

EXPLANATION, FORMAL MODELS, AND RATIONAL CHOICE

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STRANGE TIMES

Making a Science Of Looking Out For No. 1

Political Scientists Debate Theory of 'Rational Choice'

Over the last few decades a divide has opened between political scientists who practice what is known as rational choice theory and those who follow more traditional approaches relying on the historical and cultural record, political psychology, polling data and the like.

The defining feature of rational choice theory is that people always try to maximize their interests when it comes to things like whom to vote for or whether to volunteer politically. The approach has many variants. Decision theory, for example, centers on cost-benefit calculations that individuals make without reference to anyone else's plans, whereas game theory analyzes how people make choices based on what they expect other individuals to do.

Arts & Ideas asked two political scientists to offer their views on the rational choice approach. Morris P. Fiorina, a professor of political science and a senior fellow of the Hoover Institution at Stanford University, is a proponent of rational choice theory and author of "Congress: Keystone of the Washington Establishment."

Ian Shapiro, chairman of the department of political science at Yale University, is deeply skeptical of the approach. He is the author of "Democratic Justice" and the co-author, with Donald Green, of "Pathologies of Rational Choice Theory."

When Stakes Are High, Rationality Kicks In

By MORRIS P. FIORINA

Political scientists are inveterate borrowers. Consequently we regularly debate the benefits and costs of appropriating models, methods and concepts from other fields.

In the 1940's and 1950's proponents of a genuinely scientific political science looked with admiration on social sciences that were then more advanced, like sociology and psychology. As these behaviorists gained intellectual ground, historically and philosophically minded critics complained about mindless quantification, the reduction of political man and woman to the product of childhood socialization, and about a research agenda that focused on academic questions about political psychology and political sociology instead of improving people and government.

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disciplines like operations research and economics for models that would help to restore voltton to a central place in political science. The establishment behavioralists along with surviving historically and philosophically minded critics now complained about mindless mathematization, the reduction of political man and woman to atomistic calculators, and the capture of the research agenda by applied mathematicians and "economic imperialists."

Most recently, scholars concerned that biology has been overlooked are trying to move biopolitics — which looks at how genetic and physiological tendencies are related to political behavior — to a more prominent place on the discipline's shelf of approaches. If they succeed, they too will hear the complaints of the proponents of other previously borrowed approaches. As this brief review sug-

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A Model That Pretends to Explain Everything

By IAN SHAPIRO

Consider this: The last 40 years have seen an enormous infusion of the methodologies of economics into the academic study of politics, but the practitioners would be hard pressed to tell you what has been learned as a result.

Political science journals abound in rational choice models that are shrouded in jargon and largely impenetrable to the uninitiated. Yet all this technification didn't help political scientists offer wisdom to constitutional designers after the collapse of Communism. Nor have they said anything important about more conventional politics that was not previously known.

Typically rational choice theorists either ignore

or recycle conventional wisdom through their models or they specify the models so vaguely as to render them compatible with every possible outcome. Often this vagueness is obscured by intimidating mathematics, creating a misleading appearance of rigor.

When rational choice models are specified in ways that make clear, arresting predictions, they often lead to results that are contradicted by what we know about politics. For example, they imply that egoistic rational maximizers have no reason to vote, given the infinitesimal odds of affecting the result. Yet people vote in the millions all over the world. Sometimes they are willing to die for

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In person, shepsle presents an affable, unassuming face that hardly seems commensurate with his reputation as the Genghis Khan of the Harvard government department. But, if it's hard to imagine Shepsle as

GREEN AND SHAPIRO

Pathologies of Rational Choice Theory argues that:

despite its enormous and growing prestige in the discipline, rational choice theory has yet to deliver on its promise to advance the empirical study of politics [p. 7]

It characterizes RCT with two properties:

1. intentional explanation
2. universalistic aspirations of rational choice theory
“results from its proponents’ conception of scientific advance, which is thought to occur when generalizable results can be shown to follow from analytic propositions derived from axioms” [p. 24].

TWO VISIONS

Green and Shapiro differ from their critics on how to think about formal rational choice models in political science.

For Green and Shapiro:

Models are tools to generate possible causal mechanisms, which should be tested against behavioral data.

For Ferejohn and Satz:

Models are a **unified collection of** tools to generate possible **intentional and** causal mechanisms, which should be tested against behavioral data.

My (tentative!) suggestion is that these differences are still lurking the background of conversations between quant and formal political scientists

WHERE I'M HEADED

Two kinds of explanation

- ▶ Causal
- ▶ Intentional

Representation via formal models

- ▶ In general
- ▶ Rational choice specifically

Different tradeoffs

PRZEWORSKI AND TEUNE

For example, why does Monsieur Rouget, age 24, blond hair, brown eyes, a worker in a large factory, vote Communist? To explain the vote of M. Rouget, one must rely upon general probabilistic statements that are relevant for voting behavior and have been sufficiently confirmed against various sets of evidence. The particular features of M. Rouget must be used as the first premise of the explanation:

M. Rouget is a worker and
works in a large factory and
is young (24 years old).

The second premise consists of a conjunction of general statements describing with a high likelihood the behavior of skilled workers, employees of large factories, and young persons. (No interaction is assumed.)

One out of every two workers votes Communist; and employees of large organizations vote Communist more often than employees of small organizations; and young people vote Communist more often than older people.

Therefore, it is likely that
M. Rouget votes Communist.

OBJECTION 1: CAUSES

Przeworski and Teune use Hempel's Inductive-Statistical model of explanation.

- ▶ Statistical relevance vs. causal relevance
- ▶ Kyburg's counterexample: This sample of table salt dissolves in water, for it has had a dissolving spell cast upon it, and all samples of table salt that have had dissolving spells cast upon them dissolve in water.

Past half century of methodological work on causal inference is all about escaping this model.

OBJECTION 2: INTENTIONS

An *intentional* explanation is one that gives the actor's reason for acting as they do.

A reason is an appropriate constellation of beliefs and desires that explain the act.

- ▶ The act is a good way to achieve the desire given the belief.
- ▶ *These* beliefs and desires actually lead to the act

ROBERT LUCAS

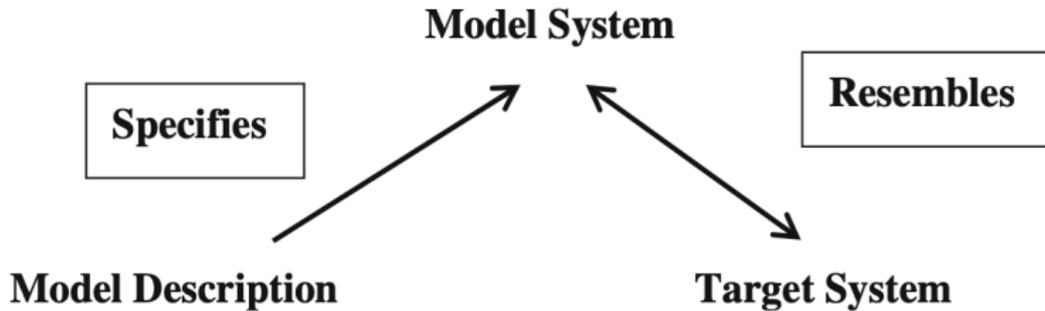
When asked if choice-theoretic foundations are crucial for macroeconomic models:

No. It depends on the purposes you want the model to serve. . . . [I]f one wants to know how behavior is likely to change under some change in a policy, it is necessary to model the way people make choices. If you see me driving north on Clark Street, you will have good (though not perfect) predictive success by guessing that I will still be going North on the same street a few minutes later. But if you want to predict how I will respond if Clark Street is closed off, you have to have some idea of where I am going and what my alternative routes are—of the nature of my decision problem.

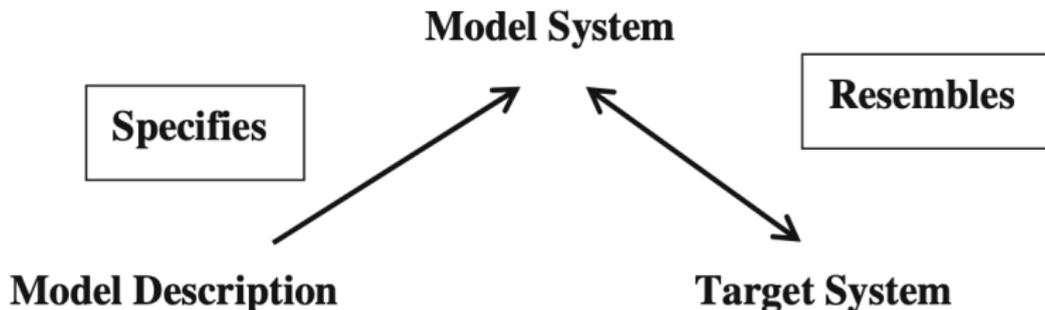
WILLIAM DRAY

What is at stake here is the proper 'standpoint' or 'approach' to at any rate a large part of the subject-matter of history. Collingwood declares that history is not a *spectacle*.² What he means could perhaps be put in terms of a distinction between two standpoints from which human actions can be studied. When we subsume an action under a law, our approach is that of a spectator of the action; we look for a pattern or regularity in it. But when we give an explanation in terms of the purpose which guided the action, the problem which it was intended to resolve, the principle which it applied, &c., we adopt the standpoint from which the action was done: the standpoint of an agent. In adopting this standpoint, the investigator appreciates the agent's problem and appraises his response to it. The importance in history of explanations given from the

MODELS



MODELS



The most important thing to understand is how principles function in representational practice. Their function here, I think, is to act as general templates for the construction of more specific models, which are also abstract objects. Thus, to the principles one adds what I am here calling “specific conditions,” the result being a more specific, but still abstract, object. The principles thus help both to shape and also to constrain the structure of these more specific models. To take a canonical example, adding the condition that $F = -kx$ to Newton’s principles yields a general model for a simple harmonic oscillator, where x is the displacement from an equilibrium position.

RATIONAL CHOICE MODELS

A typical **Bayesian Game Model** consists of:

- ▶ Primitives: $\langle N, \Omega, \pi, (A_i, T_i, \tau_i, u_i)_{i \in N} \rangle$
- ▶ Solution concept: Bayes-Nash equilibrium $(\sigma_i^*)_{i \in N}$

Drenched in intentional concepts:

- ▶ Beliefs about Ω and A_{-i}
- ▶ Preferences over $A \times \Omega$

(N.B., intentional broader than this version of RCT)

REVEALED PREFERENCE FUNDAMENTALISM

In revealed-preference theory, it isn't true that Pandora chooses b rather than a *because* the utility of b exceeds the utility of a . This is the Causal Utility Fallacy. It isn't even true that Pandora chooses b rather than a because she prefers b to a . On the contrary, it is because Pandora chooses b rather than a that we say that Pandora prefers b to a , and assign b a larger utility.

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Is the last claim epistemic or semantic?

If semantic, then these are equivalent:

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TAKING INTENTIONS SERIOUSLY

Although received economics talks approvingly of rationality as mere consistency, this is not in fact what most economists do. Much of economics involves invisible hand explanations; aggregate market behavior emerges from the decisions of many agents. Whether the invisible hand lifts the cup aloft or knocks it over, economic explanation entails explaining how it coordinates for good or ill the motives and interests of diverse individual actors. These kinds of questions call for explanations based on the motivations of economic actors, which purely behavioralist explanations cannot provide. So economists in practice take an intentional view.

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We claim, first, that in everyday life, human agents must and do make use of intentionalist interpretation in order to make attributions about mental states. Second, we claim that this form of intentionalism must satisfy a pragmatic test—it must allow its holders to make good predictions as to how others will behave in a wide variety of settings—so that it is “generative,” and cannot consist of mere tautologies. In order to satisfy these requirements, we claim that this “folk intentionalism” must be describable in universalistic terms. Finally, we claim that successful intentional scientific accounts must “track” folk intentionalism, and therefore inherit its universalistic features.

THE CORE DISAGREEMENT

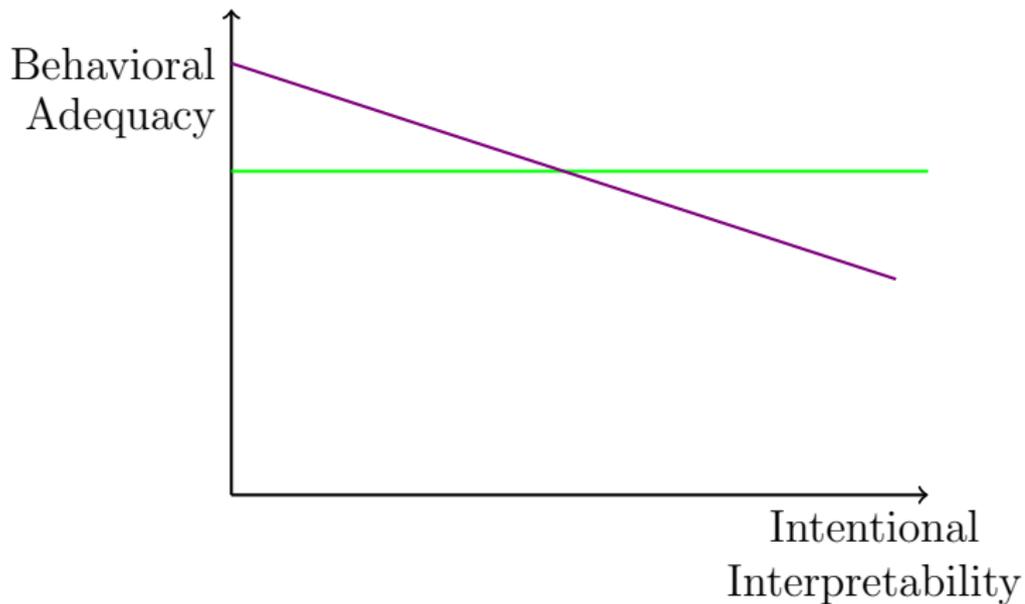
The argument with which Riker confronts the Skinnerian behaviorist can be pressed equally against the rational choice theorist's appeal to the primacy of intentions and preferences. What determines *them*? Perhaps they are products of chemical reactions in the brain or of cultures or of institutional orders. To say that intentions and choices are the building blocks from which explanations of human behavior should be fashioned rests on nothing more than a conjecture that they are in fact the basic determinants.

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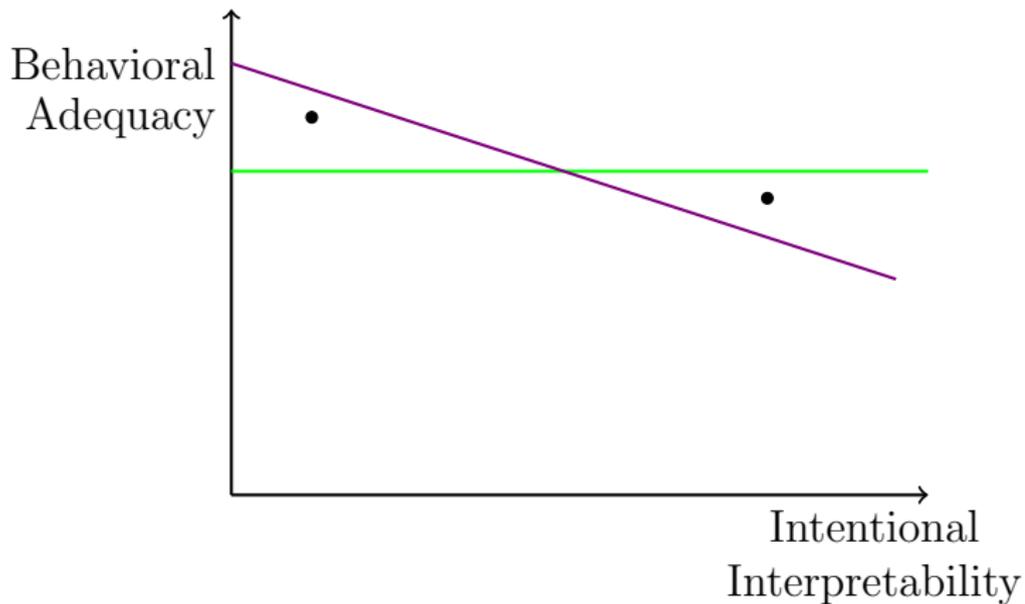
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An even weaker version of the family-of-theories argument is the claim that rational choice theory is not a theory at all; rather, it is an "approach," a "methodology" or a "paradigm," and as such it cannot be tested. If this argument is taken seriously, the question becomes, Why choose the rational choice approach rather than a different one? The answer, presumably, must rest on an appeal to the predictive success of the hypotheses that the approach yields. Our appraisal of the rational choice literature leads to the conclusion that these successes are, for the moment, decidedly limited.

DIFFERENT TRADEOFFS



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