

Chapter 1

Competing Models of Decision Making

INTRODUCTION

Few decision-making environments are fraught with greater risk than the anarchy of the international system. Mistaken foreign policy holds the potential for disaster, and is alone justification for the enormous time spent by students of international politics on foreign policy choice. Traditionally, scholars have assumed that leaders deploy rational decision rules in pursuit of state goals. However, accumulating empirical evidence from laboratory experimentation suggests that individuals systematically violate the behavioral expectations of rationality. As a result, while many still defend the assumption of rationality as the proper starting point for the scientific examination of interstate behavior, there is also a growing call for new models of international politics based upon the actual capacities of decision makers.

Just as anarchy places state survival at risk, the empirical findings from cognitive psychology similarly threaten traditional international relations theory. Research demonstrates that human choice is as much a result of consistent heuristics and biases as it is a function of calculated costs and benefits.¹ Prospect theory is one branch of this larger cognitive psychological investigation into the structure of human choice. Indeed, it is the prominent finding and currently stands as the “leading alternative to expected utility as a theory of choice under conditions of risk” (Levy 1996, 179). In direct contrast to the predictions of rational choice, prospect theory finds that decision makers do not maximize objective outcomes. Instead, individuals consistently overweight

losses relative to gains and are risk averse when confronted with choices between gains while risk acceptant when confronted with losses.

The fact that actual decision makers choose as the research on prospect theory suggests and not as our theories of international politics assume, while increasingly recognized, has not yet forced a thorough reconsideration of core theoretical propositions in the field. The purpose behind this book is to begin such a review by offering a new set of theoretical propositions about international politics securely anchored to empirical research in cognitive psychology.

Support for such an approach is growing. Its wellspring is the realization that rationalist theory does not capture well the actual behavior of actors making political choices. This view has now penetrated into the heart of the discipline. For example, Elinor Ostrom's presidential address to the American Political Science Association (1998) challenged political science to develop a behavioral theory of collective action. Theories of politics, according to Ostrom, should be "based on models of the individual consistent with empirical evidence about how individuals make decisions in social-dilemma situations" (1). The application of cognitive principles to the study of international politics is consistent with Ostrom's general call to the discipline of political science. The most productive theories of politics will be those securely anchored to the actual characteristics of human choice.

Ultimately, social science aspires to be relevant. In political science, the belief that we knew too little about the mechanisms of political choice to offer useful counsel to policymakers was largely responsible for the field's alienation from actual political practice. For many in the discipline, this suggested the need to step back and systematize the examination of politics under the framework of science, study the social world, and then return to political leaders with a report of findings. Proponents of rational choice theory continue to argue that their approach promises the best chance of producing the kind of disciplinary consensus enjoyed, for example, by economics. As with economic behavior, they maintain that rational choice is therefore the most efficient path to accumulating useful knowledge about political behavior because rationality assumptions easily and efficiently lend themselves to the construction of deductive and testable theory.²

However, the field from which rational models were imported to political science is itself rapidly changing. In consecutive years (2001, 2002), the Nobel Prize for economics has gone to individuals for their work in behavioral economics. George Akerlof received the award by demonstrating that "if there is any subject in economics which should be behavioral, it is macroeconomics" (Akerlof 2002, 427-428). Daniel Kahneman helped conceive the field of behavioral decision theory which now stands as an empirically grounded alternative to standard rationalist assumptions.³ Behavioral economists are no less committed to the scientific study of economic behavior than their traditional

counterparts. Indeed, their purpose is to develop models firmly grounded in the actual capacities of human decision making, thus improving our understanding of economic behavior.

The comparative strength of rational choice over psychological approaches as a tool for international analysis has long been its utility in the construction of an elaborate and sophisticated set of interrelated theoretical propositions about the dynamics of international relations that enjoy considerable empirical support. These include but are not limited to deterrence, bargaining, cooperation, economic behavior, and the deployment of power. By contrast, psychological explanations have not generated a similarly integrated set of theorems about international politics that might rival rational choice. While a considerable body of research on prospect theory outside political science exists, scholars studying international politics have only recently taken it up. Attempts to resolve the so-called "cognitive-rational debate" in international relations scholarship are therefore premature (e.g., Geva and Minz 1997). Proponents of rational choice can correctly proclaim the approach superior simply because no viable alternative exists (e.g., Morrow 1997).

None of this implies that all rational models are incorrect. It does suggest, however, that contemporary cognitive psychology can also serve as the cornerstone for the systematic examination of political behavior. Stated directly, we now know enough about the actual process of decision making to attempt theories of international politics based upon the real capacities of decision makers. Indeed, the limited but growing body of research using prospect theory to explain state behavior already describes the nascent contours of an alternative cognitive framework. The motivation for this study is to build upon these existing insights and construct a new set of interconnected propositions organized around prospect theory so that a systematic comparison of the two perspectives becomes possible. This is a first step: no single book could stand as a complete substitute for the impressive set of propositions already constructed under rational choice. Instead, the intent is to demonstrate that it is possible, with an empirically established model of decision making, to connect the various subfields of international relations in a way similar to that now standing as the highest achievement of rationalist theory.

COGNITION AND INTERNATIONAL RELATIONS THEORY

Previous psychological explanations for state behavior often relied upon the personality traits of decision makers, upon the information flows unique to the decision set, or upon a unique group dynamic in the decision setting. Despite attempts to introduce deductive rigor to psychological studies, many continue to rely heavily upon these or similar contextually unique variables.⁴ Rational

choice thus enjoys a considerable advantage in terms of its capacity to produce deductive explanations. Similarly, contemporary developments in constructivist theory focus upon the socially constituted identity and interests of states. Such efforts often lack an adequate theory of human agency, frequently reducing actors entirely to their social milieu (Checkel 1998).⁵ Rational choice, firmly grounded in human agency, is thus better positioned to produce theories that provide policymakers with useful guidelines for making intelligent choices in a strategic environment.

Importantly, many of these past deficiencies no longer apply to contemporary cognitive models. The promise of prospect theory lies in the fact that it permits the construction of deductive theory while maintaining a clear focus on human agency. It thus co-opts the primary benefit of rational models while genuinely depicting the process of human choice.

However, the degree to which prospect theory penetrates into the mainstream of international relations theory will rest upon its empirical power. Ultimately, a portion of the ideas developed here may fail to hold up under empirical scrutiny. Nonetheless, the possibility that some of the logical paths that prospect theory may take us down will lead to empirical dead ends is not a reason to stop exploring. At this point, we do not know how many paths there are, let alone which ones will prove most fruitful. Judgments about the utility of prospect theory are therefore impossible without first systematically exploring what the framework has to say about the practice of international relations. By developing the theoretical implications of prospect theory, students of international politics will be able to select those most likely to produce important empirical insights.

Given the number of extensions and modifications to classic rationality, it is best depicted as a family of theories rather than a single unified model of choice (Schoemaker 1982). The definition of rationality used here is that of classic expected utility theory, first developed by von Neumann and Morgenstern, wherein actors evaluate alternatives and select a maximizing strategy (von Neumann and Morgenstern 1947). Prospect theory is similar to rational choice in that decisions involve calculation and are goal oriented. It is therefore distinct from irrational decision making. By "irrational" I mean making decisions based upon, for example, astrology, good-luck charms, habit, and other mechanisms that clearly provide little or no useful information to the decision maker (Dawes 1988, chap. 1). Because decisions under prospect theory are structured, stable, and predictable, there is a tendency to view it simply as an extension of rational choice. However, such a characterization undermines an essential difference between the two approaches. As we shall see, under prospect theory individuals often do not maximize objective outcomes, even with perfect information.

The central role of classic rationality in contemporary international relations is obvious. It is the explicit model of choice in theories like modern realism, deterrence politics, collective action, political economy, and foreign policy. True rationality, however, is often beyond the capacity of actual decision makers. Time constraints, huge amounts of information, and uncertainty, combined with cognitive limitations, make it simply impossible for foreign policy actors to select a universally maximizing choice. One common response to this challenge is to argue that classic rationality can be replaced with a “satisficing” or “bounded” conception that more accurately depicts actual decision making while retaining the principal benefits of conventional rational choice models—namely their parsimony and predictive breadth. However, scholars in international relations have not energetically embraced this position. Surprisingly little research deliberately adopts a cognitively limited view of decision makers, and the explicit and implicit use of classic rationality by far outweighs that which does exist.

Instead, the field gravitated to a second position. All theories are abstractions from a complex reality. What is important is not the truth of the assumptions embedded in the theory but the predictive power of the resultant model (e.g., Waltz 1990). However, the presumed predictive power of rational choice explanations is itself increasingly questioned. Herbert Simon first noted that much of the explanatory work of rational models comes not from the “Herculean” assumption that people strictly maximize, but from a rich set of auxiliary claims about what people want and how they view the world (Simon 1983). Explanation comes from the detailed contextual data that accompany rational analysis, not from the assumption of rationality itself. Jervis (1978), in a review of early game theoretic applications to interstate behavior, concludes similarly. Emphasizing rationality in the construction of international relations theory draws our attention “away from the areas that contain much of the explanatory ‘action’ in which we are interested” (325).

The challenge posed by contemporary cognitive models is even more fundamental. Behavioral models of choice—like prospect theory—illustrate why it is impractical to expect that testing hypotheses derived from theories whose fundamental assumptions we know to be false will advance our understanding of political behavior. Simply stated, prediction and understanding are not the same. An imaginary farmer in pre-Copernican times could do quite well in predicting the timing of the sunrise and sunset, as well as the seasons, all from a view of the solar system that had the sun revolving around the earth. The farmer’s model of the solar system would be predictive, but it would also be incorrect. More importantly, much would be concealed from the farmer, and this model is really only predictive in the narrowest sense. It tells us nothing about the actual relationship between planets in the solar

system, and thus it would be useless for more complicated tasks like sending a rocket to the moon. The analogy hits close to its mark in the field of behavioral economics, where many now understand that “the uniformities in human choice behavior which lie behind market behavior may result from principles which are of a completely different sort from those generally accepted” (Grether and Plott, 1979, 623).

For scholars in the field of international relations, the challenge of cognitive psychology is similar. Rather than debate whether or not a particular assumption is useful for theory construction, we should ask ourselves if it still makes sense to continue with models that often contain known and mistaken representations about real-world actors. The issue becomes more compelling given that we have at our disposal models from cognitive psychology that are in fact accurate descriptions of the actual process of decision making.

PROSPECT THEORY

As noted above, early psychological approaches positioned themselves as alternatives to rational choice in order to offer a more accurate portrayal of real-world decision making. However, these descriptively rich models were heavily dependent upon contextual factors, complicating the construction of deductive theory. Outside political science, scholars studying decision making also concluded that the assumption of rationality could not be reconciled with mounting empirical evidence about actual human choice and developed prospect theory as an alternative.⁶ Results under prospect theory demonstrate that individuals systematically violate the prescriptions of classic rationality, and this places two pillars of rational choice in dispute. First, individuals assess the desirability of prospects against a reference point, rather than against their net asset position. Second, actors do not treat choices between gains and losses identically.

Prospect theory builds upon the observation that individuals evaluate choices against a value function with specific characteristics. First, individuals experience diminishing sensitivity to increasing gains or losses. For example, an initial windfall of \$1,000 is more highly valued than is the same \$1,000 when added on top of an initial gain of \$10,000. Second, the value function for losses is steeper than for gains, as individuals feel the sting of loss more acutely than an equivalent gain. This steeper losses curve reflects the “observation that a loss has a greater subjective effect than an equivalent gain” (Kahneman and Tversky 1982, 166). Finally, decision makers evaluate each choice anew and against a neutral reference point. Combined, these characteristics suggest decision makers evaluate outcomes using two value functions—one for gains and one for losses—rather than a single utility function as proposed under conventional rational choice.

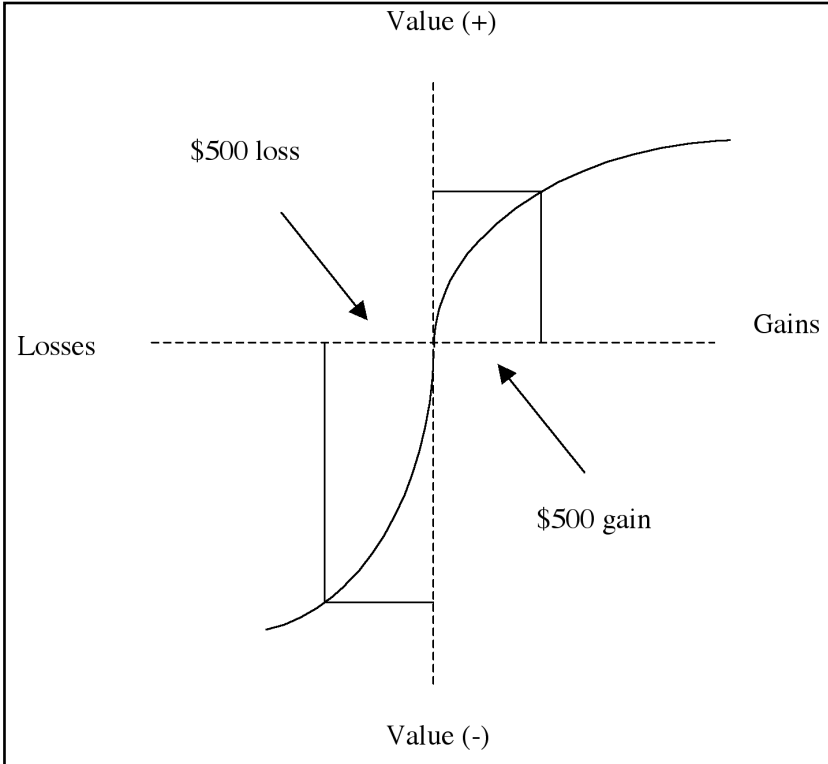


FIGURE 1.1. Example s-shaped value function under prospect theory.

Figure 1.1 describes these functions. Here, the graph's origin represents the reference point for evaluating prospects as gains or losses. Most often, this reference point represents status quo conditions, though this is not theoretically necessary.⁷ The s-shaped form of the value function also captures the diminishing relationship between objective gains or losses with subjective value. A central distinction between prospect theory and rational choice lies in this asymmetrical relationship between gains and losses. Expected utility theory holds that decision makers appraise the desirability of outcomes against their net asset position, and therefore that they evaluate both gains and losses against a single utility function. This is not true under prospect theory. Notice also that the function for losses is steeper than for gains, reflecting the observation that losses hurt more than gains feel good.

Prospect theory also distinguishes two stages in the decision-making process. The first is editing, in which decision makers assess outcomes and place them in a gains or losses frame. The second stage involves an evaluation

of prospects, wherein individuals select the prospect of the highest value.⁸ The initial editing stage is crucial under prospect theory because it powerfully influences the subsequent evaluation of outcomes. The importance of this influence can be illustrated by example (Tversky and Kahneman 1981, 453). Imagine the outbreak of a disease that, if left untreated, is expected to kill 600 people. Consider two possible abatement strategies.

Strategy 1:

Program A: 200 people will be saved.

Program B: 1/3 probability that 600 people will be saved;
2/3 probability that no one will be saved.

Strategy 2

Program C: 400 people will die.

Program D: 1/3 probability that no one will die;
2/3 probability that 600 people will die.

The two choice sets are identical. In each, the certain prospect saves 200 people from the disease, while the gamble contains an expected outcome of 400 deaths. The only difference is that the language in the first set of strategies describes the choices in terms of the number of lives saved, while the second set describes the same choices in terms of the number of lives lost. Nonetheless, this difference in the frame systematically influences individual assessments about which strategy is desirable.⁹ Results show that the majority of individuals consistently choose Program A in the first problem set, but opt for Program D in the second. The finding is quite robust. Studies deliberately designed to refute it have reconfirmed the basic result (Grether and Plott 1979). Subsequent research has also confirmed these findings outside the laboratory in a wide variety of real-world settings.¹⁰

Such preference reversal violates the principle of invariance central to classic rationality. Variations in the form of presentation that have no impact upon actual outcomes should not affect one's preferences. Different presentations of the same problem should produce the same choice. Note also that these findings break with the rational model in that the decisional determinant is not the expected outcome. It is instead how actors perceived their options relative to the status quo. Indeed, in an important sense, objective outcomes become unimportant because "the same decision can be framed in several different ways and different frames lead to different decisions" (Kahneman and Tversky 1982, 165).

Prospect theory thus finds that individuals tend to be risk averse—defined as a preference for a riskless prospect over a gamble of equal or greater value—in the domain of gains and risk acceptant—defined as a preference for a

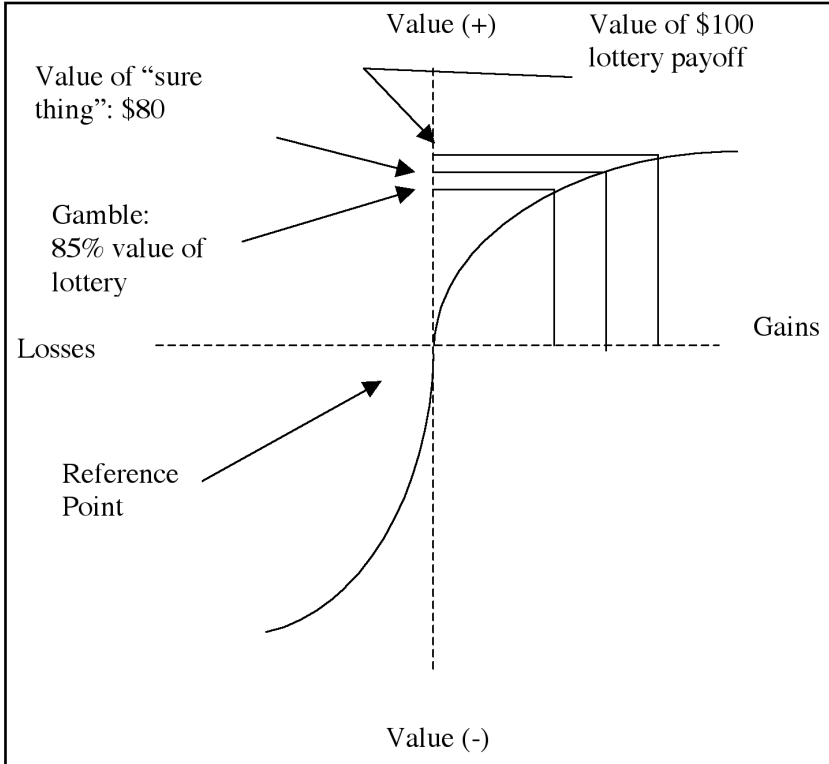


FIGURE 1.2. Example lottery imposed over s-shaped value function under prospect theory

gamble over a riskless prospect of equal or greater value—in the domain of losses. This means that individuals often “forgo the option that offers the highest monetary expectation” (Kahneman and Tversky 1982, 160). Actors do not maximize objective outcomes. Figure 1.2 plots a set of gains and losses for a hypothetical lottery over the s-shaped function. In the gains quadrant, an individual would prefer a sure gain of \$80 to an 85 percent chance to win \$100. In the losses quadrant, the same individual would prefer a gamble offering an 85 percent chance of losing \$100 to a certain loss of \$80.

Finally, notice that the value function for losses is steeper than for gains. In figure 1.1, the subjective pain of a \$500 loss is greater than the benefit of an equal \$500 gain. The result of this is loss aversion, wherein actors pursue costly strategies intended to avoid loss beyond a rational expectation of benefits. This finding is consistent with an observed endowment effect, which “enhances not

the desirability of what one owns, but the pain of forsaking it" (Nincic 1997, 99). The clear tendency here is to place a greater value on that already possessed compared to equivalent goods not yet acquired.

ASSESSMENT

Prospect theory models the subjectivity of actual human choice. The important point here is that our theories of international relations lag behind our knowledge of human decision making. For example, current models of military deterrence simply do not acknowledge risk-acceptant nonmaximizing behavior, despite the fact that this is sometimes how decision makers act. Given modern military technology, the importance of accurately predicting such choices is obvious. Under prospect theory, the deployment of deterrence threats can have several unintended consequences not predicted by rational choice. Credible threats might generate a losses frame for the target government, pushing it into risky behavior. Such behavior might include abandoning negotiations when the threatening state was simply attempting to secure a better deal. Similarly, certain deterrence threats may induce risk-acceptant aggression even when there is a low probability of success. This is exactly the sort of behavior that deterrence is designed to stop. The implications of loss aversion are also compelling. For example, from a rationalist perspective, it distorts subjective assessments attached to the value of concessions demanded by an adversary in negotiations, making cooperation more difficult than traditional theory predicts (Kristensen 1997). Loss aversion affects market transactions, resulting in so-called market sickness whereby social welfare is reduced (Borges 1998). All of this will be explored in detail later. The point here is that our understanding of decision making under risk is quite different with prospect theory as the model of state choice.

The ability of rational choice theory to pull together disparate aspects of international politics into a coherent whole lies in the assertion of a universal state decision rule, one that produces consistent and stable choice across space and time. If prospect theory is to stand as an alternative to rationality, it must also assert its viability across contexts. The empirical research conducted thus far suggests that this is the case. In the laboratory, the predictions under prospect theory manifest in an array of choice problems, ranging from the selection of alternative public policies to the decision to purchase a lottery ticket. Outside the laboratory, studies find support in the decisions of individuals considering everything from purchasing flood insurance to supporting military intervention.

While its behavioral expectations differ from rational choice, decisions under prospect theory remain stable and predictable. Deviations from rati-

ality are not trivial exceptions but are themselves important phenomena for which an explanation is possible. It remains an open question as to whether prospect theory holds the potential for an independent framework for state behavior that is superior, supplementary, or inferior to existing rational choice theory. The issue cannot be resolved until scholars systematically compare the two approaches. The first step toward this end is to integrate prospect theory into some of the existing frameworks in the study of international politics, and contrast the results against those that already exist under rational choice.

There are then several tasks for this book. The first is to pull together some of the existing research in the study of international politics that utilizes prospect theory. This establishes the usefulness of the approach and lays the foundation for the subsequent analysis of contemporary international relations theory. The second task is to suggest new applications for prospect theory. This is my primary purpose, and it will involve both revisiting extant theories as well as developing new models of state behavior. Some bodies of rationalist theory remain unaffected by the introduction of prospect theory, others require modest revision, and others still require a complete reworking. Such an analysis cannot be exhaustive. Still, the range of subjects covered in the following chapters is enough to support the contention that prospect theory represents a viable alternative for theory construction in international politics. Because the purpose here is comparison, the analysis highlights the differences between the two perspectives. The theories selected for discussion are those that produce sharp contrasts between prospect theory and rational choice, while the bodies of theory in which prospect theory and rational choice predict the same behavior are de-emphasized. A third task is to conduct an initial empirical assessment of the new frameworks produced by prospect theory. The case for a cognitive research program is strengthened by the degree to which the new models made possible by prospect theory themselves produce better explanations of state behavior. The evidence from the Montreal Protocol presented in chapters 6 and 7 establishes that many of the propositions developed under prospect theory enjoy empirical support.

CHAPTER SUMMARY

Chapter 2 explores several of the logical and methodological issues that emerge with the adoption of prospect theory as a cornerstone for political analysis. While at first glance there appear to be significant hurdles to constructing an integrated cognitive framework, these concerns are in fact empirical questions that will be resolved as research progresses. I then offer a selective discussion of the growing body of existing research that deploys prospect theory in an analysis of international politics. The review demonstrates that prospect theory has

made an initial contribution to international relations theory by opening a new set of important theoretical and empirical concerns. The next step in the cognitive enterprise is to construct a set of interconnected propositions about international politics, much like that which already exists under rational choice.

The following three chapters attempt to refashion traditional international relations theory and unfold roughly in the same way. Each chapter initially presents the logic and behavioral expectations of a rational model, with special attention placed upon that aspect to which I think prospect theory might apply. Each then modifies or extends the analysis by integrating prospect theory. Finally, the significance of such modifications is assessed.

Chapter 3 reanalyzes power. Most importantly, prospect theory permits a new definition for the use of power: power as the manipulation of the decisional frame. The deployment of power, because it can alter the decision frame in the target state, often produces unintended consequences that do not reveal themselves under rational choice. Among these is that the application of threats predictably produces unwanted changes in target behavior. Traditional theories suggest that states confronted with power alter their preferences by scaling back their goals (for example, less territory or smaller economic gains). Prospect theory goes beyond this to demonstrate that states do not just scale back existing goals, but that, when confronted by power, states may also adopt new goals and strategies that are not predicted by rational choice. Consequently, rational choice and prospect theory disagree over the kind of military and economic threats that are likely to be productive and those that are likely fail.

Chapter 4 focuses upon interstate cooperation. It combines prospect theory with existing concepts from game theory and collective action to present an integrated framework for collaborative behavior that stands in contrast to the predictions of rational choice. Specifically, states in a gains frame will decline cooperation even when the expected outcome is greater than non-cooperation, so long as cooperation also carries with it some risk of loss. By contrast, states in a losses frame will cooperate even when the expected losses from cooperation are greater than noncooperation, so long as cooperation also provides some small chance of improvement. Prospect theory suggests then that cooperation is both easier and more difficult than rational choice predicts.

Chapter 5 explores the constitution of state goals. Rational choice treats preferences as exogenous—a tradition followed in most international relations theory. This chapter takes up the task of explaining goals themselves, so that models of state behavior treat preferences endogenously. One result of the deployment of rational choice was the devolution of theory into competing camps. This bifurcation is a direct cause of the “gains debate” between realists and liberals that occupied much attention during the 1990s. The debate was largely a theoretical artifact, deriving from a particular application of rational

choice and ultimately subsided without a satisfactory resolution. After a brief discussion of the origins of the debate, a resolution grounded in prospect theory is developed and discussed. Prospect theory not only accurately describes the strategies used by governments to secure realist and liberal goals; it also sheds light on the origins of the goals themselves. In addition, the new framework avoids the common pitfall, best exemplified in the gains debate, of developing unnecessarily antagonistic theoretical frameworks for understanding international politics.

Chapters 6 and 7 offer an initial empirical investigation of some of the models produced by prospect theory. These chapters examine the Montreal Protocol, a landmark environmental agreement designed to ban the production and use of CFCs in order to save the earth's protective ozone layer. As an initial probe, some of the propositions developed in previous chapters will remain unexamined in the Montreal case. Still, the nature of these negotiations permits simultaneous investigation into several of the propositions developed here, including the role of power and threats in chapter 3, the conditions conducive to cooperation discussed in chapter 4, and the changing nature of state goals discussed in chapter 5.

Chapter 6 explores the behavior of the European Community. Consistent with the argument developed in earlier chapters, it was not until the onset of a losses frame that the EC gambled on a negotiated settlement and attempted to secure advantages in relative position through cooperation. Prior to the negotiations, the EC enjoyed both relative and absolute gains in the production and sale of CFCs. Realism predicts that EC policy would attempt to protect recent relative gains in the international CFC trade and solidify its newfound position as the dominant international supplier to the global market. Liberalism predicts protection of absolute gains in the form of recently increased production levels. While these are not necessarily exclusive goals, the EC was not able to pursue them simultaneously. We would expect therefore a consistent policy from the EC—that it would choose either absolute gains or relative position. However, EC policy was not consistent and instead shifted from protection of production levels to the pursuit of relative gains. Prospect theory predicts these changes in policy by establishing first that the decision frame for the EC switched from gains to losses, and second that with this change in the frame EC policy shifted from absolute gains pursuit and risk avoidance to relative gains pursuit and risk acceptance.

Chapter 7 examines U.S. participation in the Montreal Protocol. The analysis first documents the U.S. decision to ban unilaterally CFC aerosol propellants. Initially the issue lacked a decision frame, as U.S. policymakers possessed a technical rather than economic definition of the problem. During this period, the United States blocked efforts to complete an international treaty. With the emergence of a losses frame for ozone politics in the United States,

decision makers adopted a new strategy and American policy breaks sharply to embrace risk acceptance, cooperation, and relative gains pursuit. A key aspect distinguishing U.S. and European behavior is the different political process that ultimately defined the decision frame in each case. Changes in the international political topography imposed a new frame upon the member states of the European Community. Such changes were thus external to the EC, originating in the international system. For the United States, shifting domestic coalitions in the political debate over an appropriate regulatory response to ozone depletion was primarily responsible for the creation of a decision frame.

Chapter 8 concludes the analysis of the Montreal Protocol and suggests that prospect theory meets the challenge placed before it by rational choice. Specifically, it is possible to connect the various subfields of international relations with an empirically established model of decision making in a way similar to that standing in international relations theory as the highest achievement of rational choice. Additionally, as chapters 6 and 7 demonstrate, prospect theory also possesses considerable potential to shed empirical light on heretofore puzzling state behavior. Finally, I offer some comments on expanding this approach to international relations by integrating additional findings from cognitive psychology into the framework offered here.