Elements of Reason

Cognition, Choice, and the Bounds of Rationality

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Chapter

Beyond Rationality: Reason and the Study of Politics pp. 1-20

1

Beyond Rationality: Reason and the Study of Politics

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A primary objective of social science is to explain *why people do what they do*. One of the great difficulties inherent in crafting such explanations is that we cannot observe the thoughts that precede a choice. As a result, social scientific explanations of individual behavior must be based on assumptions about the relationship between thinking and choosing – assumptions whose validity is not obvious.

In this volume, 18 scholars from a broad range of social scientific perspectives join together in an effort to craft better explanations of political behavior. Individually, each contributor argues that better explanations will come from paying closer attention to the relationship between thinking and choosing.

Collectively, our goal is to transform debates about the limits of rationality into more effective explanations of why people do what they do. Our attempt at such a transformation begins in this chapter, where we develop an alternative approach to the study of politics. Our approach combines *a single, empirically sensible definition of rationality* with *an aggressive pursuit of how people seek and process information*.

Our definition of rationality is motivated by the belief that scarcity is ubiquitous in political contexts. There are, for example, more ways to spend public funds than there are funds to spend, more ideas about what a society should do than there are opportunities for society to act, and so on. Time and energy are also scarce. As a result, people lack the time and energy to pursue all possible opportunities. Because scarcity is ubiquitous in political contexts, political actors must make choices.

To explain why people make certain choices, it is necessary to understand that *choice is the product of reason,* where reason is the human process of seeking, processing, and drawing inferences from information. People reason about how the consequences of various actions relate to

1

the satisfaction of their desires. This relationship between reason and choice is as true for the selfish or wealth-maximizing actors common to economic models as it is for the altruist who *chooses* to allocate scarce resources for the benefit of others. It is as true for people who think of themselves primarily in terms of cultural or group identities as it is for rugged individualists. Scarcity forces all people to make choices, and these choices are the product of reason.

Since reason is the antecedent of choice, limits in our understanding of reason shackle our ability to explain what people do. We argue that these shackles can be lifted. Indeed, the point of the volume is to identify *elements of reason,* the systematic components of the process by which humans seek and use information. Our main premise is that, whatever their motivations, people seek and process information about politics in predictable ways. The purpose of *Elements of Reason* is to clarify what these predictions might be.

The premise that people seek and process information about politics in predictable ways permeates the entire book. Each of our contributors defines an element of reason that should be incorporated into the study of politics. Collectively, these elements are supported by empirical discoveries from a broad range of perspectives. Cognitive scientists, economists, political scientists, and psychologists all contribute elements of reason to this volume. While these essays – described in greater detail at the end of this chapter – are not a comprehensive overview of the links between the social sciences and the study of the mind, each clarifies an important aspect of the relationship between thinking and choosing. They show that *reason* determines how the environment, the basic needs of the human organism, and past experiences combine to determine people's desires, and ultimately, their choices.

Our goal is to create a new understanding of how people reason. By applying these insights to the study of politics, we can better explain *why people do what they do.*

RATIONALITY AND THE IMPORTANCE OF LISTENING TO REASON

Many scholarly approaches to the study of politics rely on controversial or unspecified assumptions about the relationship between thinking and choosing. Political systems theories, group theories, elite theories, and prospect theories, for example, rely on vague or narrowly tailored assumptions about *how* people think about what they choose.

One well-known and particularly controversial approach to the study

2

of politics operates on the premise that people are rational.[1] Unlike some other approaches to the study of politics, rational choice theories are seldom vague in their assumptions about how people think. One of the reasons that rational choice theories are so controversial, however, is that some of the best-known applications are perceived to rely on unrealistic assumptions. Complicating matters further is the fact that the term *rationality* means different things to different people. As a result, when people argue about the role of rationality in the study of politics, they are often arguing about very different concepts.

In this section, we use the controversy about rational choice theories to demonstrate that more careful attention to reason can help a broad range of scholars – regardless of whether they glorify or vilify rational choice theories – to craft better explanations of why people do what they do.

Rationality's Dueling Definitions

Here the problem is first to see just what is meant by rationality. The term, as a recent writer noted, "has enjoyed a long history which has bequeathed to it a legacy of ambiguity and confusion. . . . Any man may be excused when he is puzzled by the question how he ought to use the word and particularly how he ought to use it in relation to human conduct and politics." Several meanings can be differentiated.

– Berelson, Lasarsfeld, and McPhee
1954: 310

Rationality is a concept so central to human endeavor, so important, and yet so empirically elusive that it cannot help but be subject to a broad range of interpretations when used in everyday discourse. In scientific discourse, however, it is desirable for words to have precise meanings. The validity and soundness of scientific claims about causality, correlation, and truth depend critically on such precision. So, while it is not surprising that words such as rationality have multiple meanings in everyday discourse, when it comes to achieving scientific objectives, multiple meanings cause problems.

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[1] The role of reason in rational choice theories is particularly relevant to the study of politics. Many of the best-known and most-cited scholarly tomes of the last two decades – including works on voting (Cain, Ferejohn, and Fiorina 1987), the U.S. Congress (Cox and McCubbins 1993; Kiewiet and McCubbins 1991; Krehbiel 1991; Rohde 1991; Shepsle 1978, 1979; Shepsle and Weingast 1981, 1995), political parties (Aldrich 1995), elections (Cox 1997; Enelow and Hinich 1985; Fiorina 1981; Hinich and Munger 1994; Popkin 1991), interest groups (Olson 1965; Ostrom 1990), international relations (Bueno de Mesquita and Lalman 1992; Powell 1990), and comparative politics (Bates 1989; Laver and Schofield 1990; Laver and Shepsle 1996) – are influenced by rational choice theories.

3

The *Oxford English Dictionary* (*OED*) is arguably the most authoritative and general source for determining the print-based origins of English words. The 1989 *OED* contains the following definitions of the word *rationality*.

1. The quality of possessing reason; the power of being able to exercise one's reason.
2. The fact of being based on, or agreeable to, reason. A rational or reasonable view, practice, etc.
3. The tendency to regard everything from a purely rational point of view.

This definition, while not multiplicitous, is not very informative. In each case, rationality is defined in terms of the words *rational* or *reason*. Consider *OED*'s definitions of the term *rational*.

1. Having the faculty of reasoning; endowed with reason.[2]
2. Exercising (or able to exercise) one's reason in proper manner; having sound judgment; sensible, sane.
3. Of, pertaining, or relating to reason.
4. Agreeable to reason; reasonable, sensible; not foolish, absurd, or extravagant.
5. Descriptive of methods of analysis and planning that make use of calculation to bring about a projected result, esp. in economic or social organization.

While we will discuss *reason* in greater detail below, the *OED* defines it[3] as

[2] Older uses of *rationality* in the *OED* are quite clear about rationality's dependence on reason. Consider, for example, usage from the year 1398: "the soule racional, in that he vsyth contemplacion, he hyghte *speculativus*"; from the year 1547: "the racionall sences consisteth in reason, the whiche doth make a man or woman a reasonable beaste"; and from the year 1615: "We determine that the Braine is the Pallace of the Rationall Soule." Note that these uses, unlike contemporary definitions, predate the advent of scientific revolution and originate from Europe – England, in particular. As a result, they were offered in historical contexts where men could employ reason, but it was sacrilege to assert that anyone but God could be omniscient. Hence, at the time of these uses of the term *rationality*, rationality and omniscience were clearly distinct concepts. A problem with many modern uses of the term *rationality*, by critics and proponents of rational choice theorists alike, is the belief that rationality implies omniscience (i.e., the belief that someone making a mistake is sufficient to judge them irrational). The rationality definition we advocate restores the separation between the two concepts. The confounding of omniscience and rationality has, in our opinion, severely impeded scientific progress, particularly in the last half century.

[3] We recite here the relevant definitions of the word, omitting irrelevant definitions, such as "A statement of some fact (real or alleged) employed as an argument to justify or condemn some act, prove or disprove some assertion, idea, or belief."

4

1. That intellectual power or faculty (usually regarded as characteristic of mankind but sometimes also attributed in a certain degree to the lower animals) which is ordinarily employed in adapting thought or action to some end; the guiding principle of the human mind in the process of thinking.
2. The ordinary thinking faculty of the human mind in a sound condition; sanity.

Many of the controversies concerning the social scientific usage of rationality are apparent in the definition of the word *rational*. Consider, for example, the *OED*'s characterizations of what rational behavior must not be. It must not be "foolish." It must not be "extravagant." In addition, it must be "sane." Yet these terms, each descriptive of behavior, complicate more than they clarify. Who is to judge what constitutes foolishness or extravagance? Even the meaning of sane behavior is subject to broad interpretation (e.g., Foucault 1965).

A consensus on the constitution of a scientifically useful rationality definition would ameliorate the problems caused by multiplicity of meaning. A consensus that rationality is wealth-maximizing behavior, or that a behavior is rational only if it is the same one that an omniscient calculator would choose, would help determine whether rationality is a useful basis for social scientific explanation. But no consensus has emerged, even within economics – the discipline with which rational choice explanations are most commonly associated. The present condition of the term *rationality* is that it has multiple personalities. Consider, for example, these contemporary definitions of the term:

1. "A decision is only rational if it is supported by the best reasons and achieves the best possible outcome in terms of all the goals."[4]
2. "Rational choice theory holds that choices among relevant goods involve comparing all goods against each other to make correct choices dictated by preference schedules."[5]
3. "The second basic assumption of positive economics is that people are rational in the sense that they have an objective and pursue it in a reasonably consistent fashion. When considering *persons*, economists assume that the objective being pursued is *utility maximization*; that is, people are assumed to strive toward the goal

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[4] From Herbert A. Simon, "Rationality in Political Behavior," in *Political Psychology* 16 (1995): 48. Simon provides this definition as modern neoclassical economics' standard of rationality.

[5] From Robert E. Lane, "What Rational Choice Explains," in *Critical Review* 9 (1995): 110.

of making themselves as happy as they can (given their limited resources)."[6]

4. "We have assumed, in particular, that consumers always strive to obtain the greatest possible satisfaction from spending their incomes, and that businessmen always try to make the biggest profits they can."[7]

5. "Beyond requiring that the utility function is consistent, no specific content is specified for it. As far as economics is concerned, a utility function can assign as much or more utility to giving away goods as to consuming them; it can award as much utility (to me) for an increase in the living standard of an Indian peasant as it does for the same increase in my own living standard. *Rationality is orthogonal to selfishness* [emphasis added]."[8]

6. "A 'rational agent' in such a model is simply one who obeys certain axioms, and that is the end of it."[9]

7. "A key economic assumption is that individuals, in making choices, rationally select alternatives they perceive to be in their best interests. . . . This reliance on *rational self-interest* should not be viewed as blind materialism, pure selfishness, or greed. We all know people whose favorite radio station is WIIFM (What's In It For Me?), but for most of us self-interest often includes the welfare of our family, our friends, and perhaps the poor of the world."[10]

8. "[R]ational choice involves three optimizing operations. The action that is chosen must be optimal, given the desires and beliefs of the agent. The beliefs must be optimal, given the information available to the agent. The amount of resources allocated to the acquisition of information must be optimal . . ." (Elster 1999: 285).

9. "Virtually all human behavior is rational. People usually have reasons for what they do, and if asked, can opine what these reasons are" (Simon 1995: 48).

From an intellectual distance, it is possible to agree with all of these definitions – or at least to be offended by none of them. But for the purpose of scientific inquiry, the conflict inherent in these defi-

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[6] From *Modern Labor Economics: Theory and Public Policy*, by Ronald G. Ehrenberg and Robert S. Smith, 6th ed. (Reading, MA: Addison-Wesley, 1997), p. 4.

[7] From *A Textbook of Economic Theory*, by Alfred W. Stonier and Douglas C. Hague, 4th ed. (New York: John Wiley & Sons, 1973), p. 657.

[8] Simon 1995: 48.

[9] From *Rationality, Allocation, and Reproduction*, by Vivian Walsh (Oxford: Clarendon Press, 1996), p. 3.

[10] From *Macroeconomics: A Contemporary Introduction*, by William A. McEachern, 3rd ed. (Cincinnati: College Division, South-Western Publishing Co., 1994), pp. 6–7.

6

nitions is detrimental. For example, someone who wants to explain political behavior may have to grapple with a question such as this: What will people do if forced to choose between obtaining the greatest possible satisfaction from spending their incomes, attempting to make the biggest profits they can, or considering the welfare of the poor of the world? Conventional notions of rationality give inconsistent guidance.[11]

If we can distill these many definitions of rationality into one that is sensible empirically and widely applicable, we can avoid much of the confusion currently associated with the concept of rationality and, as a result, craft better explanations of why people do what they do. We will now argue for such a definition. The basis of our argument is that there is at least one issue on which these many definitions of rationality agree. The issue is that people have reasons for the choices they make. That is, regardless of people's genetics or socialization, if they are able to make choices, then reasons will precede these choices. Therefore, we conclude that *a rational choice is one that is based on reasons, irrespective of what these reasons may be.*

Given the definition we offer, it may be the case that all of the choices we observe are rational. Of course, rational choice theorists have made this claim before, much to the delight of the approaches' critics.[12] In this case, however, such derision misses a fundamental point of the social scientific enterprise. If our collective scientific goal is to explain why people do what they do, then our task is to understand the reasons for the

[11] Ordeshook 1986 also articulated this problem in the introduction to his book *Game Theory and Political Theory*:

> The word "rational" is commonly used to summarize our assumptions about these choices. The meaning of this word has been the subject of a lively debate during the past 20 years and has given rise to considerable misunderstanding among the antagonists. Instead of entering this debate, we note that purposeful choice does not necessarily mean that people carefully and consciously list their alternative actions, map all the relevant or possible consequences of each act, estimate the probability of each consequence, and define precisely their preferences across all consequences. Thus, we cannot ignore habit, instinct, and the use of simple cues and heuristics to uncomplicate complex decisions. Indeed, one of the formal theorists' most important activities is to understand why various heuristics are reasonable responses to complex environments and to the costs of alternative modes of making decisions. The presumption of purposeful choice implies simply that, after taking account of people's perceptions, values, and beliefs, we can model their decisions by asserting that they act as if they make such calculations.

[12] The critics' delight stems from the idea that if we can conjure a rational explanation for all observed behaviors, then rational choice theories are post hoc and explain nothing. In our claim that all behavior is rational, our intent is to draw maximum attention to the fact that reason precedes choice and to the implication that explaining many choices is aided by understanding human reason.

7

choices they make. Whether we agree with these reasons or not, whether these reasons make sense to us or not, and whether we use the term *rationality* to describe the process by which these reasons are formed or not is irrelevant.[13] If we desire improved explanations of why people do what they do, then we must introduce greater clarity about the properties of human reason into our analyses.

STANDARD ECONOMIC RATIONALITY, BOUNDED RATIONALITY, AND ELEMENTS OF REASON

In the search for improved explanations of human behavior, scholars have offered many distinct definitions of *rationality*. The continuing battle over the meaning of rationality continues to produce many new and important insights (see, e.g., Rubenstein 1998 for a review). To clarify our plan for incorporating reason into the study of politics, however, we restrict our focus to two of the most common definitions of rationality. Both are often cited in debates about rational choice theory and distinguish themselves from the extant population of definitions because they are so well known.

The definitions are *standard economic rationality* (aka *homo economicus*, substantive rationality) and *bounded rationality*. Each definition is based on a distinct assumption about how people reason. In what follows, we will compare and contrast these two focal definitions to show why progress in the attempt to explain social behavior requires more advanced concepts of reason than most social scientists currently employ.

Standard Economic Rationality

The standard economic definition of rationality (also commonly employed in rational choice theories of politics) equates rational actors with omniscient calculators.[14] Consider, for example, the rationality definition in Kreps's (1990a) microeconomic theory text. Kreps's rational actor is omniscient with respect to the domain of choice. By his definition, rational actors know the consequences of all the actions available to them and choose the action whose consequences provide the highest benefit. Kreps defines a player as "not fully rational" when "she doesn't quite understand the full implications of her actions" (480).

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[13] With respect to this goal, normative judgments about the quality of people's reasons, while appropriate in philosophical discourse or casual political conversation, are no substitute for a logically valid and empirically sound social scientific explanation of political or economic behavior.

[14] While there exist economic definitions of rationality that do not fit this description exactly, it is a reasonable description of many economic treatments.

While this definition of rationality is not completely realistic, it has been very useful in application. The unique success of contemporary microeconomic theory as an explanatory endeavor is a great testament to the standard definition's effectiveness. This success should also be no surprise, for in many of the cases that economists examine, interested audiences do not find controversial the assumption that people act "as if" they were omniscient calculators.

Standard economic rationality is not as widely accepted in political science. Many political scientists know that when you ask the typical political decision maker, be it a voter, a legislator, or a juror, a detailed question about a political matter, he or she often offers incorrect responses. Therefore, it is only natural that many political scientists are skeptical of explanations of political behavior that rely on the assumption that political actors act "as if" they are omniscient calculators. This characteristic of political decision making has led to heated debates in the discipline about the usefulness of rationality-based theories and proposed alternatives to standard economic rationality (see, e.g., *Critical Review 9*, no. 102, 1995).

Bounded Rationality

Herbert Simon argued that unlike *homo economicus,* people are not omniscient calculators – they do not do all of the calculations all of the time. Simon affected a generation of social scientists by introducing bounded rationality – a framework for explaining behavior that recognizes that human cognition is limited. His insight, so controversial at first and so obvious in retrospect, challenged scientists to consider a very different view of economic and political behavior.

The concept of bounded rationality found a receptive audience in political science. It is clear that political decision makers have limited ability to perceive and calculate. However, while bounded rationality seems like the perfect alternative to standard economic rationality, the literature growing out of this concept has had two serious shortcomings.

The first shortcoming is that bounded rationality is often incorrectly presumed to imply nonmaximizing or non-self-interested behavior. This presumption leads to a false polarization between bounded rationality and other rationality definitions. As Jensen and Meckling (1976: 307) observe:

Simon's work has often been misinterpreted as a denial of maximizing behavior, and misused, especially in the marketing and behavioral science literature. His later use of the term 'satisficing' (Simon 1959) has undoubtedly contributed to this confusion because it suggests rejection of maximizing behavior rather than maximization subject to costs of information and decision making.

9

Indeed, Simon (1995: 45) later admitted that "virtually all human behavior is rational. People usually have reasons for what they do."[15]

A second problem with the concept of bounded rationality as it is often interpreted is that it is underdefined. Simon forced scholars to recognize that people are limited in their ability to seek and process information. This was brilliant and valuable. Yet beyond that, Simon's bounded rationality offers little systematic guidance as to where the bounds of rationality are. Simon provides his most specific clues about these bounds when he discusses irrationality. Consider the following passage (1985: 297):

We may deem behavior irrational because, although it serves some particular impulse, it is inconsistent with other goals that we deem more important. We may deem it irrational because the actor is proceeding on incorrect facts or ignoring whole areas of relevant fact. We may deem it irrational because the actor has not drawn the correct conclusions from the facts. We may deem it irrational because the actor has failed to consider important alternative courses of action. If the action involves the future, as most action does, we may deem it irrational because we don't think the actor uses the best methods for forming expectations or for adapting to uncertainty. All of these forms of irrationality play important roles in the lives of every one of us, but I think it is misleading to call them irrationality. They are better viewed as forms of bounded rationality.

Of course, this directive is problematic in that it does not lend itself to better explanations of why people do what they do. For example, how would a scholar seeking to render a positive explanation (rather than a normative description) of political behavior determine "areas of relevant fact" or "important alternative courses of action." Is a voter who bases her choice on the endorsement of a political party or an interest group (such as the Sierra Club or the NRA) less "rational" than she would have been had she based her vote on a careful consideration of 100 candidate issue positions? If the answer to this question seems to be an obvious yes, then consider the fact that she may draw the same conclusion and have the same degree of certainty about the consequence of her choice

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[15] The term *satisficing*, when employed post hoc, offers no clarity over and above that provided by standard definitions of rationality. This is why the many satisficing-based explanations of behavior that are unaccompanied by insights on the trade-offs and reasons that precede a decision to satisfice, or without evidence on the cognitive mechanisms that would activate a satisficing algorithm, have had no discernable impact in the fields of political science and economics. Indeed, we have encountered many scholars who interpret the possibility of satisficing as a license to throw away all of rational choice theory, including its focus on motivations and its logical rigor. This is nonsense. The idea that humans are limited cognitive entities, far from relieving scholars from the burden of rigorous analysis, requires us to apply the most reliable scientific methods we can muster to understanding the complex contours of human reason.

10

in both cases. What then would distinguish rational choice from irrational choice? *More importantly, how would such a distinction, if it could be made, help scholars explain why people do what they do?* The simple answer is that such a distinction would not be helpful. Of course, Simon realizes this. He concludes that it is impossible to generalize about the bounds of rationality as the following passage (1985: 297) indicates: "To understand and predict human behavior, we have to deal with the realities of human rationality; that is bounded rationality. There is nothing obvious about these boundaries; there is no way to predict, a priori, where they lie."

Why We Seek Elements of Reason

If our goal is to explain why people do what they do, then both the standard economic treatment of rationality and the common interpretation of bounded rationality are of limited applicability. Standard economic rationality assumes that rationality is merely the pursuit of objectives, given perfect information and unlimited information-processing capacity. But, in reality, omniscience is impossible. People never have *all* of the facts; further, even if an individual did have all of the facts, then cognitive limitations would often render him or her unable to perform the calculations necessary to deduce an optimal choice. So, from the perspective of explaining many political behaviors, standard economic rationality is either an impossible fantasy or a stylization, but not a realistic option.

The concept of bounded rationality tells us this much, but nothing more. Worse yet, the initial attractiveness of bounded rationality has led many observers to confound the fact that people are not omniscient calculators with the notion that their decisions are not the product of reason (e.g., analysts labeling as "irrational" those actions based on reasons they either disagree with or do not understand). This confusion has not only retarded debates about the applicability of rationality; it has hampered our discipline's ability to get on with the business of explaining why people do what they do. If a primary objective is to explain why people do what they do, we accomplish it more effectively by understanding how people reason. It is time to move beyond the heated, but fruitless, debate about whether people are rational and toward a scientific search for the elements of reason.

It is at this juncture that our efforts in *Elements of Reason* part ways with many extant rational choice theories and Simon's view of bounded rationality. We argue that human reason has systematic attributes and that social scientists should learn these properties and incorporate them into their explanations. We advocate an approach to the study of poli-

11

tics that combines the premise that people have reasons for what they do with the premise that our treatment of how people reason should be informed by modern scholarship about how cognition and affect affect information processing.

PLAN OF THE BOOK: BUILDING SIMON'S BRIDGE

Simon urged social scientists to think about the cognitive limits that underlie human behavior and to pursue what individual and collective actions are possible given those limits. At the same time, he proposed a bridge between the sciences of the mind and social sciences such as economics and political science. But in the 1950s and 1960s, the era in which Simon first advocated such a bridge, the tools for building it were not available.

At the time of Simon's initial challenge to standard economic rationality, the cognitive and neural sciences were in their infancy. Throughout the 1950s and 1960s, for example, psychology was still emerging from an era dominated by behaviorism and the belief that behavior can be explained without peering into the black box of the brain (Delgato and Midgley 1992). And cognitive science, as we know it today, did not exist. As a result, experimental evidence and theorizing on the contours of human reason were quite sparse.

In the years since Simon's initial contributions, the science of the mind has undergone great change. Advances in technology have allowed scholars ranging from psychology to biology to observe brain-behavior correspondences more accurately (e.g., Damasio 1994). Advances in computer technology have allowed for estimation and simulation procedures, such as neural networks, that allow evaluation of complex hypotheses about reasoning and behavior (e.g., see Churchland and Sejnowski 1991, Clark 1997, and Crick 1994 for reviews of progress in this field; see McCauley 1997 for current controversies). Moreover, advances in the technology of game theory, such as Harsanyi's (1967, 1968a, b) innovations regarding games with incomplete information, provide a window through which clear links between rationality and reason can be seen. Put another way, the scientific advances of the last four decades give us an opportunity that Simon did not have when he forged the concept of bounded rationality – the opportunity to build Simon's bridge.

In the chapters that follow, we take the next step in building that bridge and toward offering more effective explanations of why people do what they do. Like Simon, we proceed with the belief that an exhaustive brain-behavior mapping is an unrealistic goal. However, such a mapping is unnecessary for *improving* our ability to explain why people

12

do what they do. Between a brain-behavior mapping and such widely used concepts as standard economic rationality and bounded rationality are other alternatives – explanations of behavior that incorporate well-established elements of reason and provide more precise inferences about why people do what they do. The chapters that follow represent the responses of scholars from different intellectual perspectives to the following challenge: help broad, scientific audiences understand elements of reason.

The chapters of the book are divided into two parts. The chapters in Part I describe *external* elements of reason. External elements of reason are incentive-altering forces outside the body, such as social norms and political institutions, that affect the collection and processing of information. In Part II, the focus switches to *internal* elements of reason. Internal elements of reason are brain-based factors inside the skin, such as affective states and prior knowledge, that have systematic effects on how individuals seek and process political information.

All chapters are unified in at least two respects. First, each chapter introduces a distinct element of reason. Second, each chapter challenges conventional wisdom. Common themes, such as "voters lack consistent attitudes" or "heuristics save the day," are eschewed in favor of more instructive explorations of the contours of human reason. As a result, each chapter points to a potentially important new direction in the study of political and economic behavior. Moreover, each chapter, in the way that it addresses the question at hand, reinforces our contention that advances in the social scientific explanation of reasoning and choice will depend less on whether people know what analysts thought they should have known and more on scientists' abilities to understand how people process the information they have.

Part I: External Elements of Reason

In the first three chapters of Part I, political institutions are the surprising source of elements of reason. We say surprising because the focus of the modern study of institutions has been on the way that institutions aggregate individual preferences into collective outcomes and on the way that institutions affect individuals' strategic considerations. In the chapters by Denzau and North, Lupia and McCubbins, and Sniderman, by contrast, the authors argue that institutions also affect what people do by structuring their choices and their beliefs.

In "Shared Mental Models: Ideologies and Institutions," Arthur Denzau and Douglass North argue that the "mental models that the mind creates and the institutions that individuals create are both essential to the way human beings structure their environment in their inter-

13

actions with it." They motivate their arguments for greater attention to mental models by carefully differentiating cases in which the standard economic definition of rationality has succeeded and failed. They then suggest that replacing "the black box of the 'rationality' assumption used in economics and rational choice models" is the key to better explanations of many social behaviors.

The replacement they suggest is a theory of choice that recognizes the central role of shared mental models. The idea is that many social interactions, including most of those that we would recognize as political, require collective action. They continue that the evolution of collective endeavors will be shaped by the mental models (e.g., conceptualizations of what causes what in the world) that people share. They conclude that the types of uncertainty that social actors face and the types of institutional environments in which they interact constrain the set of mental models upon which collective action can be based. Denzau and North thus provide substantive insight into the determinants of economic and political development, as well as a methodological guide for incorporating cognitive limits into formal theories of choice.

Arthur Lupia and Mathew D. McCubbins's "The Institutional Foundations of Political Competence" continues the demonstration of how institutions affect reasoning. Their chapter focuses on communication. They begin with the premise that many political decision makers cannot learn what they need to know from direct experience (e.g., most people cannot experience the consequences of passing NAFTA or social security reform until after they are passed). As a result, many political decision makers must learn what they can from the testimony of others (voters from politicians and the media, juries from witnesses, legislators from bureaucrats, and so on). This reality implies that the types of decisions that people make depend on whom they choose to believe.

Lupia and McCubbins show how political institutions affect "who believes whom" by identifying conditions under which political institutions clarify others' incentives. They then draw on case studies, experiments, and formal modeling results to show when and how institutions allow people to make more effective decisions about whom to believe. Like the approach of Denzau and North, theirs blends the logical rigor of formal theory with insights about learning from the cognitive sciences. Lupia and McCubbins's research clarifies and amends extant explanations of when and how voters, jurors, and legislators learn what they need to know.

In "Taking Sides: A Fixed Choice Theory of Political Reasoning," Paul M. Sniderman argues that institutions affect reasoning by fixing certain choices. His argument is quite innovative in that it builds an institution-centered argument about politics from a social psychological perspective

14

– the usual projection from that perspective is an attempt to explain political behavior by focusing exclusively on citizen characteristics. Passages, such as the following, reveal the extent to which Sniderman's argument departs from the social psychological research tradition from which he hails:

Initially, we asked how citizens effectively can simplify political choices so as to make them coherently. Putting the question this way led us, like virtually everyone else, to start the explanatory process by focusing on the characteristics of citizens. How much attention do they pay to politics? What do they know about it? What political ideas do they hold and how are they organized? Answer these questions, and we should be in a position to figure out how citizens make political choices. Or so it seemed then. Now, I am persuaded, we had the order of things wrong.

Throughout the chapter, Sniderman builds the foundations of a theoretical framework in which citizens "do not operate as decision makers in isolation from political institutions. If they are in a position to overcome their informational shortfalls by taking advantage of judgmental shortcuts, it is because public choices have been organized by political institutions in ways that lend themselves to these shortcuts." His argument clarifies the path to a way of thinking where psychological considerations of reason and the institutional structure of choice combine to produce more effective explanations of why people do what they do.

In the fourth through sixth chapters of Part I, public pressures generate external elements of reason. In the chapter by Frohlich and Oppenheimer, social norms are the public pressures that induce individuals to give up material gain for the benefit of anonymous strangers. For Iyengar and Valentino, campaign advertisements are the form of public pressure in question. In both chapters, clever experiments reveal systematic factors that determine how these public pressures affect reasoning and choice. In the chapter by Rahn, the source of pressure is public mood. Rahn uses data from several surveys to show how certain very public events (e.g., a war) lead entire populations to interpret new pieces of information in distinct ways.

The elements of reason in Norman Frohlich and Joe Oppenheimer's "How People Reason about Ethics" are social norms that induce self-interested individuals to engage in other-regarding behavior. Their chapter begins by alerting us to the fact that motives for altrustic behavior are hard to disentangle – selfish behavior and other-regarding behavior are often observationally equivalent. For example, if Joe helps Norm, it is hard to know whether Joe does it primarily for his own sake or primarily for the sake of Norm.

15

Because selfish and other-regarding behaviors are often difficult to disentangle, it can be hard to evaluate claims about the frequency or causes of other-regarding behavior. Frohlich and Oppenheimer have overcome some of these difficulties with a series of clever experiments. In their experiments, subjects have an opportunity to leave money for others. The donations are totally anonymous – the experiment is designed so that neither the experimenter nor the recipient can determine the source of any particular contribution. Their experiments reveal regular patterns in other-regarding behavior. In particular, they find that altruism is mediated by subjects' considerations of the unseen recipients' moral worthiness and by the personal costs of engaging in other-regarding behavior. Put another way, altruism in these experiments follows some simple, perhaps even economic, rules.

In Shanto Iyengar and Nicholas Valentino's "Who Says What: Source Credibility as a Mediator of Campaign Advertising," the source of public pressure is campaign advertisements, and the element of reason in question is the role of credibility in cue-based processing. A truth of modern politics is that some of the most important political communications are sent and received through the media. A particularly interesting class of such communications is the political advertisement – 30 to 60 seconds of carefully constructed prose and imagery. Although many ads are powerful, political advertisements vary in how effectively they build or reinforce support for the cause at hand.

Iyengar and Valentino offer a series of experiments that explain some of this variation. They focus on the relationship between a candidate's ideological background and his or her claims. Whereas successful candidates do not typically choose campaign themes on which they are not credible, the candidates in Iyengar and Valentino's experiments sometimes do. That is, they show that Democratic candidates suffer after airing advertisements on traditionally Republican issue areas and vice versa. The results are strong and emphasize how credibility is an essential part of effective campaigning in the television age.

Part I's final chapter is "Affect as Information: The Role of Public Mood in Political Reasoning." In it, Wendy Rahn challenges the common view that emotion only gets in the way of some proper or pure form of reason. She argues instead that certain types of emotional responses may actually help people process information more effectively. The element of reason upon which she focuses is public mood. Public mood is a type of time-dependent nationalism – a feeling that is good when your country wins a war or a major sporting event, a feeling that is bad following a national tragedy. Rahn then conducts several analyses in which she reveals a correspondence between variations in public mood and variations in opinion and behavior. Rahn also provides evidence that public

16

mood acts as a filter through which other important types of information are received and interpreted. Her research suggests that public mood can have a very large influence on political judgment, and that such an influence, rather than interfering with cognition, can actually aid it.

Part II: Internal Elements of Reason

In Part II, the focus is on elements of reason that are housed within the skin. The first three chapters of Part II are attempts to construct general theoretical frameworks for understanding how people process information.

In James Kuklinski and Paul Quirk's "Reconsidering the Rational Public: Cognition, Heuristics, and Mass Opinion," the elements of reason in question are *heuristics* – common judgmental shortcuts that people use to draw complicated inferences from simple environmental cues. Kuklinski and Quirk's investigation starts at the point where psychological and political science treatments of heuristics part from one another. Kuklinski and Quirk remind us that psychologists view heuristic decision making as leading to inferior decisions. Political scientists, by contrast, have come to view heuristic decision making as therapeutic – leading people to make the same decisions that they would have made if better informed. This division suggests a middle ground – a set of conditions under which heuristics aid decision making and a set of conditions under which heuristics lead people to make different decisions than they would have made had they possessed greater amounts of political information.

Kuklinski and Quirk then set out to clarify the role of heuristics in political reason by stating and testing hypotheses about the benefits and drawbacks of heuristics usage. They review and compare results from a series of innovative experiments about heuristics that are distinctly political. These experiments document the fallacies that heuristic decision making can engender in important policy contexts. Together, their argument and experiments provide valuable clarification of the surprising ways in which common heuristics affect political choices.

In Milton Lodge and Charles Taber's "Three Steps toward a Theory of Motivated Political Reasoning," our attention is directed away from heuristics and toward an element of reason known as affective charge. In this chapter, as in previous ones, Lodge and Taber use theory and experiments to clarify how a common aspect of human cognition affects political choices.

Lodge and Taber's efforts extend exciting lines of research in psychology and cognitive science concerning the deep connections between cognition and affect. Whereas cognition and affect were once viewed as

17

polar opposites in the context of understanding reason, an increasingly common view is that each is necessary for the proper functioning of the other. Lodge and Taber's research demonstrates this point in political contexts. They show how three factors ("hot cognition" – the hypothesis that people store feelings as well as facts about past events; "on-line processing" – the hypothesis that the interpretation of new information is affected by information or feelings that they already have; and a person's affective state at the time of processing) combine to lead people to interpret new pieces of political information in nonobvious ways. They show how feelings become information and are treated in the reasoning process as if they were objective facts.

Lodge and Taber's findings reinforce and extend the implications of the relationship between affect and reasoning suggested in the chapter by Wendy Rahn. Like Rahn's findings, those of Lodge and Taber suggest that affect and cognition are inextricably linked. Their unique contribution, however, is to offer us direct and controlled experimental observations of this link. In particular, we see affect leading people to have identifiable biases in the types of political information to which they will attend.

In Part II's third chapter, Samuel L. Popkin and Michael Dimock examine how prior knowledge affects the processing of new information. In "Knowledge, Trust, and International Reasoning," Popkin and Dimock show how the degree to which people's trust in government and in others corresponds to their interpretations of foreign affairs issues. They use surveys from the American National Election Study and the Times-Mirror polling organization to show that people who neither understand nor trust their own government are also suspicious of foreigners, apprehensive about international trade, and isolationist. These surveys form the basis for their ultimate, and more general, conclusion – that what people know about the political process and about political institutions have systematic effects on how they reason about new events in the political world. They conclude that prior knowledge of key political concepts provides people with a life raft and a compass with which they can survive and better navigate the turbulent and often complex seas of political debate.

The closing chapters of Part II draw our attention to the limits on the types of associations that political decision makers can and do draw. Knowing these limits is critical to many questions in political science. For example, understanding the conditions under which some political actors can get others to listen to and believe that an observable social phenomenon is associated with an unobservable political process is the key to winning elections and public policy debates. To supply us with elements of reason relevant to this question, we recruited a scholar with

18

a background in social psychology, Philip E. Tetlock, and a scholar with a background in cognitive science, Mark Turner.

The starting point of Philip E. Tetlock's "Coping with Trade-Offs: Psychological Constraints and Political Implications" is that political interactions involve trade-offs. Economists typically treat people as able to engage in trade-off reasoning. Tetlock disagrees, arguing that "people are reluctant decision makers who do their damnedest to minimize cognitive effort, emotional dissonance, and moral ansgt by denying that important values conflict." So when faced with little motivation to make trade-offs, people refuse to do so. However, when they are motivated, Tetlock concludes that "[p]eople are best thought of not as cognitive misers but as cognitive managers who deploy mental resources strategically as a function of the perceived importance and tractability of the problem." Tetlock's chapter provides important clues about why people retain certain "core values," even in the face of evidence that the rationale for holding such values implies painful trade-offs.

The penultimate chapter of Part II is written by Mark Turner. Turner is a central figure in one of the most fundamental debates in cognitive science – the dynamics of concept formation and change. This debate matters to politics because the outcomes of familiar processes, such as persuasion, agenda setting, framing, and priming, depend on the conditions under which concepts do and do not change.

Where the standard view of cognitive operation once represented the mind as an inflexible serial calculator, Mark Turner's "Backstage Cognition in Reason and Choice" draws extensively from the modern view of the mind as a highly adaptable organ capable of drawing effective and complex inferences from relatively simple environmental stimuli. His argument reveals the often-obscure dynamics that differentiate persuasive claims from nonpersuasive ones. He considers, for example, the counterfactual claim that Hitler's influence would have been different if Churchill had been prime minister of England in 1938 instead of Chamberlain. He then shows us what an audience must know for such a claim to be effective in debate, as well as the situations in which analogous claims would be totally ineffective. While students of politics are quick to explain the effectiveness of rhetorical strategies by focusing exclusively on effective strategies, Turner's method of inference provides the foundation for a more systematic and useful approach.

CONCLUSION

The future success of political science depends on our discipline's ability to explain why people do what they do in political contexts. The chapters in *Elements of Reason* are the result of an intellectual challenge that

19

we offered to scholars working in a number of academic disciplines. We challenged each contributor to help us understand and expand on why people do what they do. The product, though not a tightly bound theory of human behavior, clarifies the connections among exciting new ideas in several scientific disciplines.

Simon's bridge is worth building, but it will take a long time to build. Working with the contributors to *Elements of Reason* has given each of us, the editors, a clearer idea of how to contribute to its construction. We hope that it does the same for you.

20