Model Building With Prospect Theory: A Cognitive Approach to International Relations

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Despite the growing call for new models of politics grounded in the capacities of real-world decision-makers, much international relations theory still incorporates rationalist assumptions. Scholars defend such assumptions as the best way to produce parsimonious theoretical structures. Recent attempts to deploy prospect theory in the study of international politics are consistent with the call for empirically grounded models of political behavior. However, past attempts have often emphasized individualized comparisons of prospect theory with rational choice at the expense of building deductive theory. The analysis here demonstrates that prospect theory can produce deductive models for empirical comparison with those already manufactured under rational choice. The result is a new set of propositions concerning international politics securely anchored to the actual capacities of human actors.

KEY WORDS: prospect theory, international relations, model building, cooperation, conflict

For more than two decades, cognitive psychologists have compiled decision heuristics that powerfully and predictably influence human choice. Virtually all of this research runs counter to the assumption, common in theories of international relations, that human agents are rational maximizers. Instead, findings suggest that choices are as much a function of consistent heuristics and biases as they are the result of calculated costs and benefits (see, e.g., Bell, Raffa, & Tversky, 1988; Plous, 1993). Prospect theory is part of this larger investigation into the actual structure of human choice. It is perhaps the most celebrated result of this research and now stands as a leading alternative to classic rationality as an explanation for choice under conditions of risk. Findings suggest that decision-makers do not always maximize objective outcomes, that they are apt to overvalue losses compared to equivalent gains, and that they tend to be risk-averse in the domain of gains and risk-acceptant in the domain of losses. Considerable research applying prospect
theory outside political science exists, and scholars studying international politics have recently taken it up.

One might expect that the findings from cognitive psychology would threaten those bodies of theory in international relations that assume rational agents. However, the fact that actors choose as the research on prospect theory suggests and not as our theories of politics assume, while increasingly recognized, has not yet forced a review of core issues in the study of international politics. Instead, despite increasing criticism (e.g., Walt, 1999), much of the field is moving toward ever-increasing levels of formalization, propelled by the powerful deductive logics that are possible once we assume that decision-makers are rational. The compelling evidence from empirical studies of decision-making suggests, however, that the strength of rational choice as a tool for international analysis lies not in its accurate portrayal of real-world decisions per se, but rather in its utility for constructing an impressive set of related theoretical propositions about the dynamics of international politics. Although prospect theory has not yet generated a similarly integrated set of theorems, cautious proponents correctly note that the potential for an “interconnected set of propositions about international politics” exists (e.g., Levy, 1997, p. 107).

Early research grounded in psychological principles explored topics such as misperception (Jervis, 1968), operational codes (George, 1969), and crisis decision-making (Holsti, 1971). Contemporary research examines issues such as learning and foreign policy (Levy, 1994), domestic perceptions of international threat (Sulfaro & Crisp Jr, 1997), and trust (Larson, 1997). However, while such research has added considerably to our understanding of international politics, little of it builds directly on laboratory findings. This is an important omission, as such findings hold the potential to ground theories of international politics firmly in empirically established models of individual choice.

Indeed, the existing and growing disquiet with rational choice stems in part from the realization that strict maximization assumptions do not adequately capture the actual behavior of individuals making political or personal choices. This concern has made its way to the heart of the discipline. For example, Elinor Ostrom’s presidential address to the American Political Science Association challenged the discipline to develop behavioral theories of collective action. According to Ostrom, political research must anchor theories of politics to assumptions about individual choice that are “consistent with empirical evidence about how individuals make decisions in social-dilemma situations” (Ostrom, 1998, p. 1). The application of findings from prospect theory is consistent with Ostrom’s broader call to the discipline. The most productive theories of politics will be those built on the actual characteristics of human choice.

The goal of this article is to advance the theoretical underpinnings for a theory of international politics grounded in prospect theory. We now know enough about the process of decision-making to attempt theories of international behavior securely anchored to the real capacities of political actors. Classic rationality has
demonstrated a capacity to produce deductively parsimonious models of politics. However, alternatives like prospect theory are also parsimonious. The systematic study of international politics therefore no longer requires empirically dubious assumptions about human decision-making. Ultimately, the degree to which prospect theory penetrates mainstream international relations theory will depend on the level of empirical support. Given that the focus here is building new theory, further empirical work will be necessary to determine how well the propositions generated by prospect theory hold up against the predictions from rational choice.

Prospect Theory Summarized

The cornerstone of prospect theory lies in the observation that there is a diminishing return to increasing gains and losses. For example, individuals place greater value on a windfall of $1,000 compared to the same $1,000 when added atop an initial gain of $10,000. That is, the value function for individuals considering gains is concave, representing the curvilinear relationship between increasing gains and subjective value. A similar relationship exists for losses such that the value function for losses is convex. Figure 1 displays the resultant S-shaped value function. The graph’s origin represents the reference point against which individuals evaluate gains or losses. Reference points often represent the status quo, although they can also reflect one’s aspirations or some past condition regarded as normal. Most versions of expected utility theory hold that decision-makers evaluate the desirability of outcomes against their net asset position and have a single

![Figure 1. Subjective utility functions under prospect theory.](image-url)
function against which they assess both gains and losses. By contrast, under prospect theory, decision-makers evaluate each choice anew and against a neutral reference point (Kahneman & Tversky, 1979; Thaler, 1980).

Prospect theory distinguishes two stages in the decision-making process. The first involves framing, in which outcomes are placed in the domain of gains or losses. The second stage involves an evaluation of prospects. The initial editing stage is crucial under prospect theory because it powerfully influences the subsequent evaluation of outcomes. An example choice problem illustrates the essentials of framing (Tversky & Kahneman, 1981, p. 453). Imagine the outbreak of a disease expected to kill 600 people, along with two possible abatement strategies.

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.

Given these choices, the majority of individuals consistently choose Program A. Now consider an identical choice set characterized by the number of lives lost. Here, most individuals select Program D.

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, yet they produce different choices simply because of the way in which they are presented. This violates the principle of invariance central to classic rationality. Variations in the form of presentation that have no impact on actual outcomes should not affect one’s preferences. Different presentations of the same problem should, therefore, produce the same choice.

The S-shaped value function also influences dispositions toward risk. This is important, because such propensities often produce choices that do not maximize objective outcomes. That is, individuals “forgo the option that offers the highest monetary expectation” (Kahneman & Tversky, 1982, p. 160). For example, Figure 2 plots a set of hypothetical choices over the S-shaped function in the domain of gains. Here, an individual would prefer a sure gain of $80 over an 85% chance to win $100. In the losses quadrant, the same individual would prefer a gamble offering an 85% chance of losing $100 to a certain loss of $80. Risk aversion, defined as a preference for a riskless prospect over a gamble of equal or greater value, is consistently observed in the domain of gains. Risk acceptance, defined as a preference for a gamble over a riskless prospect of equal or greater value, is observed in the domain of losses. Most versions of expected utility theory assume that individuals evaluate gains and losses against their net asset position and along

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1 To avoid repetition, I alternate between decision “domain” and decision “frame.” The decision domain is distinct from the framing of prospects as described here.
a single universal utility function. They might, therefore, predict that individuals are either risk-averse or risk-acceptant across choices, but not both.

Notice finally that the value function for losses is steeper than for gains. In Figure 1, the subjective pain of a $500 loss is larger than the benefit of a $500 gain. As Kahneman and Tversky (1982) put it, the steeper loss curve reflects the “observation that a loss has a greater subjective effect than an equivalent gain” (p. 166). One implication of this is loss aversion, wherein actors pursue costly strategies intended to avoid loss beyond a rational expectation of benefits. This is also consistent with an observed endowment effect that “enhances not the desirability of what one owns, but the pain of forsaking it” (Nincic, 1997, p. 99; see also Kahneman, Knetsch, & Thaler, 1991). The tendency here is to place a greater value on that already possessed compared to equivalent goods not yet acquired.

**Prospect Theory and International Relations Research**

Combined, these results suggest a rich set of hypotheses about foreign policy behavior that run counter to those suggested by rational choice. Under conditions

![Diagram of the framing effect](image)

**Figure 2.** The framing effect.

2 Of course, expected utility can in principle accommodate any shape function.
of loss, prospect theory predicts that decision-makers will risk the use of military force even when the probability for success is low and diplomacy has a better chance of producing a less undesirable outcome. Evidence for such a dynamic is found in British decision-making during the 1956 Suez crisis (Richardson, 1993). Confronted with Egypt’s nationalization of the Suez Canal, British leaders understood that military action was the riskiest available strategy, but embarked on an ill-fated military escapade nonetheless. Similar support is found in President Carter’s attempted use of the military in April 1980 to rescue American hostages held in Iran (McDermott, 1992). A rescue mission was viewed by all as an escalation, with significantly increased costs over the status quo should it fail. Indeed, the eventual leader of the rescue mission preliminarily assessed the mission of having a “probability of success” at “zero,” with failure producing still further losses (McDermott, 1992, p. 257). Nonetheless, under a losses frame, Carter chose the military gamble despite bleak assessments about its ultimate success.

In addition, Levy (1992) has argued that decision-makers might identify different reference points for the same status quo, and that this will place both states in the domain of losses:

Consider a situation in which state A has just made a tangible gain at state B’s expense, say through the seizure of territory or control over a vital operational area. The endowment effect suggests that A will accommodate its gains much more quickly than B will accommodate its loss. Consequently, B will attempt to recover its losses and restore the old status quo, and A will attempt to maintain the new status quo against B’s encroachments. Each will accept larger-than-normal risks in order to maintain its version of the status quo. (p. 288)

Here, while one country objectively benefits and another suffers under current conditions, both are defending their definition of the status quo. Each is therefore more likely to accept the risks inherent in a military defense of their interests. Soviet behavior during the period immediately before the Six Day War confirms this (McInerney, 1992). Moscow’s attempts to rally Arab unity, both within Syria and in the region, by deliberately exaggerating Israeli military threats risked inflaming the existing tension between Arabs and Israelis and producing the kind of broader conflict that the Soviets wanted to avoid. Moscow’s motivation derived from concerns over possible future challenges to the status quo (in the form of threats to Syria) rather than from any actual losses.

In these studies, the explanation for risky behavior is not that decision-makers misunderstand the implications of their choices, so that actions that seem irrational from an external viewpoint look to be utility-maximizing from the perspectives of the decision-makers. Instead, this research suggests that decision-makers carefully consider their options but nonetheless undertake strategies that are difficult to describe as utility-maximizing.
In addition to risk acceptance, research finds that loss aversion influences foreign policy behavior. Leaders will more aggressively pursue strategies intended to avoid loss than they will pursue strategies that attempt to alter current conditions to collect new gains. For example, U.S. troop deployments intended to secure political ends were more successful when the goal was to prevent losses than when the goal was to secure increased gains (Blechman & Kaplan, 1978). Political leaders get a bigger “bump” in popularity for loss-avoiding military ventures than they do for those seeking gains (Nincic, 1997). Evidence is also found in Latin America, where political leaders garner the most support for risky liberal economic reforms under conditions of loss (Weyland, 1996). These findings confirm that prospect theory also shapes the domestic political incentive structure. Whatever the actual strategic motivation, leaders will be more successful in generating domestic political support for foreign action when they can couch a justification in terms of loss avoidance.

Foreign policy choices about cooperation also provide support for prospect theory. Rationalist explanations predict cooperation when the benefits from collaboration outweigh the costs. However, emerging evidence suggests that decision-makers sometimes frame the decision to cooperate as a risky venture. Governments operating in a losses domain will risk cooperation even when the expected value of noncooperation is greater. Cooperation, then, is sometimes a risk-acceptant strategy to avoid loss. There exists an important distinction between this and the traditional notion that cooperation is often an effective strategy to minimize expected losses. Traditional loss avoidance is wholly consistent with rational choice. By contrast, research on prospect theory finds that decision-makers will choose to cooperate to avoid certain small losses by risking larger losses.

For example, prospect theory explains U.S. acceptance of the Structural Impediments Initiative with Japan, as well as Israeli cooperation with the United States during the Persian Gulf war. The Structural Impediments Initiative represented a bold and risky cooperative strategy whereby the United States opened itself to a detailed, comprehensive, and intrusive foreign oversight of the domestic economy (Mastanduno, 1993). During the Gulf war, at the request of the United States, Israel refrained from military action even as Iraqi Scud missiles rained down on its metropolitan centers. By cooperating, Israel chose to deny two fundamental tenets of its security policy: swift, decisive retaliation and military self-reliance (Welch, 1993). Risk acceptance also explains the development of multilateral economic surveillance mechanisms built into the International Monetary Fund (IMF) at critical junctures in its evolution (Pauly, 1993). Here, the puzzle is to explain why significant resources continued to be dedicated to multilateral surveillance while its usefulness remained in serious doubt. One answer is that even though decision-makers viewed multilateral surveillance as risky and impinging on their sovereignty, under a losses frame these risks were acceptable.

In summary, the study of international relations has recently turned to preference reversal and risk disposition to explain foreign policy choices. While the
outline etched here is not complete, it underscores the breadth of empirical concerns that scholars have investigated. However, a fair evaluation would also conclude that the primary motivation behind this research is the desire to better understand specific (albeit important) empirical issues. Building theoretical bridges across empirical domains thus remains an important but unrealized goal. By contrast, rationalist theory has produced an impressive set of interconnected theoretical frameworks including, but not limited to, deterrence, cooperation, war, institutional formation and maintenance, collective action, and political economy.

That the research to date has not taken this form is not surprising; neither is it grounds for condemnation. The early stages of any research program look like this, as scholars try out new ideas and learn to operationalize novel concepts. I would argue that this first stage is complete—that prospect theory has made an initial contribution to the international relations literature by highlighting a new set of important questions and offering some answers. Such an opening is quintessentially scientific, forcing established theories to confront new and difficult empirical concerns. The next target for research under prospect theory should be integrating the subfields of international politics into a larger set of interconnected propositions, similar to that which already exists for rational choice.

**Model Building With Prospect Theory**

Rather than focusing on discrete foreign policy decisions, as many initial studies have done, this section develops a broader set of deductive models derived from prospect theory. The propositions are deliberately straightforward in order to lay a foundation for further study. When matched against the sophisticated formal approaches now emerging from rational choice, some will no doubt find portions of this analysis to be simple by comparison. But rational choice, too, began with simple straightforward models that became more sophisticated as scholars honed their arguments and adapted them to new empirical realities. We must permit a similar evolution for prospect theory—begin with simple deductive models and refine them over time.

Indeed, rather than begin anew, the analysis here deliberately adopts some of the early attempts to formalize international politics under the rubric of rational choice. This is the most efficient way to shed light directly on the differences between rational and cognitive models. Specifically, the analysis accepts the standard depiction of deterrence, prisoner’s dilemma, and collective action—which have become canonical in the study of international relations—as accurate depictions for a broad set of problems commonly faced by governments operating under international anarchy. It then substitutes prospect theory for rational choice as the assumed model of decision-making.
Deterrence and the Game of Chicken

Chicken initially gained wide acceptance in academic and policy circles as a compelling metaphor for understanding the dynamics of military deterrence. In this game, two strategies are possible. The first is to support the status quo through cooperation. The second is to overrun the status quo through military action. Figure 3 describes the universe of possible outcomes. If both cooperate, the status quo continues. If either defects, deterrence has failed. If both defect, war is the result. The assumption is that each side prefers unilateral defection to the status quo, although each prefers the status quo to open conflict. The dilemma for policymakers attempting to craft effective deterrence strategies while locked in games with this structure is immediately apparent: Each country has an incentive to move off the status quo and obtain an advantage over its rival.

Stripped to its core, successful deterrence rests in the ability to effectively communicate a willingness to respond with violence whenever rivals pursue unacceptable policies. If such threats are credible, they deter aggression by increasing the probability that an attack will produce the payoff in the lower right cell of Figure 3. Paradoxically, the credibility of deterrence threats is undermined by the incentives of the game because “having to carry out this threat if deterrence fails hurts the threatener, even though threat itself is what is supposed to prevent deterrence from failing in the first place” (Brams & Kilgour, 1988, p. 46). Assuming both governments understand this and have accurate information about the preference structure of the other side, we should observe in chicken games a race to defection. Yet deterrence is frequently effective.

Under prospect theory, deterrence is more likely to be effective when leaders from both sides are in a gains frame, and less likely to be effective when either or both are in a losses frame. Under gains, leaders will opt for the status quo even if the probability for military success is high. This means that under a gains frame, imperfect deterrence threats will provide a sufficient deterrent. By contrast, when suffering under a losses frame, decision-makers are more likely to risk the further

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<th>Player X</th>
<th>Cooperate</th>
<th>Defect</th>
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<td>Player Y</td>
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<tr>
<td>Cooperate</td>
<td>3, 3</td>
<td>2, 4</td>
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<tr>
<td>Defect</td>
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Figure 3. Standard deterrence game. Preference order: 4 > 3 > 2 > 1. Larger values represent greater utility.
costs of open conflict if, in such a pursuit, they also perceive some chance that this
course of action will return them to an acceptable condition.

Consider Figures 3 and 3a. While the preference order is identical, from the
perspective of prospect theory the two games are different because of variation in
the decision frame. In Figure 3, decision-makers confront two options implying
gains. They may opt for the gains from the status quo, or they may gamble in an
attempt to further improve their state’s position. Risk comes in attempting to
improve one’s position at the expense of the other. If successful, this strategy
produces further gains. The choice set is analogous to the example lottery given in
the earlier discussion of prospect theory. Leaders must choose between a certain
smaller gain and a gamble. Under these conditions, prospect theory predicts that
they will adopt risk-averse strategies. That is, they will accept certain smaller gains
in favor of larger but less certain gains. As a result, when two governments are in
a gains frame, they will have a comparatively easy time crafting a stable deterrent
relationship because the threshold for a successful deterrence threat is low. Under
rational choice, if a potential defector calculates the expected value of defection to
be larger than that of cooperation, it will act to overrun the status quo. Under
prospect theory, even if the expected benefits of defection are greater than those of
cooperation, cooperation will continue so long as defection also threatens the
benefits enjoyed under the status quo.

In Figure 3a, neither side is satisfied with mutual deterrence. The options
facing decision-makers are analogous to the hypothetical lottery discussed above
for choices involving loss. Each side may opt for the certain losses of the status
quo, or gamble and risk further loss in an attempt to return to a more acceptable
condition. Unlike in Figure 3, decision-makers in this game are risk-acceptant.
They will defect even if the expected benefit is less than the certain value of
cooperation. Deterrence relationships under conditions of loss are quite unstable.
The risk acceptance that loss generates means that even very credible threats are
unlikely to be effective deterrents. This stands in sharp contrast to a gains frame,
where less than fully credible deterrents are effective.

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<tr>
<td>Cooperate</td>
<td>−2, −2</td>
<td>−3, −1</td>
</tr>
<tr>
<td>Defect</td>
<td>−1, −3</td>
<td>−4, −4</td>
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Figure 3a. Deterrence in a losses frame. Preference order: 4 > 3 > 2 > 1. Larger values represent
greater utility.
Prospect theory thus resolves an important paradox in traditional deterrence identified earlier. Deterrence should not work, but it often does. Under prospect theory, the important independent variable that explains the success or failure of deterrence is the level of satisfaction with the status quo. In addition, prospect theory does not suggest that leaders satisfied with the status quo will feel compelled to overrun it, as traditional deterrence implies. Prospect theory also focuses our attention on the distinction between credible threats and effective military deterrence. The two may not always be the same.

For example, it is a cornerstone in the literature on rational deterrence that more deterrent is better. This doctrine of “conservative planning” suggests that one’s deterrent capacity should be large enough to overwhelm misperception, cultural differences, and decision-maker idiosyncrasies (Steinbruner, 1976, p. 227). Although the doctrine proscribes deployment of ever more compelling deterrent threats, under the self-help logic of anarchy, policymakers often view rival defensive preparations as threatening. This “security dilemma” establishes that the inevitable result of two governments each attempting to make themselves more secure is that each will feel less secure. Indeed, under the traditional view, the purpose in creating a potent deterrent is to produce insecurity and thereby drain rivals of confidence in their capacity to successfully pursue aggression; rival insecurity leads to conservative policy choices.

However, under prospect theory, the doctrine of conservative planning, because it creates insecurity, can also produce a losses frame where one did not previously exist. This increases the probability of unwanted conflict because the target of deterrence becomes risk-acceptant and thus more likely to gamble. Under both rational and cognitive deterrence, threat credibility is important. However, prospect theory further demonstrates that all deterrent threats are more effective when the target of deterrence is in a gains frame. To the extent that deterrent threats contribute to a losses frame, they can produce the very aggression they are intended to deter. A crucial component to a successful deterrent policy is, therefore, to avoid pitching opponents into a losses frame. Prospect theory suggests that an intermediate level of deterrent force will be more effective—sufficient to inflict losses on a rival, but not so large as to create a losses frame.

This new perspective on deterrence may also help us to organize some of the inconsistent empirical results that continue to plague traditional deterrence theory. For example, early studies suggested that military inferiority is not a sufficient deterrent (Zinnes, North, & Koch, 1961), whereas contemporary research finds that the relative size of the threatening state to the target is not an “overriding” determinant of successful deterrence (Huth, 1999, p. 35). Frequently, aggressor governments understand that they are militarily inferior, likely to lose an all-out war, and that aggression significantly increases the probability of a war (Russett, 1967). Furthermore, some have argued that dissatisfaction with the status quo offsets “perceptions of insufficient capability,” thus leading to aggression even in the case where smaller states face more powerful rivals (Zinnes et al., 1961, p. 470).
But contemporary deterrence theory would deny this result. A state dissatisfied with the status quo should not, under rational deterrence, willingly undertake a course of action that would likely cause further deterioration or decline in position. Rational deterrence also suggests that hardline negotiating would help establish credibility, and therefore that such a strategy could be successful in imposing cooperation on a rival. However, empirical results suggest that a “firm-but-fair” stance is more effective (Levy, 1989).

Many of these findings map neatly onto a deterrence model grounded in prospect theory. The fact that powerful states often fail to deter weaker states is consistent with cognitive deterrence. When decision-makers in weaker states operate under a losses frame, they are risk-acceptant and therefore likely to pursue a strategy of aggression. Excessive bullying is not as effective as firm-but-fair, because bellicose diplomacy is more likely to contribute to a losses frame for the target; it may lead rivals to conclude that some form of hostile rival action is forthcoming regardless of concessions. There is also some evidence that the use of positive incentives improves deterrence (Huth, 1988). To the extent that such tactics create or support a gains frame, that finding is also supported here.

Cooperation in a Prisoner’s Dilemma

The prisoner’s dilemma (PD) is perhaps the most thoroughly analyzed game structure in the study of international politics. Proponents claim that the metaphor is relevant to a wide set of issues ranging from security to environmental policy. Prospect theory demonstrates that interstate cooperation in PD games will be both easier and more difficult than rational choice predicts and will depend on decision-maker assessments about the status quo.

Figure 4 depicts a standard PD. In one-shot games, the dominating strategy is defection; defection is the best strategy no matter the strategy chosen by the other. The dilemma in this game lies in the fact that if all play this strategy, the result is the undesirable outcome represented by the payoffs in the lower right quadrant. Still, carving out stable cooperative relationships is possible, even under PD incentives. Extending the number of games out into the future, providing accurate information about past rival choices, and playing conditionally cooperative strategies—when combined—can sustain cooperative relationships (Keohane, 1983; Stein, 1983). International institutions, if properly crafted, are particularly important in promoting cooperation under iterated play. Regimes provide participants with information about the past actions of others, reduce transaction costs, and reinforce cooperative norms (Krasner, 1983). Compliance information is important because it makes conditionally cooperative strategies (e.g., tit-for-tat) possible. Such information is best collected within the context of a formal institution because it can “define cheating quite explicitly, insure that it be observable, and specify verification and monitoring procedures” (Stein, 1983, p. 129). Unilateral information-gathering is often a poor secondary substitute (Kydd & Snidal, 1993).
In a standard PD, risk is traditionally defined by the potential costs of unilateral cooperation compared to the other outcomes in the game. So, for example, the alternative (bracketed) payoffs in Figure 4 represent a riskier game in that cooperation opens one to a more costly form of exploitation. However, describing a strategy as risk-acceptant or risk-averse also depends on whether the governments are attempting to establish new cooperation, or to seek greater returns from within the context of an existing cooperative relationship. Cooperation in a new relationship is risky because it leaves one open to exploitation. Partners have not yet demonstrated their willingness to reciprocate, and institutions are not yet time-tested. By contrast, defection in an established relationship is risky. Iteration, conditionally cooperative strategies, and effective regime monitoring both increase the probability that cheating will be identified and permit cooperators to protect themselves or to support sanctions against rogues. Defection, while it promises greater returns, thus also risks dissolving a productive interaction and the future benefits that derive from it.

Consider Figure 4a. This is a standard PD game under losses. Assume that cooperation is well established, that the institutions supporting it are tested and trusted, and that participants have demonstrated conditionally cooperative strategies. Rational choice predicts continued cooperation regardless of the decision frame so long as in both games the regime supporting collaboration continues to provide accurate information about the behavior of others, and so long as governments sufficiently value future cooperation. That is, there are no expected behavioral differences between Figures 4 and 4a. Policymaker assessments of the status quo are irrelevant.

This result seems counterintuitive. We should expect that when governments are unhappy with the status quo, they will enact new policies in an attempt to improve their condition. The results from prospect theory support this. Decision-makers in Figure 4a operate under a losses frame and are confronted by two choices. Their governments can continue to support the status quo with cooperation or attempt to improve their position through cheating. Choosing the status quo means

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<td>(4, 4)</td>
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<td>Defect</td>
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![Figure 4. Standard PD game. Larger values represent greater utility. Bracketed payoffs represent a riskier PD game.](image-url)
continued certain losses. While defection risks greater losses because a robust institution has helped establish and support cooperation, undetected cheating also provides a small chance of improvement. When in a losses frame and risk-acceptant, governments are more likely to risk the still greater losses attendant to the dissolution of an existing cooperative relationship in the attempt to capture the payoff made possible through undetected defection. Meanwhile, in Figure 4, decision-makers also confront two choices. Continued cooperation collects the existing benefits under the status quo. Cheating, if undetected, promises still greater benefit. However, cheating is risky because it potentially undermines benefits enjoyed under the status quo. Because actors in a gains frame are risk-averse, they are more likely to accept the certain payoff from the status quo and thus continue cooperation.

As it is traditionally assumed that states are locked into PD games, rational game theory acknowledges no important distinction between competing assessments of the status quo. It is for this reason that conventional logic concludes that states in each of the two games will behave similarly. By contrast, prospect theory’s emphasis on decision-maker status quo evaluations and level of risk acceptance demonstrates that governments will behave differently in each game.

These behavioral differences also anchor a new perspective on the role of international institutions. Traditionally, the presumed benefits of institutions are universal. So, self-styled liberals view the problem of compliance in trade regimes to be no different from securing compliance with regimes intended to protect the global environment. Whatever the issue, the purpose of institutions is to overcome the temptation to defect. However, the example developed here demonstrates that, in some cases, failed cooperation is not simply the result of faulty institutions. Decision-makers in a losses frame are risk-acceptant, and they do not maximize objective outcomes. A regime that performs all the functions demanded by rationalist theory may, under prospect theory, still prove ineffective. If the status quo is unacceptable and cheating provides an opportunity to return to an acceptable condition, then defection becomes an acceptable risk even with an “effective” institution in place.
Of course, rational choice also describes strong temptations to cheat. The point here is that under conditions of loss, risk acceptance promotes defection in established agreements at even higher levels than rational choice predicts, but for different reasons. Governments under a losses frame are more likely to risk defection even when verification is good; this suggests that the creation of more robust and intrusive regimes is not always the proper remedy for noncooperation. Instead, policies promoting cooperation should pay at least equal attention to evaluations of the status quo. Rather than an exclusive emphasis on monitoring, prospect theory suggests that successful institutions will be those that can effectively manage risk dispositions by manipulating the decision frame. Under a gains frame, leaders adopt risk-averse behavior, and this will produce greater compliance in established relationships. The capacity of an institution to use positive incentives in the construction of a gains frame, while not a substitution for monitoring, stands as an important supplement to the prescriptions of rational choice—a necessary, but largely ignored, condition for effective and sustained cooperation between states.

Although defection is more likely in existing relationships under conditions of loss, policymakers will also seek to establish new cooperative arrangements with greater enthusiasm than rational choice predicts. Stein and Pauly (1993) have assembled a set of case studies supporting the hypothesis that governments suffering under a losses frame often view the establishment of new cooperative relationships to be a risky strategy intended to mitigate loss. While not organized around the PD explicitly, several of the cases explored there do represent the dynamics of a PD game (i.e., cooperation places the states at risk if partners do not fully reciprocate). The argument here is not simply that decision-makers choose to cooperate to minimize expected losses. This would be wholly consistent with rational choice. Instead, policymakers view the decision to cooperate as a risky choice that does not minimize expected losses. In the domain of losses, leaders will seek cooperation even when this risks larger losses resulting from the defection of other states. Additionally, when negotiators agree to new cooperation, rational choice insists that they first settle on guarantees that compliance is verifiable. Often, this means creating new institutions as a precaution against exploitation. Prospect theory suggests that governments operating in a losses frame, in a desire to mitigate loss, are more willing to accept less than adequate verification in the rush to get an agreement. This behavior is risk-acceptant because it opens the state to exploitation by noncooperators.

In a seeming contradiction, prospect theory predicts that policymakers operating under a losses frame are more likely both to pursue new cooperative arrangements and to defect within established agreements. We should, as a result, expect that cooperation born from risk acceptance would rarely endure for long. One explanation for the success of new agreements lies in the effect of productive cooperation on the decision frame. New cooperation produces payoffs above the old status quo that can in turn create a gains frame. This promotes risk aversion and
would make a new effort all the more robust. Just as some instances of failed cooperation do not result simply from faulty institutions, some instances of successful cooperation can be unrelated to traditional regime functions. The initial success of interstate cooperation results as much from the psychological impact of securing an agreement and the creation of a gains frame as it does from the capacity of institutions to effectively monitor participants.

The model here bridges many of the existing empirical and theoretical debates about cooperation. For example, the “managerial school” emphasizes regime transparency and the use of incentives to induce compliance with agreements (Chayes & Chayes, 1995; Mitchell, 1994). By this view, noncompliance is rarely intentional. It is instead the result of rule ambiguity or an inability to comply. Managerialists thus encourage technical and financial incentives, because such assistance improves the capacity of governments to comply with regime strictures. Conversely, sanction advocates criticize this position as naïve and argue that clear and biting sanctions are central to promoting compliance. Sanction advocates go further to charge that managerialists’ exclusive emphasis on incentives without punishments is “dangerously premature” in a world where governments are tempted to defection (Downs, Rocke, & Barsoom, 1996, p. 399).

Both managerialists and sanction advocates may be correct, but for different reasons than their own arguments suggest. Incentives are not simply an enticement to continue cooperation. To the extent that incentives create or sustain a gains frame, they also provide an inoculant against the subsequent need for sanctions by manipulating the propensity of governments to engage in risky defection. The less a regime has to resort to sanctions, the more legitimate and robust it becomes. Sanctions are also important. The costs of absorbing sanctions, as well as expulsion from the collective and/or cooperative collapse, are part of what makes defection risky in established relationships. This deters defection in a gains frame because it produces unacceptable risks. However, the analysis here also cautions sanction advocates. As with deterrence threats, sanctions may also produce a losses frame and risk-acceptant behavior that can take the form of noncompliance.

Collective Action

A multi-actor PD is similar to a classic collective action problem in many ways, but they differ in one important respect. In a PD, noncooperation reduces the payoff available to others. This is why cooperate-defect is the least desirable outcome. In collective action, there still exists a temptation to free-ride on the contributions of others, but the impact of cheating is different. Any single act of defection does not significantly reduce the quantity of the collective good produced. While free-riders consume the benefits of collective action without having to pay a fair share, any single such act does not significantly damage the position of other actors. Strategies found to induce cooperation in collective action dilemmas include the use of side payments, restructuring the issue so that each actor’s contribution is critical to the
creation of the good, and the imposition of sanctions against those who attempt to free-ride.

Although the PD and collective action problems are technically different, the same general issue plagues both. Actors pursuing narrow self-interest do not sufficiently contribute to the group’s enrichment. Because they are similar, we can apply much of the previous analysis of cooperation under conditions of PD to the problem of collective action. Again, the basic premise is that policymakers will accept greater risk under conditions of loss than under conditions of gain. When attempting to initiate new collective action agreements, risk lies in contributing while others do not. Widespread nonparticipation leaves contributors out the costs of contribution and without any collective good in which to share. Alternatively, if one is already a party to cooperation, then cheating becomes risky if it increases the chance of sanctions or expulsion from the collective. As before, prospect theory predicts that a losses frame promotes both new forms of cooperation and cheating within established agreements. Under a gains frame, decision-makers are less likely to risk new cooperation or to undermine cooperation once their government is part of an established institution.

In addition, there exists an important but often unrecognized difference between forms of collective action. Public goods are created through contribution. Governments pledge endowments in order to produce a community-pooled resource. Commons protection involves an already existing and nonexcludable good. Protection requires self-restraint. Traditionally, rational choice treats the two issues similarly. Irrespective of whether a choice involves giving or taking, actors evaluate the costs of contribution versus the benefits of participation. Participants are therefore indifferent between the two types of cooperation and are therefore indifferent as to which form an agreement might take.

By contrast, prospect theory predicts that negotiators will find it more difficult to create a public goods agreement. Recall that under prospect theory the value function is steeper for losses than for gains, reflecting the fact that losses hurt more than gains feel good. This is consistent with the finding of an endowment effect wherein individuals tend to “value what they have more than comparable things that they do not have” so that “the pleasure of acquiring something new is less than the pain of losing current possession of comparable value” (Levy, 1996, p. 182). Demanding that domestic groups contribute to public goods requires that they donate existing endowments. Because of loss aversion, such groups place greater value on these resources than on the comparable cost of distributing forgone gains. The “subjective cost” of contributing to public goods is therefore greater than an equivalent value of commons protection, and such agreements are therefore more difficult to sell to domestic constituents.

The difference between restraint and contribution agreements is not hard to identify. For example, the 1993 Agreement to Promote Compliance With International Conservation and Management Measures by Fishing Vessels on the High Seas addresses a commons dilemma: Overconsumption reduces the supply of
fishery resources available to all. Hence, the treaty requires self-restraint. By contrast, the 1993 Convention of Biological Diversity requires, among other things, that developed countries transfer technology and financial resources to developing states. This is a public goods instrument because corrective action entails real costs. However, a third intermediate classification also seems appropriate. Although the decision to refrain from polluting is in its purest sense an act of restraint, for many contemporary international issues domestic actors also incur significant costs in return for restraint. For example, the Convention of the Protection of the Marine Environment of the Baltic Sea Area requires that governments curtail and control pollution from various sources including land-based, ship dumping, and sea-bed activities. Restricting pollution forces domestic producers to retrofit facilities to meet new emissions standards. Such retrofitting is often expensive and requires a contribution from government or private-sector interests. Part of the calculus in a decision to cooperate involves an assessment of the opportunity costs of such restraint. Where the act of restraint entails real costs, loss aversion and the endowment effect will make cooperation difficult to achieve even in commons dilemmas.

Here, as before, political subjectivity is as important under prospect theory as the objective nature of the problem. If decision-makers—or domestic groups—treat the benefits of exploited commons as an endowment that they possess, this transforms an act of restraint into a contribution toward the provision of a new public good. Although the discursive dynamics by which the act of restraint becomes redefined as an act of contribution will be unique to each circumstance, we can safely assume that the longer domestic groups have enjoyed the benefits of a commons, the more likely it is that such benefits will be viewed as an endowment. Where this happens, the act of restraint will be politically no different from contributing toward the creation of new public goods.

This model of collective action is supported by experimentation demonstrating that the difference between commons and public good problems can, by itself, shape the decision frame (Brewer & Kramer, 1986). With public goods, individuals must first decide how much they should contribute. This choice involves suffering an immediate loss in order to consume uncertain future benefits. Here, individuals prove to be risk-acceptant and undercontribute, thereby risking larger long-term losses. In commons dilemmas, individuals must first decide how much of a common good to consume. The decision frame here is gain—enjoy certain smaller gains now or seek larger gains but risk damaging the collective. Individuals consistently prove to be risk-averse, contributing more generously by consuming less. If such effects endure beyond the formation of an agreement, then public goods agreements are more likely than commons agreements to fall prey to risk-acceptant cheating. The initial subjective sting of contributing to a public good may not be mitigated by the benefits of collective action because, under prospect theory, the subjective sting of loss is greater than the enjoyment derived from an equal gain.
This distinction between public goods and commons dilemmas has additional theoretical implications for some of the debates outlined previously. Traditional theory offers side payments as effective mechanisms to entice new forms of cooperation—a position echoed in managerial arguments. Prospect theory suggests that the beneficial effect of side payments—or any such additional incentives—will extend beyond the formation of new cooperation. Initial rewards for compliance can partially mitigate the impact of loss resulting from the cost of contribution to new public goods. That is, side payments can be used to overcome the subjective pain of initial contribution that existing research (noted above) finds important. Further, in both commons dilemmas and public goods agreements, the use of sanctions is more likely to contribute to a losses frame and thereby produce further risk-acceptant attempts to free-ride.

In addition, and despite much empirical research, disagreements over the importance of international institutions continue. Empirical studies that look almost exclusively at restraint agreements tend to be optimistic about the capacity of institutions to overcome collective action problems (e.g., Young, 1999). On the other hand, reviews that lump restraint and contribution together tend to be more pessimistic about the real effect, if any, of institutions (e.g., Downs, 2000). One explanation for this continuing empirical disagreement is that the distinction between contribution and restraint is not a highlighted concern for traditional international relations theory. Clearly, the distinction between contribution and restraint alone is not a sufficient predictor of the ultimate success of an agreement, but prospect theory does highlight it as an important and heretofore ignored factor.

Finally, because we can no longer construct contribution and restraint agreements as identical forms, the prescriptions of rational choice also require revision. For example, in protecting a hypothetical international fishery, negotiators have the option of contributing to a hatchery program designed to increase stocks so that all may continue current levels of harvest. Alternatively, governments may fashion an agreement whereby they agree to refrain from increasing their catch beyond some sustainable limit. Rational choice is indifferent as to what form cooperation might take. By contrast, where a choice exists, prospect theory suggests that the second strategy is more likely to succeed because restraint agreements are more likely to elicit cooperative behavior.

**Empirical Tests and Prospect Theory**

*Perception and the Decision Frame*

The selection of an empirical strategy will hinge crucially on the set of assumptions one makes about decision-maker perceptions. At issue is whether actors assess the decision frame objectively or subjectively. If we assume accurate decision-maker perception, then we are assuming that individuals correctly perceive the decision ecology and that objective changes in the status quo define the
content of the decision frame. There are strengths to this approach. In the laboratory, experimenters confront subjects with objective choices so that participants and observers alike have access to the decision frame. The assumption of accurate perception is also common in rational choice, which assumes that decision-makers confront objective incentives observable by both participants and investigators. Finally, recent research on political choice suggests that past studies have overstated the importance of decision-maker perception (Gerber & Green, 1999).

In contrast, one could assume that decision-makers possess unique worldviews and, therefore, that subjectivity affects decision-maker perceptions of the status quo. The possibility of a socially constructed frame—that is, where only perception is operative regardless of objective circumstances—is consistent with Kahneman and Tversky’s observation that “the reference point is the state to which one has become adapted” and that there are many cases in which “the reference point is determined by events that are only imagined” (Kahneman & Tversky, 1982, pp. 171–172). There is also strong evidence that actors treat the recent past as an anchor, or reference point, against which they only partially adjust an evaluation of current value (Tversky & Kahneman, 1974; Wright & Anderson, 1989). This is confirmed outside the laboratory in the study of foreign policy (Berejikian, 1997). Additionally, decision-maker aspirations often become the reference point against which individuals assess the value of the status quo. When aspirations are not realized, individuals suffer under a losses frame and engage in risky non-maximizing behavior in an attempt to return to a condition they view to be normal (Heath, Larrick, & Wu, 1999).

The study of subjectivity has made considerable strides in recent years. Critical theory, postmodern theory, and constructivist approaches all focus on human subjectivity, and scholars in these areas have developed new research tools and techniques to examine the content of subjective perception. For example, Alexander Wendt (1999) forcefully argued that the study of subjectivity must be integrated into a positivist foreign policy research program. Meanwhile, cognitive psychology and constructivism have been successfully integrated (Berejikian & Dryzek, 2000), and content analysis can tap the dynamics of group framing (Levi & Whyte, 1997; Whyte & Levi, 1994). Additionally, Q-methodology, long used to systematically assess intersubjective beliefs, is a proven tool in the study of international politics (e.g., Dryzek, Clark, & McKenzie, 1989) and has also been extended successfully to discourse analysis (Dryzek & Berejikian, 1993). The attraction of these methods is that their results can be replicated, and therefore conclusions about the subjective dispositions of decision-makers are not themselves simply the result of researcher impressions.

Research Design

Virtually all of the existing research on foreign policy behavior using prospect theory relies on data drawn from case studies. Case study research is often criticized...
as an imperfect method for establishing causal relationships. The traditional, and still valued, strategy for case studies derives from John Stuart Mill’s indirect method of difference (Mill, 1950). If there is a theoretical reason to expect a causal relationship between two variables—X and Y—empirical observation supports a causal inference only when we observe that all occurrences of X appear with Y and that whenever Y was absent, X was also missing. Both conditions must be satisfied; this sets a high standard—essentially, it demands a zero-order correlation. But it is not sufficient. For example, we can apply such a test to the propositions for foreign policy behavior under conditions of a PD. In established agreements, prospect theory predicts that a loss frame coincides with each instance of defection and that there will be no defection under a gains frame. However, such a finding does not eliminate the possibility that diminished verification—important under the traditional view—also contributed to defection.

An important shortcoming in much of the early research under prospect theory, discussed above, was that a larger theoretical framework was lacking. Risk-acceptant choices (e.g., military adventurism) were often observed to be correlated with the onset of a losses frame. However, simply correlating the decision frame with behavior does not adequately account for alternative explanations. Instead, the benefit of Mill’s method is that it points us to a set of guidelines for a quasi-experimental test of rational choice and prospect theory using case study analysis. Figure 5 summarizes the predictions of prospect theory and rational choice concerning cooperation within established agreements. Traditional theory predicts continued cooperation regardless of the decision frame, while prospect theory predicts continued cooperation for the duration of a gains frame. We could summarize any of the propositions developed above in this way. So, for example, Figure 6 provides a similar presentation of deterrence theory.

Cells 1 and 4 in Figure 5 summarize the conditions under which prospect theory and traditional theory offer mutually exclusive predictions. When we observe a losses frame and strong verification, prospect theory predicts noncooperation while traditional theory predicts cooperation. When we observe a gains frame and diminished verification, traditional theory predicts conflict while
prospect theory predicts continued cooperation. Similar logic applies to the veracity
of deterrence threats as summarized in Figure 6. This research design permits us
to control for the influence of each independent variable, and is therefore an
improvement over Mill’s method, because whenever we find that only one theory
is predictive in both sets of conditions, then we can categorically rule out the other
as an alternative explanation.

Operationalization

There are two components to operationalizing prospect theory. The first is
determining whether decision-makers have framed an issue as a set of choices
between gains or losses. The second is identifying which options contain greater
risk. One possible limitation on prospect theory resides in the fact that actual
decision-making does not often provide the data necessary to conduct meaningful
tests. The requirement for numerical representations of probability often stands in
“sharp contrast with the fact that people generally prefer to express their beliefs by
means of natural language” (Budescu et al., 1988, p. 281). Even experts in policy
roles, who presumably have incentives to be precise, regularly prefer general verbal
expressions when offering advice (Erve & Cohen, 1990). This concern applies to
any formal model of decision-making, and so equally troubles both rational choice
and prospect theory (Budescu et al., 1988).

McDermott (1998, chapter 1) has demonstrated that testing prospect theory
does not require detailed numerical representations; instead, investigators need
only solid evidence of ordinal comparisons. Consider a hypothetical state con-
fronted by two options, A and B, both of which imply gains. Assume that A
represents the best outcome if it succeeds, but is the worst outcome if it fails.
Assume also that the best outcome under B is not as good as A, but that the costs
of failure under B are smaller. We then need only evidence that decision-makers
view strategy B as more likely to succeed to claim that A represents a riskier choice.

Figure 6. Predictions on deterrence. Italics represent predictions for prospect theory.
Under prospect theory, we would therefore expect the selection of B when decision-makers are in the domain of gains, and A when they are in the domain of losses. Rather than precise numerical representations, prospect theory requires only evidence about the relative weighted value of policy options. This is not to suggest that the empirical task is easy, only that it is less demanding than some critics suggest.

This still leaves the question of the decision frames themselves. Research subsequent to the development of prospect theory has demonstrated that framing effects are elicited even when information about precise probabilities is missing (Reyna & Brainerd, 1991; Tversky & Fox, 1995). For example, individuals are equally susceptible to framing effects in the classic disease problem when such information is omitted (Reyna & Brainerd, 1991, pp. 251–252):

Gains frame choice:
A: Some people will be saved.
B: Some people will be saved or no one will be saved.

Losses frame choice:
C: Some people will die.
D: Nobody will die or some people will die.

In these experiments, individuals exhibit the same behavior as when investigators include numerical representations of probability and outcomes. Considerable research on patients’ medical decisions, a real-world arena where numerical representations are often not available, also yields strong support for framing effects (for a review, see Rothman & Salovey, 1997). We can similarly transform the propositions about foreign policy behavior developed here. For example, imagine a country participating in an established relationship. Choices in Figures 4 and 4a, respectively, would take this form:

Figure 4
Cooperation will continue to produce benefits.
Defection will reduce benefits or produce even more benefits.

Figure 4a
Cooperation will continue to produce losses.
Defection will reduce losses or produce even greater losses.

This reformulation is consistent with the revised disease problem, where research demonstrates the importance of framing effects. Policymakers in the first set confront a gains frame choice; in the second set they confront a loss frame choice. The lack of verbally represented probabilities is therefore not as compelling a
problem as it first appears. We can, using the verbal formulations preferred by policymakers and experts, discriminate between rational choice and prospect theory as competing explanations.

A related concern is that the models described here assume that status quo payoffs are fixed, and therefore that investigators can treat them as the "sure thing." In some contexts, this is clearly inaccurate. If the status quo is unstable, then inaction produces continued uncertainty. There is evidence from the experimental literature that framing breaks down when individuals are confronted with choice sets that include both gains and losses (Kuhberger, 1995). This is most likely if the status quo is unstable. When such conditions exist, we should expect that a prospect theory analysis would contribute little to our understanding of foreign policy choices.

Conclusions

The primary benefit of grounding political theory in cognitive psychology is that we begin with models that remain faithful to actual human decision-making. States are corporate entities, populated by individuals. In the conduct of foreign policy, the effective decision points within states will vary tremendously. Prospect theory is a viable candidate for theory construction even when we acknowledge the corporate nature of states—that is, even when we disassemble states into their constituent parts.

Foreign policy choices fall along a continuum from crisis to routine. The decision point in a crisis is often the national executive. Here, the application of prospect theory is largely unproblematic. We are applying an individual-based model of decision-making to an individual. However, in noncrisis decision-making, additional actors come into play. If domestic pressure groups compete for government outputs, the contest of arguments between them may dilute the influence of prospect theory because the outcome for any strategy hurts some groups and benefits others. As noted above, evidence suggests that when both gains and losses are presented, framing breaks down. However, it is also true that there exists an uneven distribution of both incentives and capacity to form pressure groups. The result is that individual decision anomalies "also reflected in the corresponding interest group, are strengthened at the aggregate level by the intervening bargaining process" (Frey & Eichenberger, 1989, p. 113). Domestic bargaining, therefore, can operate in either direction by ameliorating or exacerbating framing effects.

More broadly, there is increasing evidence that prospect theory contours the topography of public opinion concerning national policy initiatives (Weyland, 1998a, 1998b). Support for a government policy depends crucially on the frame adopted in the play of competing public discourse. As noted above (Bleichman & Kaplan, 1978; Nincic, 1997), this extends to international policy choices, suggesting that the form and content of communication between national governments and
their polities is an important source of framing. Public opinion is, then, a potentially
important and largely unexplored factor in the framing of foreign policy decisions.

Finally, elite groups often craft foreign policy. Existing research has docu-
mented the process by which group dynamics distort rational decision-making
(‘t Hart, Stern, & Sundelius, 1997). There also is evidence that prospect theory
sways group decisions (Whyte, 1998) and that group decision-making may amplify
framing effects (Whyte, 1993). Research on groupthink further demonstrates that
a single viewpoint can quickly dominate a group’s perspective (Janis, 1982). Group
leaders often define reference points that anchor the group’s evaluation of policy
options. Whenever members of a group have similar goals (e.g., national security
or economic advantage), then the case for prospect theory is stronger. Where a
shared group decision frame is absent, traditional bargaining theory may be more
helpful in understanding small-group decisions.

Such factors as these are likely to be interactive. The effect of a losses frame
held broadly in domestic politics might be overcome as policymakers consider
other, possibly more salient international concerns. The opposite may also be true.
Aggressive interest group bargaining could capture policymaker attention and
define the status quo for an issue as unacceptable, despite competing definitions
from other groups or international partners. Ultimately, the degree to which
research extends prospect theory beyond crisis decision-making—where individu-
alist assumptions are most defensible—is an empirical question that scholars
should tackle as research on prospect theory progresses.

Although much more theoretical work remains to be done, the analysis above
demonstrates that simple deductive models are possible using prospect theory. For
the study of military deterrence, prospect theory identifies a new set of conditions
required for successful deterrence, and uncovers a new set of reasons for the failure
of deterrence that run counter to conventional understanding. Prospect theory and
rational choice also offer two different views of the conditions for cooperation.
Most important, prospect theory does not view increased gains as a necessary
condition for cooperation to take place. Finally, prospect theory suggests that
collective action organized around restraint is more likely to succeed than when
domestic groups or governments are asked to make direct contributions. Where
policymakers have a choice, they should therefore attempt to craft restraint treaties.

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