies rely on uncorrelated asymmetries

Identify that literature has not tested efficiency of costly signals

Use Mturk survey to demonstrate relationship between omission/commission, HOB and moral judgments

Identify practical and policy implications

Confusion over uncorrelated asymmetries
causes conflict

Encourage contributions with observability

Politicians and law-makers should ignore
the omission/commission distinction

Now let's think about some key features of the analysis...

Puzzles:

Need game theory to explain them

Focus on:

“non-strategic”

social behavior

human

Model has some/all of these:

Simple, believable assumptions

Explains the puzzle

Helps prevent confusion

Gives novel predictions

Has practical or policy implications

When we demonstrate robustness, we typically:

Show relevant Nash equilibrium exists for non-trivial parameter region

Show that dynamics lead to this Nash frequently for variety of parameters

Show that relevant Nash equilibrium emerges if change set-up or assumptions slightly

Empirical evidence often:

Exists in animals, too

Universal in humans when we expect it to be,
varies when we don't

Is hidden in existing empirical work that was
never interpreted from the standpoint of the
theory

May include current events, history, literature

Novel prediction:

Holds for this model but not alternative explanations

Robust to changing assumptions of model

Keeps in mind constraints imposed by learning/evolution (e.g., Comparative static vs. point prediction)

How projects fit in...

Projects will usually address one or more steps
in the methodology

And have the relevant key features

Let's recall your options and see this for each...

Suppose you decide to do a simulation

Then it will likely address...

- Identify puzzles
- Develop model
- Use model to explain puzzles
- **Demonstrate robustness**
- Identify novel predictions from model
- Empirically validate model, test novel predictions, and document remaining gaps
- Identify practical and policy implications

Will likely focus on third feature:

Show relevant Nash equilibrium exists for non-trivial parameter region

Show that dynamics lead to this Nash frequently for variety of parameters

Show that relevant Nash equilibrium emerges if change set-up or assumptions slightly

Or the second:

Show relevant Nash equilibrium exists for non-trivial parameter region

Show that dynamics lead to this Nash frequently for variety of parameters

Show that relevant Nash equilibrium emerges if change set-up or assumptions slightly

What about a literature review?

It will likely address...

- Identify puzzles
- Develop model
- Use model to explain puzzles
- Demonstrate robustness
- Identify novel predictions from model
- Empirically validate model, test novel predictions, and document remaining gaps
- Identify practical and policy implications

And could focus on any or all of the following:

Exists in animals, too

Universal in humans when we expect it to be,
varies when we don't

Is hidden in existing empirical work that was
never interpreted from the standpoint of the
theory

May include current events, history, literature

What about an experiment or survey design?

- Identify puzzles
- Develop model
- Use model to explain puzzles
- Demonstrate robustness
- Identify novel predictions from model
- Empirically validate model, test novel predictions, and document remaining gaps
- Identify practical and policy implications

You'll want to document a gap. That is, identify one of the model's prediction that hasn't been tested

And design an experiment/survey to test it

And an analytic proof?

Will likely focus on first:

Show relevant Nash equilibrium exists for non-trivial parameter region

Show that dynamics lead to this Nash frequently for variety of parameters

Show that relevant Nash equilibrium emerges if change set-up or assumptions slightly

Or the third:

Show relevant Nash equilibrium exists for non-trivial parameter region

Show that dynamics lead to this Nash frequently for variety of parameters

Show that relevant Nash equilibrium emerges if change set-up or assumptions slightly

When you do your project, first...

Identify the step(s) your project fills
and the features it has

Suggestion

Explicitly state these at the beginning of your
write-up

When you do your project, first...

Identify the step(s) your project fills
and the features it has

~~Suggestion~~ Requirement

Explicitly state these at the beginning of your
write-up

Next, let's talk about common pitfalls...

I am going to document phenomenon X in setting Z

Example...

It's not enough to document the endowment effect in video games.
You have to *provide evidence* that it's Hawk-Dove

Instead...

For example, do a quick literature review, and argue how existing literature rules out alternative explanations. Alternatively, design an experiment or survey that would rule out alternative explanations.

This would get you an A+

I am going to model setting Y as one of the games we learned in class

Example...

In many cultures, it is customary to exchange gifts frequently when in a romantic relationship. Modeling this as repeated PD is not enough

Instead...

You should (a) show evidence that gift exchange is consistent with repeated PD and rule out obvious alternatives. (b) Write down some new, non-obvious predictions about gift exchange that only repeated PD could give you.

I am going to study interesting setting K

Example...

We're just as excited about about the prospect of understanding online dating better for, uh, scientific reasons, but...

Instead...

You need to narrow your topic and think about whether you can use this setting to provide evidence for the theory somehow

Most extreme version of this...

I am going to develop new model that explains lots of puzzles, solve it generally, show that it emerges in dynamics, is robust, find policy implications...

That'd be great as a multi-year research agenda.
Narrow it down

Alright, get at it!

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