Prediction and explanation in social systems
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Issue:

Two cultures of explanation:
- Prediction driven explanation as the gold standard in the natural & information sciences

Observation → Building theory (potentially falsifiable)→ Conducting experiments/testing hypotheses → Does theory predict outcomes sufficiently?

- Interpretable explanation the gold standard in the social sciences

Observation → Building theory (potentially falsifiable→ trying to estimate unbiased effect via regression→ Does theory explain the outcome in an interpretable way?

Identified conflict: Prediction vs. Explanation

Proposed Solution:

- *Current practices for evaluating predictions must be better standardized*

Develop a framework to compare results
Conduct exploratory and confirmatory analyses

- *Theoretical limits to predictive accuracy in complex systems must be better characterized to set expectations for prediction and explanation*

Identify the task to predict in order to identify which model is suited and what prediction can be expected (behavior of people in a tunnel vs. large scale evolution of societies)

- *Predictive accuracy and interpretability are complementary, not substitutes in explanations*

Developing theories that predict but also show how they causally work