Deterring or Coercing Opponents in Crisis

Lessons from the War with Saddam Hussein

Paul K. Davis, John Arquilla

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PREFACE

This report, completed in the spring of 1991, is part of a larger study of defense planning in the post–Cold-War era. The focus is on how to improve U.S. strategies in crisis and conflict by better understanding the behavior of opponents. Although analysis of capabilities rather than intentions will remain the dominant element of planning, understanding the opponent's likely and possible reasoning can be critical—especially when we have such objectives as deterring, containing, or coercively reversing aggression.

Our study has been supported by the Joint Staff and is being conducted in the International Security and Defense Strategy program of the National Defense Research Institute (NDRI), RAND's federally funded research and development center sponsored by the Office of the Secretary of Defense and the Joint Staff. Comments are especially welcome, since the approach is the first of its kind. Electronic-mail responses through Internet can be sent to Paul_Davis@rand.org or John_Arquilla@rand.org.

SUMMARY

OVERVIEW

This study applies an experimental interdisciplinary methodology (Davis and Arquilla, 1991) for understanding the possible reasoning of opponents in crisis and conflict and for using that understanding to develop well-hedged and adaptive deterrent strategies. First, we develop *alternative* models of Saddam Hussein's reasoning over the period of February 1990 to February 1991, using only information available during the crisis rather than exploiting the benefits of hindsight. We then explain Saddam's behavior retrospectively and argue that having developed and worked with the alternative models during the crisis could have materially improved the formulation of U.S. strategy. We next use the models to analyze such speculative questions as "could we have deterred Saddam?" and to suggest more general conclusions about appropriate strategies of deterrence in future crises. Finally, we recommend major changes in the processes by which the U.S. prepares for contingencies in peacetime and deliberates about strategy as a crisis develops.

MODELING SADDAM'S BEHAVIOR

Throughout the Kuwait crisis and war, Saddam's decisionmaking was widely seen as a puzzle. The many predictions included the following:

- He will not invade.
- If he invades, his objectives will be very limited within Kuwait.
- He will never consider backing out, so we must learn to live with him in Kuwait.
- He will surely strike a compromise and withdraw from most of Kuwait, which will leave us in a difficult position.

All in all, the record of predicting Saddam's behavior was less than glorious.

Despite this humbling record, the current study attempts to model Saddam's possible reasoning throughout the period. A central feature of our approach, however, is the need, under uncertainty, to develop and continue working with *alternative* models of the opponent, so that strategies developed can be well hedged and adaptive rather than tuned specifically to the "best estimate image." Two or three models of a given opponent, supplemented by sensitivity analysis, should

bound actual behavior and bring out most issues. Over time, actual behavior may sometimes be closer to that of one model, and later closer to another's, because the real-world decisionmaker may change mind-sets as the result of dramatic events.

Each of our models reflects a *limited rationality*, which means that, for each of a reasonable range of options, the model considers likely, best-case, and worst-case outcomes—thereby attempting to balance risks and opportunity. At the same time, the model's reasoning can be flawed by lack of information, misperceptions, failure to see risks or opportunities, or reasoning errors, such as giving excessive or inadequate weight to risks and opportunities that it does recognize. Our approach draws heavily on the last decade's insights from cognitive psychology.

We present here two principal models of Saddam, both of which reflect certain general behavioral tendencies emphasized in modern psychology. The first model is our representation of the "best estimate" before the invasion—an image imputing to Saddam ruthlessness and great ambitions tempered, however, by incrementalist pragmatism and, despite a willingness to threaten and use force, a likely near-term caution resulting from the high costs of the Iran-Iraq war and a desire to build legitimacy in the Arab world. The second model depicts Saddam as equally ruthless and ambitious, but as more goal driven and more prone to risk-taking behavior under unpleasant circumstances where action would have highly favorable "upside potential." He is also viewed as more subject to certain behavioral problems, such as overconfidence, that have been studied extensively by cognitive psychologists and that can be seen in some of history's conquerors and despots.

Until the invasion, the best-estimate image was, by definition, credible. It is difficult, however, to reconcile Saddam's taking *all* of Kuwait with such a model, because the invasion involved what a pragmatist would have seen as very high military and political risks. Given the evidence of lengthy planning and strategic deception, it does not seem very plausible that, as some have argued, Saddam "fell into" conquering all of Kuwait at the last minute.

The second model appears to have been more accurate and has very high explanatory success. A key element in our explanation of events using this model is the judgment that Saddam was extremely dissatisfied with anything approaching the *status quo*—far more so than most observers appreciated at the time. Viewed objectively, Iraq's problems were not beyond cure, notably its cash-flow difficulties, which could have been mitigated by refinancing and belt tightening.

The trends, however, were quite inconsistent with Saddam's image of his and Iraq's destiny—a grandiose image that included favorable comparisons with Iraq's glorious era more than two millennia earlier.

For reasons incorporated in the second model and summarized in Fig. S.1, Saddam exhibited very risk-taking behavior, failing to appreciate some risks and accepting others that he did recognize. The reasons included his viewing the current situation as intolerable, his great ambitions, the apparent opportunity to double his wealth with a *fait accompli*, what appeared to be marginal downside risks because of his underestimating nonimmediate threats, and, importantly, his belief that he controlled the initiative by being able to close out the crisis at will. Initially, one could describe his behavior as "going for the gold" or seeking to maximize the likelihood of a major success, even if thereby reducing the likelihood of having at least some success. Later, one could describe his behavior as grasping at straws, but his reasoning was predicted under the second model and was well within the bounds of limited rationality.

The experience of modeling Saddam seems to confirm the utility of our methodology for clarifying issues, identifying possible reasoning patterns, and informing development of strategies. Despite the dangers of drawing conclusions from retrospective analysis, we believe that the models could have been developed before or early in the crisis if regional specialists, strategists, and cognitive psychologists had been tasked to work together in applying the alternative-models methodology. The model that seems to have proven "right" would

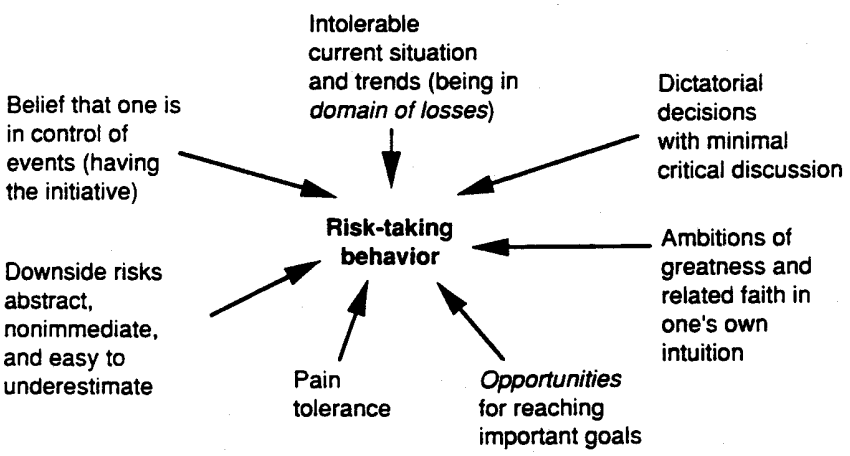

Fig. S.1—Factors Influencing Risk Taking

probably have been only one among two or three before the crisis (and probably not the best estimate), yet merely taking it seriously as one of the possibilities could have significantly affected U.S. strategy in favorable ways.

ADDRESSING "WHAT MIGHT HAVE BEEN"

The opponent-model approach has also proven useful for addressing such speculative questions as: "How might we have deterred Saddam in July?" and "Could we have convinced him to reverse gears in August, or later?" Based on analysis using the second model of Saddam, which appears to explain events well, our conclusions are as follows.

Deterring Saddam. Deterring Saddam's invasion by taking action in late July or early August would have been more difficult than many commentators have suggested. For example, deploying a tripwire force into Saudi Arabia shortly before the invasion would likely *not* have deterred him, even though it would probably have been regarded in the United States as a decisive action. Nor, probably, would deployment to the Arabian Sea of Maritime Prepositioning Ships. Saddam probably recognized the possibility of such deployments, but discounted them as unlikely and as something with which he could deal if necessary by waiting us out or compromising. He surely did not foresee a U.S.-led counteroffensive (nor did all or most U.S. policymakers).

Even deploying a small tripwire force into Kuwait would not necessarily have deterred him, especially if it were small enough to be bypassed or ignored. A critical issue here would be whether the deployment came before or after Saddam committed mentally to actually executing the invasion plan. Such a deployment, or even lesser deterrent measures, might have been successful if they had been applied before that "mental-commitment time." After that, however, Saddam would have seen such measures as within the range of what he had previously recognized as possible (within his image of a "worst case that would be tolerable"), and would therefore have discounted them. The same measures applied earlier might have changed his assessments generally—including his assessment of how bad the worst case might indeed be.

Compelling Saddam's Withdrawal. There was probably little chance immediately after the invasion for convincing Saddam to back out of Kuwait, even with the possibility of compromise over the islands and oilfield, because Saddam's ambitions were grandiose and such minor

gains would contribute little to them. Further, his conspiratorial model of the U.S. and Gulf states assumed (probably correctly) that political and economic strangulation would continue in one form or another after any so-called compromise—something U.S. analysts thinking about Saddam's possible reasoning typically failed to appreciate. Ultimately, U.S. coercive diplomacy offered only one "carrot," the promise not to invade Iraq if Iraq pulled out (George, forthcoming). Finally, Saddam could reasonably believe he had control of the initiative, whereas it was not yet clear that President Bush would be able to construct and maintain a coalition and convince Congress to support war.

When the U.S. was openly preparing for a ground offensive (especially after the Congress had granted authority for war), a different individual than Saddam Hussein, even one who had previously invaded, might have sought compromise (in model terms, Saddam *might* have reverted to the behavior of our first model). Our second model, however, predicted as of early December all of Saddam's subsequent behavior. A key element here was that Saddam was in a behavioral regime in which one expects unilateral actors like the second model to exhibit risk-taking behavor, especially when there is still a *chance* for success. And, indeed, until the U.S. ground offensive began and Saddam's remaining forces disintegrated, Saddam had reason to believe that there was a chance of blunting the offensive somewhere in Kuwait. Compromise would then have been more nearly on his terms. That Saddam greatly underestimated the power of U.S. air forces and the maneuverability of U.S. ground forces is unsurprising, since few U.S. experts did much better, especially with respect to air forces. Notably, when his last gamble of the war failed, Saddam quickly accepted a cease-fire, consistent with the model of limited rationality.

LESSONS AND RECOMMENDATIONS FOR STRATEGY AND CRISIS PLANNING

The failure of deterrence in the Kuwait crisis was part of a historical pattern (Huth and Russett, 1988) and not a fluke. It revealed dramatically a set of longstanding problems, the most important of which appear to be (a) the *tyranny of the best estimate*, which leads to overfocusing strategy on one conception of the opponent and to rationalizing contrary evidence until it is too late to adapt; (b) the *planning-for-the-worst fallacy*, which causes military leaders to oppose prompt but risky deterrent measures significant enough to be effective, out of concern that tripwire forces might be being sent to their deaths; (c)

ambiguity of, and procrastination in clarifying, U.S. interests and re solve, which interacts strongly with military conservatism and en courages ineffective deterrent measures; and (d) *treating domesti and diplomatic obstacles to action as external "constraints,"* whic puts off more aggressive problem solving, such as coalition building until deterrence has already failed.

The tyranny of the best estimate was evident until the invasion oc curred. Despite Iraq's massive military buildup and Kuwait's obviou attractiveness as a target of aggression, there were only minimal mil itary preparations for conflict and only minimal efforts to convinc allies to cooperate in aggressive deterrent actions. This is best ex plained by the well-known psychological tendency to rationalize in formation as long as possible within the preconceived mental "frame. In this case, the "frame" was that Saddam was bluffing, and that hi preparations were merely to make that bluffing effective. Had crisi discussion been structured around the notion of two highly plausibl models, the tendency would probably have been to hedge bets wit more vigorous military measures and a *major* effort to enlist the coop eration of allies.

The planning-for-the-worst syndrome is a complex issue. On the on hand, there is an understandable and meritorious desire on the par of military leaders to avoid commitment of U.S. forces that might lea either to a war that might better be avoided or to a set of circum stances in which the forces would be unreasonably vulnerable. O the other hand, the essence of deterrence is often timely action tha fills vacuums and demonstrates unmistakable resolve. A small forc deployed early may be worth far more than a larger force deployed a ter war has begun or the commitment to invasion has been made The problem becomes more complex, however, when policymakers ar ambiguous about U.S. stakes in the conflict (e.g., "Since the big stake are in Saudi Arabia, would we *really* fight over Kuwait?"). Unde these circumstances, one should expect military resistance to risk deployments. One should also expect any agreed-upon "deterren measures," such as military actions and diplomatic notes, to be mini mal, ambiguous, and quite possibly counterproductive in their failur to demonstrate resolve. Such was the pattern of events before th August 2 invasion.

Last, but not least, is the problem of real and perceived "constraints on enlightened action. There are real and serious "costs" to such de terrent measures as alerting or deploying forces, sending stern mes sages indicating a willingness to go to war, and "leaning" on allies t cooperate. So long as the challenges are seen as "constraints" rathe

than problems to be addressed, effective deterrent actions may simply be infeasible. They will be seen as constraints until and unless policymakers themselves debate the issues candidly and strategically, with a bias toward enlightened action.

It is with this background of analysis that we offer the following recommendations:

- The National Security Council (NSC) should commission a study to (a) redefine the analytic procedures for studying possible opponent reasoning and behavior in crisis and (b) change institutional processes for studying crises in advance and addressing them at high levels when strategic warning is received.
- For each contingency studied, the intelligence community should be required to develop and report on *alternative* models of the opponent, treating at least two or three seriously and avoiding convergence on a "best estimate."
- The DoD should in peacetime develop hedged and adaptive contingency plans that deal with uncertainties about the opponent. The DoD should avoid overreliance—in crisis—on a doctrine of *overwhelming force*. It should emphasize development of capabilities for deploying, quickly and early, small but highly lethal and mobile forces, followed as appropriate with major reinforcements. Mobility is important to provide initially deployed forces improved survivability and effectiveness. They would not be a classic "tripwire."
- It should be recognized that the ability to provide such initial forces with immediate support from CONUS bases, without a prior defense suppression campaign or prior buildup of regional infrastructure, is a significant argument for procuring the B-2.
- Despite pressures to avoid overcommitment, the U.S. should in peacetime take measures to protect strategically important buffers rather than allow future aggressors to underestimate their significance. In particular, the United States should work to establish security guarantees for the buffer states of Eastern Europe, preferably working directly with the Soviet Union and with NATO allies (Davis and Howe, 1990).
- Given strategic warning, the NSC itself should participate in political-military seminar gaming of the crisis, focusing on (a) appreciation of the "game board"; (b) possible gaps in our deterrent posture (assuming different opponent reasonings); (c) reaching mutual understanding of such key issues as the extent of U.S. interests, possible involvement, and the reversibility of possible deterrent measures; (d) providing guidance on contingency preparations; and (e), if actions are called for, defining active measures to enlist the cooperation of key Congressional leaders

and allied leaders (perhaps by including such figures in follow-up gaming, even if only by videoconferencing).

- Before executing deterrent measures in crisis, gaming should be employed to assess the strategy's probable effectiveness against *alternative* models of the opponent. This may require enlisting respected people to argue vociferously for unpopular conceptions of the opponent's thinking and would require rewarding or protecting them for having done so. The process must be more evenhanded and serious than that of merely presenting a devil's advocacy position known to be token. All of this requires a change in crisis-planning *doctrine*.

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1. INTRODUCTION

BACKGROUND AND OBJECTIVES

Iraq's invasion of Kuwait on August 2, 1990, represented a failure of U.S. deterrence in the Persian Gulf. That deterrence should fail is not unusual—especially "extended deterrence," in which a nation seeks to deter aggression against a third party rather than itself. The seminal study of twentieth-century efforts at extended deterrence puts the failure rate at close to 50 percent in cases where direct threats have been made (Huth and Russett, 1988, p. 32). Interestingly, the ultimate defeat of Saddam Hussein is consistent with the experience of other aggressors who, over the same set of cases, lost two out of every three wars that they began.[1] In these respects, the initial aggression and subsequent defeat of Saddam Hussein fit into a common pattern that is nonetheless puzzling, even "astonishing" (White, 1990, p. 227). The questions that arise are: Why does deterrence fail so frequently? Why do aggressors so often lose? Could deterrence have succeeded if only the strategies had been somewhat different?[2] Our proximate objective in this study is to suggest some answers to these questions by explaining the likely decisionmaking logic of Saddam Hussein. Our larger objective is to test a new, evolving, and interdisciplinary methodology for thinking about the reasoning of possible opponents in crisis and for developing strategies that reflect our understanding of that reasoning and seek to affect it directly through a combination of political, military, and economic instruments (Davis and Arquilla, 1991). Thus, our larger objective is to improve our understanding of how to make deterrence work.

APPROACH

Our methodology involves building alternative semiformal models of opponent reasoning (Davis and Arquilla, 1991). The models are descriptive rather than prescriptive. They incorporate such limitations of bounded rationality as incomplete information, the inability to evaluate all of the courses of action properly, and a dependence on qualitative reasoning rather than precise calculations. They also in-

[1]For good compilations of crisis and conflict information, see Dupuy and Dupuy (1970) and Small and Singer (1982).

[2]See also Arquilla (1991), which includes a survey of the literature on this type of "extended deterrence" and discussion of many of the factors affecting it.

corporate general behavioral phenomena that are important in understanding real-world decisionmaking. These involve attitudes about and recognition of risk, value systems that do not correspond to maximizing expected utility, logic that depends more on thresholding than on the calculations that a decision analyst would consider proper, and risk-taking behavior when the protagonist is unhappy with the *status quo*, feels himself in control of the initiative, and underestimates his opponent's power because it is not immediately available and tangible.[3] Our modeling reflects a combination of our own insights and analysis on the one hand and a substantial, unique, and practical application of modern empirical social psychology on the other.

A key element of our approach is developing *alternative* models of opponent behavior, because—even with the best of theories and insights to draw upon—uncertainties about opponent mindset are the rule rather than the exception. Further, in developing strategy, it is far better to be consciously aware of these uncertainties than to fall victim to what we call the *tyranny of the best estimate.*

We should note here that the very notion of modeling the invidious activity of war-making implies accepting that Clausewitz was right about war being an extension of state policy by other means. It also suggests that some kind of "rational" thinking precedes decisions to initiate the use of force.[4] Many authors have argued this case,[5] but there has been little work to build models of aggressor reasoning,[6] except for models based on maximizing expected utility (Bueno de Mesquita, 1981). These models, however interesting and useful, are not natural and parsimonious representations of human reasoning—

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[3]Another risk-inducing factor can be recent history: As colleague Arnold Horelick pointed out to us under the rubric of "wimp factor," a leader smarting from criticism of past timidity and failure may be more than usually risk acceptant. This point has also been noted by Jervis (1976).

[4]Blainey (1973, p. 141) finds the possibility of an irrational war to be "remote." Howard (1983, p. 12) puts it this way: "However inchoate or disreputable the motives for war may be, its initiation is almost by definition a deliberate and carefully considered act and . . . a matter of very precise central control."

[5]See Levy (1989) for a survey article on the causes of war. The classic work *The Strategy of Conflict* remains necessary reading and discusses issues of rationality (Schelling, 1980).

[6]It is common for analysts to consider alternative opponent *actions* in the limited sense of "He may invade or he may not; if he invades, he may occupy part of X or all of X . . . ." Such an approach does not organize around the opponent's mind-set and gives little guidance about the likelihood of behaviors occurring. Although capabilities analysis is extremely important, "planning for the worst" by focusing solely on capabilities and logical possibilities can be a prescription for paralysis and may squander opportunities for early and effective crisis action.

especially reasoning complicated by uncertainty and behavioral factors. Our approach assumes what we call *limited rationality*, which implies, as a minimum, an attempt to consider alternative courses of action, some consideration of both upside potential and downside risks, and a superficially logical comparison of options. The reasoning itself depends on trade-off heuristics rather than calculations of utility. The differences are substantial (Davis and Arquilla, 1991, App. B).

STRUCTURE OF THE STUDY

In Sec. 2, we sketch the principal features of two alternative models of Saddam Hussein. We believe, with some caution, that both of these models would have emerged before the war, had the methodology existed then and been applied.[7] The basis for this view is our experience in pre-crisis contingency-planning seminars and studies. There might have been additional models, but we believe the two we have are and would have been considered adequate—so long as they were supplemented by sensitivity analysis. In Sec. 3, we develop the two models in more detail and apply them—as we believe they could have been applied at the time by U.S. analysts—to predict Saddam's behavior at key snapshot points between early 1990 and the cease-fire of February 1991. At the beginning of the crisis, the first of the two models would have been regarded as more plausible and consistent with the existing evidence (indeed, it is intended to be an analytic representation of last year's best-estimate image). Later, after the invasion, we believe that counterfactual analysis would have caused the second model to be deemed superior and that the second model would have proven quite useful in predicting subsequent behavior, although uncertainties would have remained. Model-One behavior would still have been deemed plausible, however—e.g., because the shock of decisive reaction by the U.S. might have sobered Saddam and caused him to become more pragmatic. In fact, the process of comparing two quasi-formal models of Saddam did not occur, to our knowledge, and most people continued throughout the crisis to apply variations of the original best-estimate model and to find Saddam's actual behavior puzzling.

In Sec. 4, we apply the models analytically to address such questions as the following: Could we have anticipated the crisis and invasion?

[7]Humility is important, because the benefits of hindsight are known to encourage people falsely to believe that "We would have seen that, if only . . . ." See Hawkins and Hastie (1990).

Could we have deterred the invasion and, if so, how? Could we have convinced Saddam Hussein to reverse gears and withdraw from Kuwait without plundering it or maintaining control of some of its parts? It is impossible to *prove* that the methodology would have improved U.S. strategic analysis and decisionmaking had it existed before the crisis, but we believe that the approach is at least useful in addressing these questions as part of pre- and post-crisis strategic planning. It provides no certainties, but does suggest nontrivial insights about how the United States should plan in the future.

Finally, in Sec. 5, we draw some general conclusions—about both methodology and the challenges of extended deterrence—and describe briefly our ongoing work to refine the methodology by testing it against other historical crises.

2. ALTERNATIVE MODELS OF SADDAM HUSSEIN

ELEMENTS OF A MODEL

As discussed generically in Davis and Arquilla (1991), our approach in developing a model of Saddam involves (a) discussing Saddam's values, possible short-term and longer term objectives, and the current situation; (b) identifying possible strategies and options; (c) identifying factors that would influence his decisions; and (d) characterizing his imputed reasoning diagrammatically and in decision tables.[1] We consider all of these matters in the following pages. We seek in these pages to describe the models of Saddam that could reasonably have been constructed in 1990 had the methodology been available.

KNOWLEDGE ABOUT SADDAM AND HIS SITUATION

Saddam's Nature and Character

Saddam's invasion of Kuwait in August did not come as a complete surprise, despite some claims to the contrary in the press. Indeed, a number of studies and war games had been conducted that imagined such an invasion. These were part of routine peacetime activities, not the result of an estimate that Saddam was *likely* to invade. Because they did occur, however, we can use them to report on how well Saddam's reasoning was and could have been modeled before the crisis.[2]

[1]The models could be formalized and computerized using proven techniques (Davis, Bankes, and Kahan, 1986), but at this stage of work a less formal approach suitable for interactive discussion is more appropriate.

[2]We draw heavily upon our experience in a RAND workshop sponsored by the U.S. Central Command and the Joint Staff in July 1990. The workshop included representatives from the Central Intelligence Agency, the Defense Intelligence Agency, the State and Treasury Departments, the Joint Staff, and the U.S. Central Command—most of them regional specialists. The purpose was to experiment with political-military contingency analysis that would adamantly push ahead with "But what if?" questions rather than stopping with best-estimate appraisals. The first case, laid out in papers written in May, involved an Iraqi threat to Kuwait shrouded in mystery: Was Iraq merely attempting to coerce the Kuwaitis, or did it intend to invade? If it invaded, would it then seek to coerce the Saudis, or would it also go on to invade Saudi Arabia? In some cases only, or as a function of the U.S. response? As it happened, the workshop was enlivened by starting on precisely the same day as Iraq's initial real-world threats to Kuwait. The workshop significantly affected the thinking of some participants (e.g., see Woodward, 1991, p. 217). It also enabled RAND to develop and disseminate a useful strategic appraisal on the day of the invasion itself. See Khalilzad and Davis (forthcoming).

Most U.S. planners had only a casual knowledge of Saddam as of early 1990. They knew about Iraq's status, significance, recent history, anti-Israeli stance, and efforts to develop long-range cannons, ballistic missiles, and both chemical and nuclear weapons. They also knew Iraq was a violent place and that Saddam was a ruthless character. Some planners also knew that there was a long history of Iraqi claims over Kuwait. By and large, however, U.S. planners did not have the *emotionally* negative sense of Saddam Hussein that would come later. Indeed, the United States had tilted toward Iraq during the Iran–Iraq war (Gigot, 1990), and the United States continued considerable, albeit cautious, efforts to improve relations with Iraq. Saddam was probably still being judged by comparison with Khomeini, who had so badly embarrassed the United States a decade earlier. Through July 1990, there was no discussion of Saddam Hussein being "Hitler-like"—not by high government officials, strategists, or even regional specialists: Saddam was merely one of the several potential opponents in a world that contains many unsavory leaders. Further, Saddam was generally considered "calculating and cautious," despite the consequences of his invasion of Iran.[3] The intelligence community had apparently reported in 1989 that he was unlikely to be militarily aggressive (Woodward, 1991, p. 207).

To illustrate views held in early 1990, we quote from a draft paper by Zalmay Khalilzad and Paul K. Davis circulated in the Government in May 1990:

> *A Pessimistic View.* Historically, Saddam Hussein has been ambitious and ruthless. He has sought the domination of the Persian Gulf and the Arab world. Iraq has perceived itself as the Prussia of the Arab world—forging Arab unity. On more than one occasion (e.g., 1965, 1973, 1975, 1980), it has thrown its weight around . . . it is notable that when Iraq backed off, it was deterred only when faced with superior countervailing regional or international military power (Iran and Britain). Given the current regional power balance—and the past pattern—Iraq is likely to use its power overtly or implicitly to achieve regional domination. [This was after discussion of possible threats to Kuwait and Saudi Arabia.]
>
> *An Optimistic View.* A more benign view of Iraq and Saddam Hussein's intentions emphasizes that he has learned his lesson from the Iran-Iraq war and would not return to his "bad old days" of threatening Iraq's neighbors [citations given to various articles]. Iraq's recent emphasis on Arab unity is less grandiose than Nasser's . . . Hussein understands

[3]Prominent members of the Senate visited Iraq in mid-April 1990; not only did they not accuse him of Hitler-like behavior, they expressed sympathy about his alleged mistreatment by the press and the Voice of America.

> that threatening others would force the Gulf Cooperation Council states to seek closer relations with the U.S., which he does not want. . . .
>
> *Conclusion on Iraq as Threat.* At present the Iraqi policy direction appears closer to that seen in the pessimistic view than the optimistic one. Should Iraqi preponderance of relative power in the region continue, Iraqi ambitions are likely to grow. . . . If, however, Iraqi power can be balanced without threatening Iraq's core interests, Saddam . . . might adopt policies more consistent with the optimistic perspective.

It is notable that there was need to provide such balanced views, but even such distinctly muted pessimism regarding Iraq drew criticism at the time. The United States did *not* want to have Iraq become an enemy if that could be avoided. Perhaps Iraq would turn toward the light.

Iraq's Economic Status in Early to Mid-1990

Iraq was known in early 1990 to be in economic trouble, although in reviewing notes and papers from 1990, we concluded that the *painfulness* of the economic troubles to Saddam was not fully appreciated even by regional specialists before the invasion. The principal articles and books on the subject were published afterward, even though they rely upon data available before.

Iraq had approximately $80B in debts stemming from the war with Iran, compared with a GNP of about $35B, with a hard-currency income of about $14B. About half the debt was to Gulf states. The Saudis had not pressed for repayment of debt or interest (and Iraq also had paid none to the Kuwaitis), but debt servicing to the West approximated $6B annually, and the debt to the West was $10B higher than at the end of the Iran-Iraq war (Marr, 1991). Nonetheless, with an annual hard-currency income of about $14B, almost exclusively from the sale of petroleum, one might have thought Iraq would be able to get along reasonably well. In fact, however, Iraq had a severe cash-flow problem. Iraq was buying food and both industrial and consumer goods from abroad; Saddam was spending $5B per year on military purchases alone. Inflation was running at 40 percent per year. The country was in no mood for cutting back on foreign purchases generally, and Saddam did not want to slow down the purchase of military items, but Iraq was living beyond its means. Worse, the price of oil was on the wane (down significantly to about $14 per barrel, with each dollar a barrel corresponding to about $1B a year in income), due primarily to high production levels within OPEC, with Kuwait and the UAE both producing more than their agreed levels. Worst of all, Saddam had exhausted his lines of credit,

including Iraq's Special Drawing Rights. To put it bluntly, he was no longer able to write checks.[4]

Strategies and Options

It is clear from looking back at published and unpublished materials from early to mid-1990 that a variety of possible options were imagined for Saddam Hussein and could have been written down at any point. The options addressed both economic and political concerns and included the following:

- By demonstrating good behavior, a spirit of cooperation, and leadership, persuade Saudi Arabia and Kuwait to dissolve past debts, provide new loans or grants, and drive oil prices up.
- Reschedule debts with the West. Ignore debts to Saudi Arabia and Kuwait.
- Lean on Kuwait to reduce production so as to raise oil prices.
- Lean on Kuwait to gain access to Bubiyan and Warbah (the latter being a kind of marsh that Iraq wanted to dredge to enlarge the narrow channel leading to the port of Umm Qasr)—through a leasing arrangement, outright sale, or annexation. Seek new arrangements on the disputed Rumeilah oil field. Threaten military force if necessary.
- Invade Kuwait and take the islands and other disputed areas.[5] Thereafter, insist on controlled production rates, higher oil prices, dissolution of debts, and proper respect.
- Conquer Kuwait as a whole, thereby doubling wealth and gaining enormous power over the other Gulf states (so long as the United States does not deploy into the region in force).

The option of using military power coercively to lean on Kuwait was part of standard Middle Eastern bluster and had already been demonstrated in 1971, 1974, and 1989, which was yet another reason that Saddam's buildup in late July 1990 was not generally considered to be preparation for a true invasion.

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[4]See Marr (1991), Aspin (1990) (who quotes CIA figures), Karsh and Rautsi (1991a, b), and Darwish and Alexander (1991), and International Monetary Fund (1990) for discussion of these matters.

[5]Although it was common to focus on the islands in discussing Iraq's claims, some specialists envisioned that if Iraq invaded at all, it would occupy a section of northeastern Kuwait that would go beyond the islands alone. The islands are very close to the mainland in any case.

Factors and Variables

Regional specialists are too often asked for predictions and too seldom asked to itemize the factors influencing nations' (or leaders') behaviors, much less to project how behavior will change as a function of those factors. In our experience, however, much can be accomplished by pursuing such an approach.

Had there been a formal exercise to examine Saddam's reasoning, we believe that the following would have been identified as key factors:

- The "natural" course of oil prices (if they went up, Iraq would benefit and be under less pressure economically, but the trends were in the other direction).
- Saudi and Kuwaiti cooperation with Iraq in respect to oil production, prices, and past debts.
- The behavior of Saudi, Kuwaiti, and other Arab leaders toward Saddam Hussein personally—the degree of respect afforded him as the leader who protected them all against Iran and who was now the only leader able to prevent the United States from controlling the destiny of the Arab world.[6]
- The behavior of the United States with respect to a whole class of economic issues. Would the U.S. Congress continue to block economic activities with Iraq?
- A highly favorable regional military balance due to the military victory over Iran.
- Saudi attitudes about allowing the United States to increase its military forces in the region. The Saudis should fear the United States coming into their country, since the United States might not leave. However, the Saudis might also call on the United States to protect them if that became necessary. Similarly for the Kuwaitis.
- The long-term effects of possible coercive actions or outright invasion of Kuwait on Arab thinking about and behavior toward Saddam. Would such actions breed respect for strength and leadership, or would they cause a long-term backlash, including a willingness to bring the United States more into the region?
- The Arab-Israeli card. To what extent could Saddam keep the United States at arms length from the region by successfully as-

[6]The significance of this factor was explicitly highlighted by specialists in the July workshop. One from the CIA emphasized that "Saddam Hussein has a deep sense of *entitlement*." This imagery was appreciated as especially apt.

sociating himself with the Palestinian cause and by linking any actions of the United States with pro-Zionist motives? To what extent could Saddam exploit his increased political clout over Jordan, which was already making Israel very nervous?

- U.S. resolve in responding to possible military threats or actions, especially if it involved pain (i.e., casualties and an extended commitment).

There should be another factor in this list, but we are more skeptical about whether it would have appeared there had we been conducting a crisis exercise in 1990. With hindsight, it appears critical and "obvious," but it might not have been recognized as such:

- The wealth and cooperation Saddam *needed* to move substantially toward achieving his ambition of regional dominance.

As we shall see, this seems to be a critical factor in understanding Saddam's behavior later. In our view, American regional specialists and strategists simply did not appreciate that Saddam might not be thinking "reactively and incrementally," but rather was more strongly and impatiently goal driven. To observers, Iraq's economic plight appeared significant and interesting. However, to these observers it was also apparent that Iraq could "pull in its belt, do some rescheduling, and muddle along."[7] Saddam Hussein, however, appears not to have been interested in "muddling along."

ALTERNATIVE IMAGES OF SADDAM

The next step in our approach is to develop alternative models of Saddam Hussein. This raises a series of difficult questions, such as How many models do we need? How does one *define* a given model? Are the models to be thought of as extremes, with the truth in between, or as alternative images, one of which is "correct?"

Based on earlier work on possible Soviet and U.S. behavior in large-scale crises and conflicts (Davis, Bankes, and Kahan, 1986), our experimental effort with Saddam, and broad experience with political-military war gaming and strategic-planning exercises, we believe that

[7]The consistent effort to fit Saddam's thinking into that of a rational actor trying to "cope" may be considered a mind-set problem on the part of U.S. planners and the intelligence community. In a sense, it reflects a *de facto* U.S. operational code that sees the opponent as reactive and clever. Other aspects of this mind-set may have included believing that land-grabs were no longer plausible actions in the modern world and that Arabs simply don't invade other Arab states. For independent discussion of mind-set problems, see Oberdorfer (1991) and Gigot (1990).

two or at most three alternative models will suffice for most purposes (see also Schwabe, 1990).[8] The reader, however, can judge for himself. The key to our belief on this matter is not that we believe that either of the two or three models will be precisely "right," but that a large fraction of the benefit to be gained from viewing alternative scenarios, alternative futures, or alternative opponent models can be achieved by having two (or at most three) well-chosen alternatives.[9] That is enough to generate the open-minded and wide-ranging discussion that leads to an appreciation of "the game board," the most important alternative plausible trains of thought by the opponent, the need for hedged strategies, and the need to plan to adapt to events rather than stick with an original strategy.

Defining the models is a challenge requiring some analytic artistry and collabortion with regional specialists. Drawing on our earlier experience, we use an approach here that works in practice much better than one might expect *a priori*. The idea is that one forms a strong mental image of how the subject may reason; clarifies and communicates this image with descriptions, diagrams, and anecdotes; then proceeds directly to judgments about how the subject would reason on particular issues. This amounts to writing decision rules defining a particular model, and Appendix A provides general guidance on how to do so. Some of the judgments behind the rules are intuitively required for consistency with the basic image; others follow logically; and still others need to be discussed and may refine the basic image. By and large, one person should develop the first-cut decision rules for a given model. Discussion can then improve upon them, but only if it is recognized that the result should be a coherent description of

[8]A different set of two or three models is needed for different crisis situations, however. In dealing with Saddam Hussein, for example, we don't need to introduce a model of group decisionmaking by consensus. For other cases, we would.

[9]This is by no means obvious *a priori*, but several factors help. First, we assume that policymakers do not make decisions "randomly," but instead follow a relatively coherent and consistent logic, which may or may not be evident in advance. The requirement for coherence greatly reduces the number of models needed. A second factor is that some plausible types of models simply do not apply in particular cases. For example, Saddam Hussein would not be well described by a bureaucratic model. The third factor is that our approach includes conducting sensitivity analysis at crucial points in the analysis. Thus, if a particular model judgment is particularly important, then we see whether the same judgment would follow, within the same basic model, if we changed some assumptions about the model's perceptions or the detailed trade-off rules it would use. If results were highly sensitive, then we would need to proliferate models differing only in details. Fortunately, we have not found it necessary to do so.

how a real individual or coherent group might reason, not a committee product.[10]

Note that in this approach a given model is intended to be potentially "true." That is, we do not consider models representing caricatures, such as fire-breathing outrageously risk-taking war fighters or total pacifists. Truth may be a combination of our models, but that would be because *real* human beings often have competing personas that dominate under different circumstances (to include recent history),[11] not because of any desire on our part to develop caricatures as bounding cases.

Alternative Images

Given this background of information, what kinds of alternative images might reasonably have been drawn of Saddam Hussein in early to mid-1990? We believe that if workers had taken then the analytic approach we employ here, *and if they had been required to develop at least two images of Saddam Hussein, including one that might be threatening,* they would have developed something approximately like the two images we develop in what follows. We call these Model One and Model Two.[12]

Model One's version of Saddam sees him as cold, ruthless, calculating, pragmatic, and believing in *realpolitik*. It sees him in 1990 as being "driven" by Iraq's serious economic problems and his desire to rebuild Iraq in the aftermath of the Iran–Iraq war. Model One treats Saddam as being strong, but to a considerable extent "reacting" to events—trying to shore up his economy and survive politically (Karsh and Rautsi, 1991 a, b; Cooley, 1991). Although in many respects vile, Model One's Saddam is clever, flexible, self-limiting, and able to re-

[10]A standard question at this point should be whether our methodology suffers by assuming a unilateral actor. A rather different model should be applied when attempting to understand the behavior of pre-World-War II Japan or pre-Falklands Argentina. However, it is often a reasonable assumption that a *necessary* condition for war is the judgment for war of an individual leader—what Bueno de Mesquita calls a "gatekeeper" (Bueno de Mesquita, 1981). In the case of Iraq of 1990, the assumption of a unilateral actor is as realistic as it is ever likely to be.

[11]See Ross and Nisbett (1990) for discussion of how individual attributes and situational factors interact in complex ways. For example, it is wrong to characterize individuals as "risk taking," because, chances are, they will not exhibit risk-taking behavior in most circumstances.

[12]For general background on Saddam Hussein and his regime, from different perspectives, see especially al-Khalil (1989), Karsh and Rautsi (1991a, b), Farouk-Sluglett and Sluglett (1990), and Marr (1985).

verse gears if necessary. Such an opponent can perhaps "be dealt with."

Model Two's version is similar in some respects and very different in others. Although it also sees Saddam as cold, ruthless, calculating, pragmatic, and believing in *realpolitik,* it also sees him as being driven by ambition and a self-image of greatness. This version of Saddam is more like a conqueror of old, or perhaps a stereotypical Mafia don.[13] This version of Saddam is also more intuitive than in Model One. Although "calculating" in a narrow sense, Model Two's Saddam is more capable of strategic decisions driven by intuition, ambition, and in some cases frustration, than by careful well-hedged calculations. This model of Saddam is not usefully visualized as attempting to maximize expected utility—much less as attempting to "muddle along." This Saddam is more concerned with achieving greatness.[14] He is also more subject to paranoid tendencies and the inclination to *destroy* his enemies. Passions are deeper.

Both models see Saddam as willing to accept high costs to achieve his ends, and as being capable of reversing direction for tactical purposes. Both models consider him to respect power more than anything else.

Political psychologist Jerrold Post used the following words (Post, 1990) in the fall of 1990 in hearings before the House, but probably could have made the same comments before the crisis began:

> While he is psychologically in touch with reality, he is often politically out of touch with reality. Saddam's world view is narrow and distorted . . . he is surrounded by syncophants . . . afraid to contradict him. He has ruthlessly eliminated perceived threats. . . .
>
> Saddam's pursuit of power for himself and Iraq is boundless. . . . In Saddam's mind, he is destined for that role [leader of the Arab nation]. . . . While Hussein is not psychotic, he has a strong paranoid orientation. . . .
>
> The only language Saddam Hussein understands is the language of power.

[13]One journalistic account (Miller and Mylroie, 1990) reports that Saddam's favorite movie is *The Godfather*. As a related matter, Pryce-Jones (1991) notes in his impressionistic book the emphasis given in parts of Middle Eastern culture on the attributes of great personal strength, ruthlessness, power, and a version of honor that emphasizes status and revenge.

[14]See Darwish and Alexander (1991) for many examples of Saddam's sense of greatness, including his tendency constantly to associate himself with Nebuchadnezzar.

With this background, Table 2.1 compares the models' attributes side by side. These attributes are those that appeared to us to be most important and prominent in discussions of Saddam Hussein. They do not stem from a general theory of personality attributes, but rather from a perusal of the literature and from group discussions.[15] There is a great deal of overlap between Models One and Two. The differences relate less to straightforward attributes than to attributes involving passions, sensitivities, and behavioral styles. We should note, however, that Model One—our effort to construct a best-estimate image as of mid-1990—has some inconsistencies, which were always more worrisome to strategists than to regional specialists. For example, if one believed that Saddam Hussein was ultimately ruthless,

Table 2.1

Comparing Attributes of Models One and Two

Attribute	Model 1	Model 2
Ruthless, power-focused; emphasizes *realpolitik*	••	••
Ambitious	••	••
"Responsive"; seeks easy opportunistic gains	••	•
Impatiently goal seeking; likely to seek initiative	•	••
Strategically aggressive with nonincremental attitudes		••
Contemptuous of other Arab leaders	•	••
Contemptuous of U.S. will and staying power		••
Financially strapped and frustrated	••	••
Capable of reversing himself strategically; flexible (not suicidal)	••	••
Clever and calculating (not hip shooter)	••	•
Pragmatic and once-burned, now cautious	••	
Still risk taking in some situations	•	••
Grandiosely ambitious	•	••
Paranoid tendencies with some basis	•	••
Concerned about reputation and legitimacy in Arab and Islamic worlds	••	
Concerned only about being respected for his power		••
Sensitive to *potential* U.S. power not immediately present	••	•

NOTE: One bullet indicates that the attribute applies in principle to the model; two bullets indicate that it applies strongly. Thus, proponents of the first model might "grant" some attributes, but not make use of them in their assessments; similarly for proponents of the second model.

[15]These attributes are somewhat redundant, are of unequal importance, and probably do not represent a "complete set." Nonetheless, we find it useful to list attributes in this relatively concrete and case-specific way rather than attempting to impose a more abstract and generic structure. For a contrasting approach, see Kahan, Schwabe, and Davis (1985).

power-focused, ambitious, and so on, it is not evident that one should also have believed that he would care very much about what other Arab and Islamic leaders thought of him and his legitimacy—so long as they respected him for his power and power-derived legitimacy.

Cognitive Maps

In developing these models, we will use a version of so-called *cognitive maps*, which are diagrams attempting to show how someone connects ideas. Importantly, these diagrams should not be approached "analytically." Instead, their purpose is to extract in natural-language terms what the person in question is *really* concerned about (i.e., what's "on his mind") and what relationships he sees among things. The diagrams are not intended to be comprehensive or logically "tight," but rather to be impressionistically descriptive. As a result, they are to some extent *ad hoc* (or at least case-specific) devices. They supplement other methods, such as listing attributes and writing descriptive essays. Some people find them useful; others do not.

The conventions for using the diagrams are as follows. If two items are connected in such a diagram, an increase in the first tends to cause an increase in the second, unless there is a negative sign attached, in which case an increase of the first tends to decrease the second. Similarly, a decrease in the first item tends to cause a decrease in the second item unless there is a negative sign. The maps graphically summarize ideas and relationships that might otherwise appear one after another in an essay or discussion. They do not represent "new information," but they are often good summaries useful for discussion and debate, even in groups. They lose much of their value if they are recast in abstract terms or made complex and comprehensive.[16]

[16]An alternative approach that might be considered in future work involves identifying generic opponent attributes, building a generic model with these attributes parameterized, and then conducting studies of expected behavior, in specific situations, as a function of the attribute values in many dimensions. The advantage of such an approach is greater generality and the potential for more analytical rigor. The disadvantage is of such an approach is that it is more complex and has a tendency to slip off into abstractions, in contrast with the current approach, which emphasizes developing relatively sharp and personalized images of particular opponents. For discussion of how the parameterizing approach to modeling has been used in prior modeling work by the senior author and RAND colleagues on U.S.-Soviet crisis and conflict in multiactor contexts, see Shlapak, Schwabe, Lorell, and Ben-Horin (1986) and Kahan, Schwabe, and Davis (1985).

Figures 2.1 and 2.2 compare cognitive maps for Models One and Two. Figure 2.1 posits a mind-set in which, if Saddam were considering some aggression, he would contemplate a grab of the islands Warbah and Bubiyan, which would in the short run be likely to shake up the

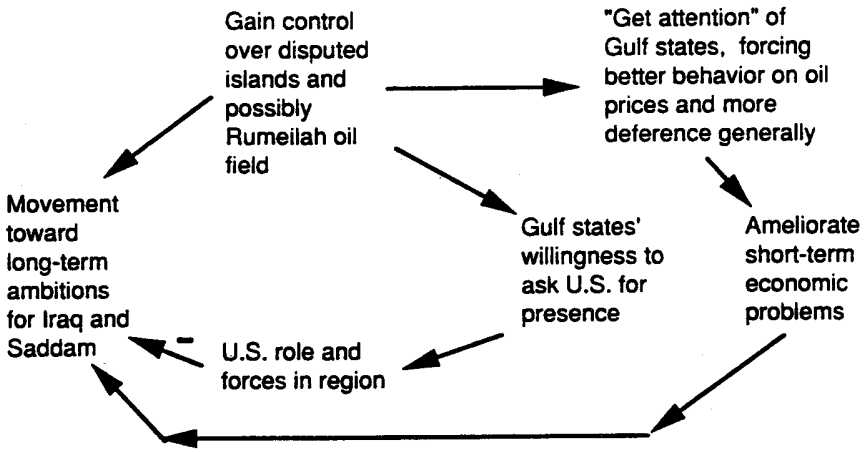

Fig. 2.1—Model One of Saddam's Reasoning About Aggression in Early 1990

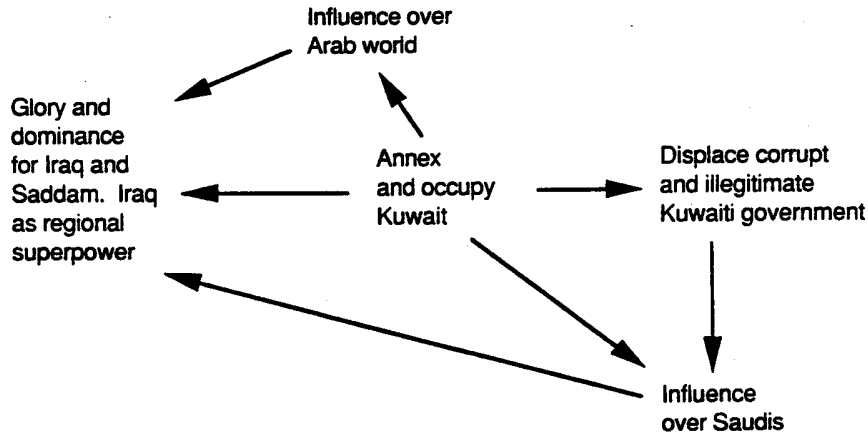

Fig. 2.2—Model Two of Saddam's Reasoning in Early 1990

Gulf states and allow him to have his way on oil prices and other matters.[17] However, he would recognize that the results might be counterproductive. Yes, Iraq would gain better strategic access to the Persian Gulf and would probably be able to force Kuwait to keep prices high, but the other Gulf states and Arab states outside the Gulf might turn against him and look to the United States for protection. The net effect, then, might be to undercut his long-term ambitions. This model of Saddam might be "forced" into military action (the apparent explanation by Karsh and Rautsi, 1991), but would not relish it.

Figure 2.2 shows the appraisal of Model Two. Here, Saddam is viewed as having more grandiose strategic ambitions, in which the islands are a minor consideration. This cognitive map is psychologically different from the first one in other respects as well. Although Model Two's Saddam would tend to worry that an invasion of Kuwait would lead to war or to U.S. build-ups in the region, he would see these possibilities as mere obstacles to be cleared by clever strategy and tactics, rather than as "givens" that preclude action.[18] Hence, the diagram doesn't show these possible negatives (a more sophisticated diagram might do so in small print or with parentheses to suggest "workable" problems).

Figures 2.3 and 2.4 provide an additional contrast of views, this one focused more on economic considerations. Figure 2.3 is consistent with the view that, while Iraq's economic problems were significant, there were ways to mitigate the problem: Iraq should seek to reduce Kuwaiti oil production, which would raise prices (note negative sign); persuade the Gulf states to relax past debts and get the United States to ease up on trade restrictions (something favored by the Bush administration); and, finally, convince Iraqis to accept some temporary belt tightening.

Figure 2.4 conveys, again, the more alarmist image of Model Two. Here we see prominently the notion of an active conspiracy against Iraq by the United States and the Gulf states—one causing excessive

[17]This illustrates how the cognitive-map approach focuses on the concrete rather the abstract. One might ask, "Why focus on these islands rather than some other issue?" The answer is that at the time (early 1990), it was believed that Saddam had his mind on these particular issues. This was based on a variety of objective and subjective indicators ranging from geographic and historical facts to Iraqi demands.

[18]See March and Shapira (1987) for discussion of this attitude about risks by businessmen.

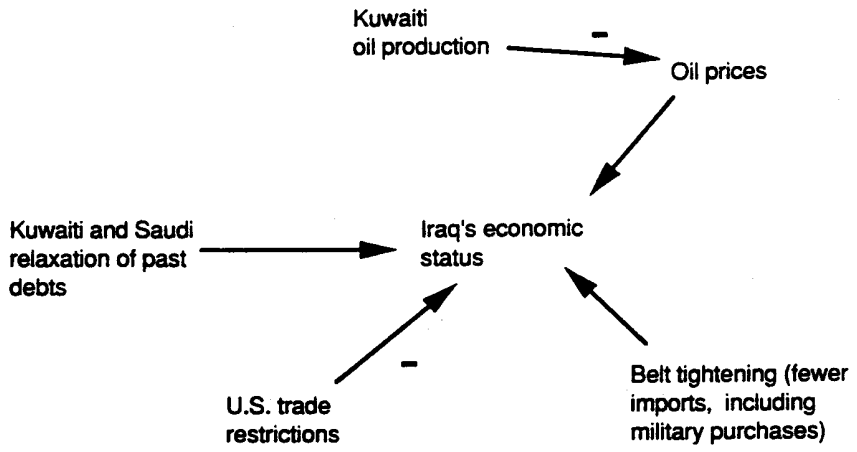

Fig. 2.3—Model One's Image of Saddam's Perspective on Economic Factors in Early 1990

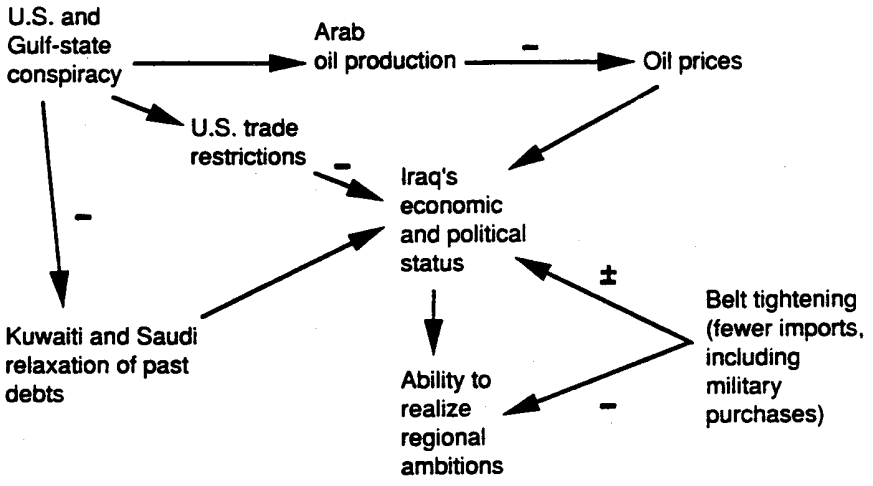

Fig. 2.4—Model Two's Image of Saddam's Perspective on Economic Factors in Early 1990

oil production, trade restrictions, and failure to cancel war debts.[19] Further, this model of Saddam directly relates the economic problems to his ability to realize ambitions as a regional superpower. The ambiguous ± on the rightmost arrow is due to the fact that belt tightening would improve the cash-flow situation, but would also cause political troubles and reduce the momentum of Saddam's military buildup.

A reasonable question here is why Fig. 2.3 does not also contain a link to regional ambitions. The answer is that the Model One image saw Saddam as focused on the items shown, not longer-term ambitions. To be sure, if someone had asked him, Saddam would have discussed long-term regional ambitions. However, the cognitive map we infer for those describing Saddam Hussein in early 1990 was one that deemphasized those considerations relative to the here and now of "getting by." This is consistent with the attributes of Table 2.1. That is, we do not include in the diagrams items that correspond to attributes having only one bullet in Table 2.1.

Relative Significance of Factors in Decisionmaking

The two models of Saddam Hussein would also ascribe different significance to the factors affecting decision. For any option being considered, an assessment of consequences would involve political, military, and economic considerations, but there would be differences. Fig. 2.5 suggests the way a Model-One Saddam might view factors; Fig. 2.6 does the same for Model Two. Qualitatively, Model One is driven primarily by short-term economic considerations (note thicker arrow), but is also relatively sensitive to Iraq's (and Saddam's) status in the Islamic world (to the "man in the street" as well as the monarchs in power). Although Model One's Saddam is certainly interested in power also, the other considerations dominate decisionmaking. He is, to a considerable extent, reacting to travails.

Model Two represents a Saddam Hussein who is much more concerned about moving forward in his quest for regional domination. This model of Saddam is relatively insensitive to short-term political considerations (figuring that in the long run he will be respected for his power) and very sensitive to both short-term and long-term economic and power factors. Although Saddam probably does not distinguish between Iraq and himself clearly, Fig. 2.6 suggests that

[19]See Marr (1991) for discussion of some of these aspects of Saddam's mind-set. While Saddam's somewhat paranoid tendencies were widely recognized, they play a significant role only in the images of Model Two.

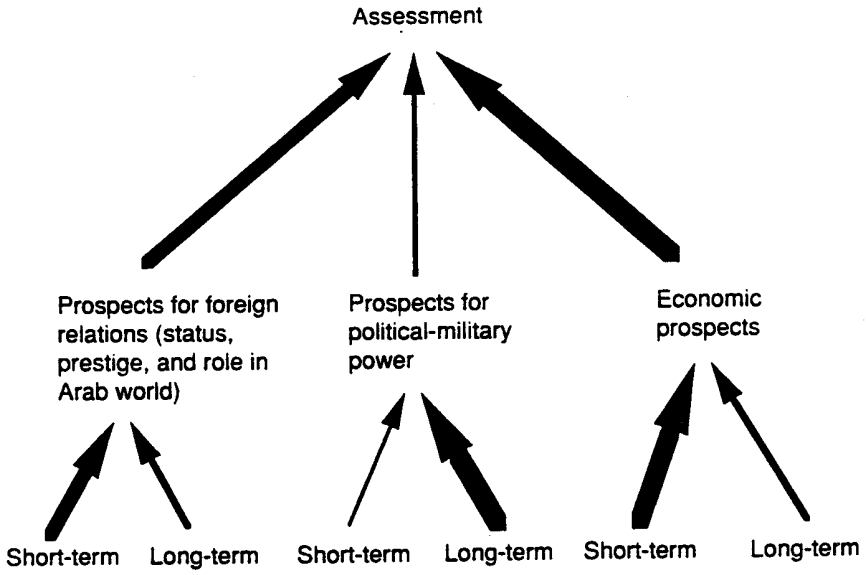

Fig. 2.5—Model One's Weighting of Factors

Saddam acts in ways that are more important to Saddam personally than to Iraq as a whole.

Whereas Figs. 2.5 and 2.6 suggest how the models might decompose any particular assessment, Figs. 2.7 and 2.8 suggest how, for a given option, they would distinguish among best-estimate, worst-case, and best-case assessments of consequences. These are called Prospects, Risks, and Opportunity in the figure. Model One's Saddam treats continuing current policies as an option; hence, his assessment in absolute terms of the current situation is merely one factor (note thin arrow on left). He focuses on the best estimate and risks (thick arrows). Model One's Saddam is "calculating," which often leads to incrementalist opportunism.[20]

By contrast, not only is Model Two's Saddam restless and frustrated (so is Model One's), he is even more so because he measures the situation and trends in absolute terms—their implications for achieving goals. A bad current situation, then, will tend to force decisive action—especially if it is accompanied by a need or desire to control the

[20]As noted earlier, App. A discusses how to turn these pictorial representations into well-defined decision rules. There is no clear-cut algorithm for doing so, because the exercise mixes art and science, but the appendix gives significant guidelines.

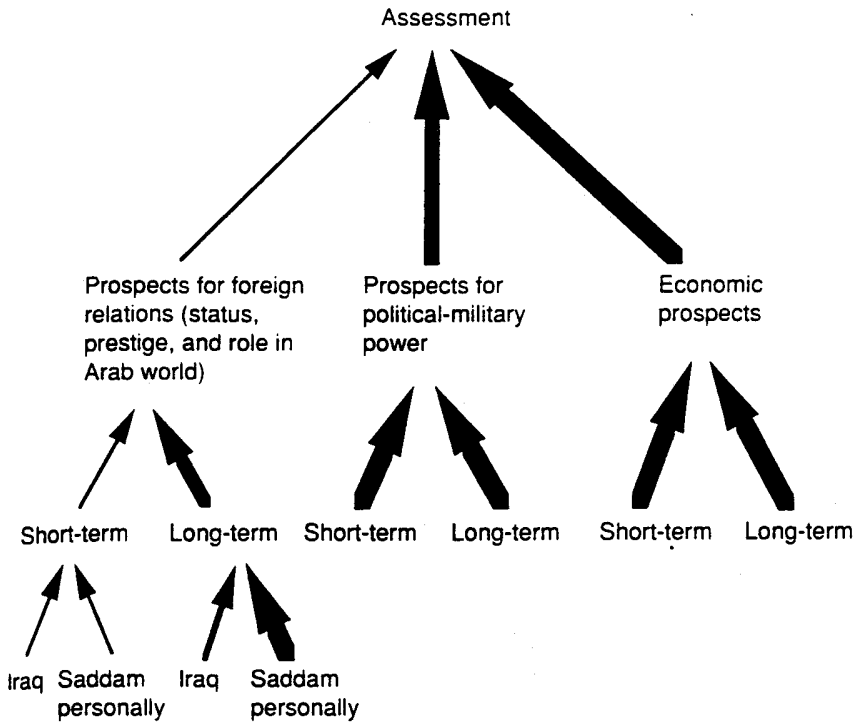

Fig. 2.6—Model Two's Weighting of Factors

initiative. Model Two's Saddam is also significantly less concerned about risks than about the probable outcome and, secondarily, opportunity—i.e., the upside or best-case outcome. This model of Saddam also allows for even stronger "nonrational" considerations stemming from such psychological factors as paranoia, megalomania, relative deprivation, and an absolute refusal to lose—except possibly with a view to coming back another time. As has become increasingly evident from the empirical literature on cognitive psychology, all of these can lead to risk-taking behavior. Figure 2.9 suggests pictorially how some of the factors combine to do so.[21]

[21]See Davis and Arquilla (1991) for more lengthy discussion. Some relevant references in the psychological literature include Kahneman and Tversky (1979), Kahneman and Lavallo (1990), and Ross and Nisbett (1991). The latter summarizes many of the most important conclusions of modern social psychology and discusses the subtle and important distinctions between common-sense beliefs and results of empirical research on the manner in which behavior depends not only on an individual's style but, importantly, on details of situation. Note also that Fig. 2.9 can be recast in terms

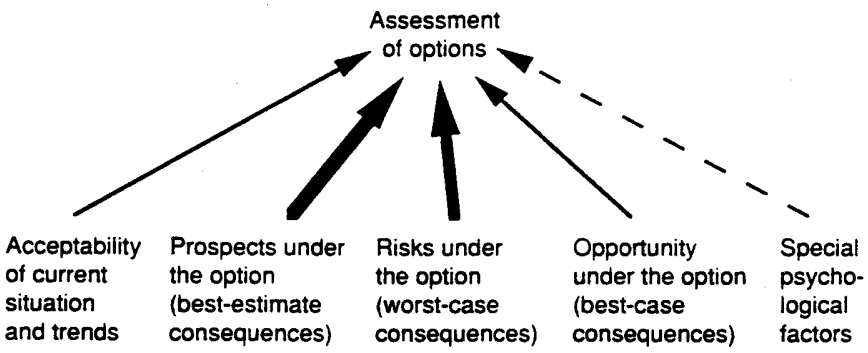

Fig. 2.7—Model One's Weighting of Risks and Other Factors

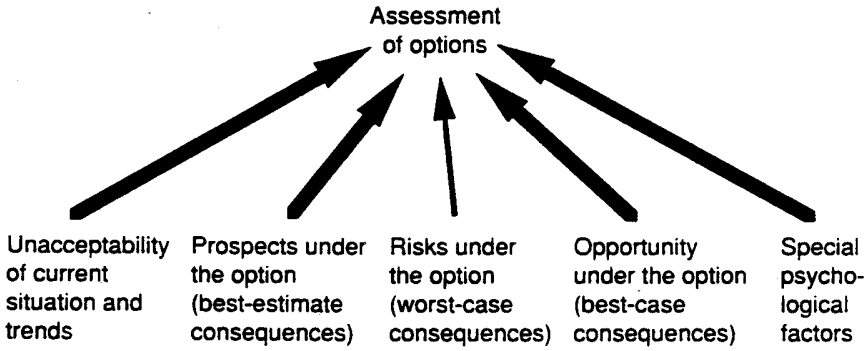

Fig. 2.8—Model Two's Weighting of Risks and Other Factors

Aspects of Risk-Acceptant Behavior

Risk-taking behavior, as we define it, includes a combination of distinguishable but related phenomena: (a) failing to see certain risks, (b) underestimating some of those that are recognized, (c) ignoring risks estimated to be below some threshold of significance when eval-

of more generic concepts. Starting at the top and moving clockwise, one might replace the items by (a) stimulus, (b) organizational factors, (c) individual characteristics, (d) existence of opportunities, (e) individual and national ability to tolerate pain, (f) downside risks, and (g) perception of having the initiative. There are other factors that might contribute in other circumstances. These include a belief that the other side is about to take aggressive action, in which case one's own "aggression" would instead be "preemption."

Fig. 2.9—Factors Influencing Risk Acceptance

uating options, and (d) consciously placing more value on achieving goals than on avoiding bad outcomes. The first two may be regarded as perceptual errors; the third may be regarded as a sometimes misleading heuristic for real-world problem solving; the fourth is a matter of values. Despite the dictates of "prescriptive" decision theories, all of these aspects of behavior are familiar to us in our own lives and are reproducible in scientific experiments across a range of subjects.

Model Two's Saddam is still cool and "calculating" in some respects, but is less *sound* strategically and more willing to risk misery for his country. This model corresponds more to a conqueror's mentality, or the mentality of some of the great generals known for their decisiveness rather than their analysis. It corresponds also to the mentality of someone emphasizing intuition.[22] This Saddam is relatively insensitive to risks—given an unsatisfactory current situation and substantial opportunities—because, intuitively, he considers risks as mere problems to be confronted and solved. Further, it seems more to maximize the likelihood of major success than to maximize the likelihood of at least limited gains (see discussion about "going for the gold" in Davis and Arquilla, 1991). Such attitudes about risks are apparently common among entrepreneurs as well as conquerors (see, e.g., March and Shapira, 1987).

[22]One of the great mysteries of the crisis was Saddam's release of the "foreign guests." We do not know his reasoning, although it may have been that by releasing the hostages he thought he would increase the likelihood of Congress refusing to sanction war.

Review

In the preceding pages we have used several devices to sketch portraits of our alternative Saddams. The purpose has been to create relatively sharp mental images that will be useful in what follows. In the next section, we will discuss concrete examples of how the alternative Saddams might have reasoned in a variety of circumstances. We will present "decision tables" and "judgment tables" describing the reasoning analytically. In developing those tables, we drew heavily on the mental images. Note, however, that there are no hard-and-fast rules as yet for moving from the images of this section to the decision tables of the next. The images are merely aids for structuring knowledge (including subjective beliefs) and maintaining coherence.

3. APPLYING THE MODELS OF SADDAM TO THE CRISIS AND CONFLICT OVER KUWAIT

THE MOVE TO CRISIS: EARLY 1990

With this background, let us now consider how the two models would have assessed Saddam's options in early to mid-1990—i.e., before he began active political coercion of Kuwait and preparation for war. This is a simulation of a plausible reality, not a historical rendition: we (the authors) simply do not know when Saddam decided to go down the path to war. It is likely that his military forces practiced invasion options for months if not years, although DIA had apparently not detected visible signs of related exercises (Woodward, 1991, p. 207). It is also likely that he personally considered such options for years. It is much less clear whether he made the decision to invade early in 1990 and covered his plans with a superb deception campaign, decided on the invasion late in the game, or developed a branched strategy allowing him to go to war or not, depending on how the Kuwaitis and others reacted.[1]

Table 3.1 is a top-level decision table (or, more specifically, an "options comparison table") summarizing our assessment of how a Model-One Saddam would have viewed his options early in 1990. In our initial work, we filled out Table 3.1 directly on the basis of our mental images and intuitive understanding of the trade-offs. Some of this we accomplished during group discussions using viewgraphs and a marker to make corrections. Later, we tidied up by using the methods described in App. A as analysis aids. The tidying up is important, since reasoning with qualitative variables can be subtle, despite its apparent naturalness.

One reads the first line of the body of Table 3.1 as follows (subsequent tables are read in an analogous way):

If Option is 1 (Continue Policies) and

Current Status is Bad and

[1]Karsh and Rautsi (1991a) argue against any grand scheme and make the case that Saddam was reacting to events. Our own subjective appraisal is that the invasion had long been planned, but Saddam probably maintained his options to the very end. Saudi Arabia's Prince Bandar apparently concluded that Saddam had planned his invasion for months (see Woodward, 1991, p. 239). Colleague Joseph Kechichian has argued similarly, as discussed in a forthcoming paper, "Iraq and the Gulf," to be published in *Conflict*.

Table 3.1

Model One's Option Comparison in Early 1990

Option	Current Status	Likely Prospects	Risks (Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
1. Continue policies	Bad	Bad	High	Marginal	Bad
2. Coerce Kuwait	**Bad**	**Marginal**	**Marginal**	**Good**	**Marginal**
3. Occupy part of Kuwait	**Bad**	**Bad or Marginal**	**High or Marginal**	**Good**	**Bad or Marginal**
4. Conquer Kuwait	Bad	Bad	Very High	Very Good	Very Bad
5. Invade Kuwait and Saudi Arabia	Bad	Very Bad	Very High	Very Good	Very Bad

NOTE: Ranges of variables are as follows: Current status: {Very Bad, Bad, Marginal, Good, Very Good}; Likely Prospects: {Very Bad, Bad, Marginal, Good, Very Good}; Risks: {Very High, High, Marginal, Low, Very Low}; Opportunity: {Very Poor, Poor, Marginal, Good, Very Good}; Net Assessment: {Very Bad, Bad, Marginal, Good, Very Good}. These ranges apply to these variables in all subsequent tables as well.

Likely Prospects are Bad and

Risks are High and

Opportunity is Marginal,

Then

Net Assessment of the option is Bad.

Here and in subsequent tables of this type, we have printed the most attractive options in bold letters.

As shown in the footnotes to the tables, the variables are qualitative, with values such as Very Bad, Bad, Marginal, Good, and Very Good. Tables such as this are quite useful in group discussion, where, in *most* cases, there will be quick agreement on the values and the net assessment—so long as the group has a clear image of "which" Saddam they are supposed to be thinking about and a common sense of what the different values "mean." As noted above, however, we have filled out the table using a more formal approach, defined in App. A, which assures reproducibility and consistency.

The "Continue policies" option here would have meant badgering Kuwait to reduce oil production, continuing to ignore requests for interest payments from Kuwait (apparently Saudi Arabia was quietly forgiving Iraq's debts), and rescheduling Western debts to mitigate his cash-flow problems. However, with 40-percent annual inflation

and political problems at home, and—more importantly—with the tight economic situation precluding him from pursuing his broader ambitions, a Model-One Saddam would judge his current situation and likely prospects to be Bad. Further, the situation could get even worse than expected and there was only marginal reason for hope—unless the underlying situation changed. The net result: the Continue-policies option looked Bad.

Option Two, attempting to coerce Kuwait by threatening military force, would have looked better—only marginally so, but with at least a significant upside potential and only modest risks. The options involving invasions would have seemed risky to a Model-One Saddam, with the possible exception of a limited land grab in Kuwait, which we show as ambiguous as of early 1990. He would both "see" the risks and seek to avoid them. A Model-One Saddam would rate poorly any option involving High or Very High risks, especially the latter, unless he deemed current circumstances Very Bad (intolerable).[2]

Table 3.2 expands upon why a Model-One Saddam would have concluded that Risks would be Very High in a major invasion option. (Where "—" appears in a column, it means that the decision is independent of the variable in that column.) This table is of a different type from Table 3.1. This "judgment table" shows how different considerations are traded off in reaching judgments about Risks. It shows all the logical cases, with bold type indicating the case or cases that seem to describe the current situation at the snapshot of time being considered, as perceived by the model in question. That is, a Model-One Saddam would have characterized the situation with the second or the bottom line of the table. The assertion here is that if a Model-One Saddam thought U.S. intervention in Kuwait was even marginally likely, he would consider Risks to be Very High without further calculations (an example of a "thresholding heuristic"). Even if he thought the likelihood of U.S. intervention in Kuwait was Low, he would have estimated (second column, second line) the likelihood of the United States deploying into Saudi Arabia to be at least

[2]In using this approach, it is important to conduct sensitivity analyses. For example, Table 3.1 indicates that we concluded Model One would see Risks as Very High for Options 4 and 5, thereby resulting in a net assessment of Very Bad. It could be argued that a Model-One Saddam would have seen Risks as merely High for Option 4 because of the potential for backing out again if challenged. In that case, using the same App. A methodology, the net assessment of Option 4 would still be Bad and therefore inferior to Options 2 and 3. It is by conducting such sensitivity analysis on key issues that we are able to avoid proliferating models that are only modestly different from one another.

Table 3.2

Model One's Risk Assessment for the Conquer-Kuwait Option, Early 1990

Likelihood of U.S. Defending Kuwait	Likelihood of U.S. Deploying into Saudi Arabia	Consequences of U.S. Deploying into Saudi Arabia[a]	Attitudes in Arab World About invasion[b]	Risks
Low	High	Very Bad	—	Very High
Low	**Marginal**	**Very Bad**	**Bad**	**Very High**
Low	Marginal	Very Bad	Marginal or Good	High
Low	Low	Very Bad	Bad	Bad
Low	Low	Very Bad	Marginal or Good	Marginal
Low	High	Bad	Bad	Very High
Low	High	Bad	Marginal or Good	High
Low	Marginal	Bad	Bad or Marginal	High
Low	Marginal	Bad	Good	Marginal
Low	Low	Bad	Bad	Bad
Low	Low	Bad	Marginal or Good	Low
Low	High	Marginal	Bad	High
Low	High	Marginal	Marginal or Good	Marginal
Low	Marginal	Marginal	Bad	Bad
Low	Marginal	Marginal	Marginal or Good	Marginal
Low	Low	Marginal	Bad	Bad
Low	Low	Marginal	Marginal or Good	Marginal or Low
Low	—	Good or Very Good	—	[Not plausible]
Marginal or High	—	—	—	**Very High**

NOTE: Ranges of variables: Likelihood . . . : {High, Marginal, Low}; Consequences . . . : {Very Bad, Bad, Marginal, Good, Very Good}; Attitudes: {Bad, Mixed, Good}; Risks: {Very High, High, Marginal, Low, Very Low}. These ranges apply to these variables in all subsequent tables as well.

[a]Including possible counterattack against Iraq. [b]Attitudes toward Iraq.

Marginal, the consequences of that to be Very Bad, and the attitudes of the Arab world to his invasion Bad. Thus, the overall effect would again be Very High risks.

Not surprisingly, the situation would have looked different to a Model-Two Saddam, as suggested in Table 3.3. First, the current status (and trends) would have looked much worse to a Model-Two Saddam. Indeed, such a Saddam might well have concluded, as shown here, that the economic and other trends were "intolerable" (a Very Bad current status), since they implied the inability of Iraq (and Saddam himself) to achieve his goals for greatness, including achieving the status of regional superpower. There was little sensitivity to the evidence supporting this view of Saddam in early to mid-1990. Indeed, if Model Two had been developed prior to the full invasion buildup, analysts would probably have mischaracterized Saddam's assessment of the current situation as Bad rather than Very Bad.[3] Even so, a Model-Two Saddam would have nominated the Coerce-Kuwait *and* the Conquer-Kuwait options as being more favorable than doing nothing or continuing current policies. A Model-Two Saddam would have been more risk taking (see Fig. 2.9 for reasons) and would have been clearly aware that a *fait accompli* against Kuwait could be accomplished in hours, given appropriate preparation. Although the United States *might* intervene, U.S. power was distant, and regional Arab states were likely to reject any U.S. offers to deploy forces.[4]

Nonetheless, a Model-Two Saddam would have been aware of risks and would have had difficulty assessing both them and prospects at this early point. If he began threatening Kuwait, but in a way designed to make it appear he was merely attempting coercion, the United States and Gulf states might or might not react decisively. If they did not, then Risks would be lower and Prospects better than if they did. At this stage (early 1990), however, it was difficult to predict. Hence, in Table 3.3, we show the net assessment of Option 4

[3]As noted earlier, Saddam's economic problems were reaching a climax: Soon, he would be unable to "write checks" or borrow money, much less tend to his ambitions for growth. The facts of the situation were known to Western specialists, but the implications of the dry figures had not been interpreted through Saddam's eyes—at least to our knowledge.

[4]Readers may wish to review Table 2.1 to better follow the distinctions we draw between Models One and Two.

Table 3.3

Model Two's Option Comparison in Early 1990

Option	Current Status	Likely Prospects	Risks (Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
1. Continue policies	Very Bad	Very Bad	Very High	Poor	Very Bad
2. Coerce Kuwait	Very Bad	Marginal	High	Good	Good
3. Occupy part of Kuwait	Very Bad	Marginal	Very High or High	Good	Marginal or Good
4. Conquer Kuwait	Very Bad	Very Bad or Good	High to Very Low	Very Good	Bad to Very Good[a]
5. Invade Kuwait and Saudi Arabia	Very Bad	Very Bad	Very High	Very Good	Bad

[a]The big disparity in assessments reflects the uncertainty, as of early 1990, about what U.S. and Gulf-state reactions would be to the initial phases of a Conquer-Kuwait option (preparations for invasion disguised as Option 2).

as being Bad to Very Good, and, in Table 3.4, we highlight alternative assessments of Risks ranging from High to Very Low.[5] A Model-Two Saddam would have considered Option 3, occupying part of Kuwait, as Marginal (although possibly Good). A key point here is that he does not see much value in the likely outcome of either coercion or a partial invasion of Kuwait. This reflects important differences in value structure between Models One and Two, as discussed in the previous section through the use of attributes, cognitive maps, and weight-of-consideration diagrams. A Model-Two Saddam is not merely attempting to muddle along. He needs more information, however, to judge options.[6] Interestingly, an invasion of Saudi Arabia looks Bad, but is not entirely out of the question.

THE DAYS BEFORE INVASION: LATE JULY 1990

We may never know with certainty what transpired in the days and weeks before Iraq's invasion of Kuwait. Was the invasion long-planned, with elaborate deception; was it an option until the end; or was it the result of an *ad hoc* decision late in the game? One view of Saddam's behavior before the invasion (consistent with Model Two rather than Model One) is communicated by the following Arab fable (quoted from Darwish and Alexander, 1991, p. 255):

> "Stop thief!" shouted the wolf at the little lamb. "Eating the food of my cubs! I will tear you to pieces!"
>
> "That's impossible. I only eat grass, sir," replied the lamb as he moved quickly to the stream.
>
> "You're polluting the water I drink!" protested the wolf loudly.

---

[5]There are a number of distinctions between the logics of Tables 3.2 and 3.4. For example, the Model-Two Saddam does not automatically see Very High risks if he believes there is merely a Marginal likelihood of U.S. intervention in Kuwait. Nor, consistent with the image suggested in Sec. 2, does he place much weight on the reaction of the Arab world to an invasion.

[6]Initially, we believed that a Model-Two Saddam would have focused on the Conquer-Kuwait option from the start. However, logical analysis convinced us that even he would have maintained the option for more limited activities, because they might have higher payoff than expected. That is, objectives might be achieved without an invasion if Kuwait and Saudi Arabia came to fully appreciate their vulnerability to Iraq and, in Saddam's eyes, the legitimacy of his calling the shots in the Gulf.

Table 3.4

Model Two's Assessment of Risks for the Conquer-Kuwait Option, Early 1990

Likelihood of U.S. Defending Kuwait	Likelihood of U.S. Deploying into Saudi Arabia	Consequences of U.S. Deploying into Saudi Arabia[a]	Attitudes in Arab World About Invasion[b]	Risks
Low	High	Very Bad	—	Very High
Low	Marginal	Very Bad	Bad	High
Low	Marginal	Very Bad	Marginal or Good	High
Low	Low	Very Bad	Bad	Low
Low	Low	Very Bad	Marginal or Good	Low
Low	High	Bad	Bad	High
Low	High	Bad	Marginal or Good	High
Low	Marginal	Bad	Bad or Marginal	Marginal
Low	Marginal	Bad	Good	Marginal
Low	Low	Bad	Bad	Very Low
Low	Low	Bad	Marginal or Good	Very Low
Low	High	Marginal	Bad	Marginal
Low	High	Marginal	Marginal or Good	Marginal
Low	Marginal	Marginal	Bad	Low
Low	Marginal	Marginal	Marginal or Good	Low
Low	Low	Marginal	Bad	Very Low
Low	Low	Marginal	Marginal or Good	Very Low
Low	—	Good or Very Good	—	[Not plausible]
Marginal	—	—	—	High
High	—	—	—	Very High

[a]Including possible counterattack against Iraq.

[b]Attitudes toward Iraq.

"That's impossible. I'm downstream from you, sir," replied the lamb, trembling.

"I am talking about last year," said the wolf as he came closer to the lamb.

"That's impossible. I wasn't even born last year, sir."

"It must be your father, the spitting image of you," said the wolf as he pounced on the lamb, "but there is no time to look for him right now."

Let us next consider how the situation would have looked to our models of Saddam shortly before his fateful final decision to invade. Table 3.5 shows Model One's evaluation of options. Option 1 is no longer relevant, because the previous two weeks had been spent attempting to coerce Kuwait. In effect, Option 2 includes slipping back to previous policies with whatever gains were possible through coercion. We show the Likely Prospects and Net Assessment of Option 2 to be Bad because there continue to be discrepancies in the public record about what degree of success Iraq was having.[7] Reportedly, Kuwait had agreed to at least $3 more per barrel, which would have helped (prices were running about $18/barrel at the time). Some reports suggest that Kuwait also made no particular effort to collect interest payments on the war debts, recognizing the folly of doing so. Other reports suggest that Kuwait "reminded" Saddam of the interest payments owed and pointedly avoided forgiving the debts. Further, Kuwait had at least earlier been stalwart (or stubborn, in Saddam's eyes) in rejecting any compromise on the islands or Iraq's claims about the shared Rumeilah oil field.

Even if the Kuwaitis did not make last-minute concessions, the pragmatically oriented Model-One Saddam would probably have concluded that the coercion effort was as far as Iraq could go at present. He would *probably* not have approved an invasion. But if he did—out of pique and frustration as the result of Kuwait not treating Iraq (and Saddam) properly and even conspiring with others to keep Iraq

[7]It is unclear that we shall ever know with certainty the truth of what happened in the last two weeks of July. Kuwait's Sheikh Sabah al-Ahmad stated in an interview with the Cairo weekly *Al-Mosawar* that in the July 31 meeting at Jeddah, Kuwait had finally agreed to write off the Iraqi debts and to lease Warbah Island to Iraq. The official Kuwaiti version, however, said nothing about this. The Iraqi version was to the effect that the Kuwaitis had been negotiating in bad faith and behaving arrogantly, like small-time grocery-store keepers. (Darwish and Alexander, 1991, p. 278). Ambassador Glaspie, in testimony to the House on March 21, 1990, stated that her impression was that the Kuwaitis had hung tough, but she said she had never seen a definitive account of the Arab sessions (U. S. House of Representatives, 1991). See also Cooley (1991), which tends to the view that Saddam was "forced" by economic events to invade.

Table 3.5

Model One's Assessment of Saddam's Options Shortly Before the August 2 Invasion

Option	Current Status	Likely Prospects	Risks (Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
2. Coerce Kuwait	**Bad**	**Marginal**	**Marginal**	**Good**	**Marginal**
3. Occupy part of Kuwait	**Bad**	**Marginal or Good**	**High**	**Good**	**Bad or Marginal**
4. Conquer Kuwait	Bad	Bad or Marginal	Very High	Very Good	Very Bad to Bad
5. Invade Kuwait and Saudi Arabia	Bad	Very Bad	Very High	Good	Very Bad

down—he would have contemplated minor military actions to occupy a portion of Kuwait (i.e., the islands and the northeast corner near Ritka and Qasr, as feared by Kuwait's Prime Minister). The other invasion options, especially a Conquer-Kuwait option, would have looked very risky (see Table 3.6) for the same reasons as earlier. Ambassador Glaspie's statements and other statements of the State Department would probably have been perceived by a Model-One Saddam as significant political warning. According to her recent testimony (U.S. House of Representatives, 1991), Glaspie believed Saddam saw the warning:

> AMB. GLASPIE: On the 18th we took public and private steps. The State Department spokesman warned publicly that if any country, Iraq specifically, thought that we had changed our policy they were very wrong, we would continue to defend the right of navigation in the Gulf through the Straits of Hormuz; we would continue to ensure the free flow of oil through the Straits; and above all—and she stressed this [sic]—we continued to be strongly committed to the individual and self—individual and collective self-defense of our friends in the Gulf. This is, as you all know in this distinguished committee, a very strong statement.
>
> He [the Iraqi ambassador] was told we would continue to defend our vital interests in the Gulf. And I think this is important: That we would support the sovereignty and integrity of the Gulf states. We would not take positions on the equities of bilateral Kuwaiti-Iraqi disputes, but we would insist that disputes be settled peacefully. . . .
>
> . . . . . .
>
> REP. HAMILTON: . . . Ms. Tutwiler said after the July 17th speech, and you quoted this a moment ago, "We would certainly under any circumstances defend our vital interests." She also said, "We're strongly committed to the individual and collective self-defense of our friends in the Gulf."
>
> . . . . . .
>
> REP. HAMILTON: Do you believe that Saddam Hussein clearly understood, without any shadow of a doubt, that if he went into Kuwait the United States was going to oppose him vigorously and strongly with all of its military power?
>
> AMB. GLASPIE: . . . I am absolutely sure that he knew—that he knew that we would fight. I think it dawned on him as a truly—as a possibility on the 25th—or the 24th when he heard that announcement. . . .

While we and others question the clarity and credibility of the warning, it would violate defining assumptions of Model One (e.g., pragmatism and calculation) to assume that Model One's Saddam would not have considered warning of U.S. intervention—at least to the extent of deploying into the region—to be at least Marginal and perhaps

High. Further, he would have concluded that attitudes in the Arab world would be quite unfavorable—because of the elaborate strategic deception, which included lying to President Mubarak, King Fahd, and others, and because the invasion would obviously pose a threat to Saudi Arabia. Model One's Saddam would also regard it as "self-evident" that a U.S. deployment into Saudi Arabia would have Bad or Very Bad consequences—without attempting to fine-tune the assessment. Model One's Saddam, then, would be risk averse in these judgments. Table 3.6 shows how he would assess risks, with the boldface text indicating which of the judgments in the table he would be most likely to think applicable. All of them correspond to an overall assessment of Very High risks for an invasion option. Note that it is not necessary to assume that Ambassador Glaspie's message had the strong effect she claimed for it: Even if Model-One's Saddam considered the likelihood of the United States deploying into Saudi Arabia to be merely Marginal, the other factors would have raised the overall risk assessment.[8] It was for all of these reasons that the real-world U.S. government (and many regional leaders) continued to believe that there would be no invasion until very shortly before it occurred. Indeed, even after there were very strong tactical warning indicators, there was considerable reluctance to accept them or do anything about them.[9] It is fair to argue that the U.S. government was to a considerable extent paralyzed by what we call the *tyranny of the best estimate* (or what might also be termed the tyranny of the dominant image).

Table 3.7 shows our Model-Two appraisal as of late July. Here there is a stark contrast with Model-One Saddam and with Model-Two Saddam's earlier ambiguous judgments. The model still considers Current Status to be Very Bad, not merely Bad. Indeed, things are worse than before, because Saddam had been treated poorly by what he considered to be the corrupt, illegitimate, Western-leaning

[8]Karsh annd Rautsi (1991a) argue that Saddam felt compelled to act out of desperation, but do not explain why he did not do something more incremental. They do cite Saddam's remarks as of mid-July, however: "War is fought with soldiers . . . but it is also done by economic means. Therefore we would ask our brothers who do not mean to wage war with Iraq: this [the continued violation of oil quotas, etc.] is in fact a kind of war against Iraq . . . we have reached a point where we can no longer withstand pressure." Another factor in Saddam's reasoning, of course, must have been the major asymmetry in power between Iraq and Kuwait.

[9]The most credible discussion of this period is Woodward (1991, Ch. 17), which is apparently based on extensive interviews with General Powell, Secretary Cheney, and many other senior participants in the crisis other than the President.

Table 3.6

Model One's Late-July Risk Assessment for the Conquer-Kuwait Option

Likelihood of U.S. defending Kuwait	Likelihood of U.S. deploying into Saudi Arabia	Consequences of U.S. deploying into Saudi Arabia[a]	Attitudes in Arab world about invasion[b]	Risks
Low	**High**	**Very Bad**	—	**Very High**
Low	**Marginal**	**Very Bad**	**Bad**	**Very High**
Low	Marginal	Very Bad	Marginal or Good	High
Low	Low	Very Bad	Bad	Marginal
Low	Low	Very Bad	Marginal or Good	Marginal
Low	**High**	**Bad**	**Bad**	**Very High**
Low	High	Bad	Marginal or Good	High
Low	Marginal	Bad	Bad or Marginal	High
Low	Marginal	Bad	Good	Marginal
Low	Low	Bad	Bad	Marginal
Low	Low	Bad	Marginal or Good	Low
Low	High	Marginal	Bad	High
Low	High	Marginal	Marginal or Good	Marginal
Low	Marginal	Marginal	Bad	Marginal
Low	Marginal	Marginal	Marginal or Good	Marginal
Low	Low	Marginal	Bad	Low
Low	Low	Marginal	Marginal or Good	Very Low
Low	—	Good or Very Good	—	[Not plausible]
Marginal or High	—	—	—	**Very High**

[a]Including possible counterattack against Iraq.

[b]Attitudes toward Iraq.

Table 3.7

Model Two's Assessment of Saddam's Options, Late July 1990

Option	Current Status	Likely Prospects	Risks (Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
2. Coerce Kuwait	Very Bad	Bad	Very High	Marginal	Bad
3. Occupy part of Kuwait	Very Bad	Marginal	Very High	Good	Marginal
4. Conquer Kuwait	**Very Bad**	**Very Good**	**Marginal**	**Very Good**	**Very Good**
5. Invade Kuwait and Saudi Arabia	Very Bad	Very Bad	Very High	Very Good	Bad

Kuwaitis, who he believed were engaged in a long-term conspiracy to contain Iraq, and because it was becoming manifestly clear that decisive actions would be necessary if there was to be any hope of Iraq achieving its (Saddam's) ambitions. At this point, the *status quo ante* would have been intolerable. All the factors indicated in Fig. 2.9 were present. We believe that this could indeed have been recognized in a Model-Two effort as of late July.[10] It is also predictable that the Coercion of Kuwait option would have been deemed a failure even if the unofficial Kuwaiti claims of concessions, quoted above, were valid. At most (i.e., if we believe the comments by Sheikh Sabah al-Ahmad quoted by Darwish and Alexander), Kuwait offered to forgive the debts and lease Warbah; there was no willingness to ante up large amounts of money.[11] Believers in Model Two should by this time have been thinking of the Wolf-and-the-Lamb story in any case.

Importantly, Option 3 (occupying part of Kuwait) would *not* have seemed attractive to Model-Two Saddam, because the likely gains at this stage were modest by comparison with Saddam's needs,[12] while the Risks were significant (e.g., Kuwait might very well invite the United States to deploy into Kuwait as its protector). By contrast, the Conquer-Kuwait option would have looked Very Good, with prospects for *doubling* Iraq's wealth and putting a great deal of pressure on the Saudis.[13] Here we see the tangible significance of describing Model-Two's Saddam as *not* a pragmatic incrementalist. As discussed next,

[10]Our judgment here is based not only on logic, but also on the effect that the July 1990 RAND workshop had on the thinking of one of us (Davis) and colleague Zalmay Khalilzad.

[11]Karsh and Rautsi (1991a, p. 298) conclude that Kuwait remained as defiant as ever to the end, citing a statement by a Kuwaiti official to Radio Monte Carlo on August 1, 1990.

[12]Based on the reported thinking of Kuwaiti and other Arab leaders at the time, the unattractiveness to Saddam of the partial-invasion option would probably not have been evident even to believers in Model Two without the benefit of working through the kind of analytic structure suggested here. Even for regional specialists and regional leaders, "getting in the mind of the opponent" should not be left entirely to intuition. Nor is it sufficient to have "Arab specialists," since the issue is less Arab vs. non-Arab than one type of thinking vs. another, both of which can be found in the Arab world and elsewhere.

[13]Although we cannot *prove* that analysts attempting to develop and work with a second and more threatening model of Saddam Hussein would have reached the conclusions we cite here for Model Two, we believe they would have done so because the ingredients for the analysis were all at hand. Further, in the RAND seminar workshop held on July 17, the very process of discussion had the effect of causing some participants to take the invasion of all Kuwait (and conceivably Saudi Arabia) more and more seriously.

the risks of invasion at this stage would have looked only Marginal or lower.

The key judgment here is that regarding Risks.[14] Table 3.8 elaborates on our assessment. Figure 3.1 suggests schematically the reasoning that underlies it. Tables 3.9 and 3.10 elaborate on how Model Two would have judged political and military warning.[15] Bold indicates the cases that would seem to have applied as of late July or early August. Although Model Two would also be somewhat sensitive to risks because of history, the personality it embodies prefers to take risks rather than "muddle along" and would also tend to underestimate them in the sense of ignoring risks that seem below a threshold (see also discussion in App. A, especially Fig. A.1). Recall the factors summarized in Fig. 2.9: an intolerable current situation, control of the initiative, grandiose objectives, faith in his own intuition, pain tolerance, and so on. The key points here would have been as follows: (a) The U.S. had made *no* military preparations for intervention; (b) the Saudis were very unlikely to allow the U.S. to intervene; (c) even if the U.S. did attempt to intervene, the invasion would be a *fait accompli* before U.S. forces arrived in Saudi Arabia, thereby reducing to Marginal the significance of that deployment; (d) given the *fait accompli*, Arab reactions would probably be only Marginal; and (e) even if risks were a bit higher, the likely gain would make running those risks worthwhile.

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[14]This can be confusing unless one remembers to evaluate risks in terms of the "worst case outcome." If the worst-case outcome is Very Bad, then Risks are Very High. Thus, for Model Two, even though the risk of failure in occupying part of Kuwait might be very low, the worst-case outcome for that strategy involves not just the status of a portion of Kuwait, but whether Saddam would have gained enough financially and otherwise to achieve his major ambitions. For Model Two, possessing some real estate but being economically strangled and militarily blocked would be a Very Bad outcome.

[15]Saddam Hussein was himself asked about some of this in an interview by ITN Chief Editor Trevor McDonald on November 10 (FBIS-NES-90-219, November 13, 1990): McDonald: "Mr. President, when your troops invaded . . . did you think that the Americans would stand idly by and do nothing?" Saddam: "It didn't occur to us to begin with that this would be the first question that should be asked, but the first question in our minds was whether we were right or wrong . . . ." This hardly satisfies our curiosity on the matter.

Tarik Aziz has, since the war, stated that "We were expecting an American attack on the morning of the second of August" (see Los Angeles Times, May 31, 1991, "U.S. Envoy Never Gave Green Light to Hussein"). We are inclined to believe that Aziz' comment was either not entirely true or that when he says "We were expecting" he actually meant "We were concerned about and watching for," which would be consistent with our interpretation of events.

Table 3.8

Model Two's Late-July Risk Assessment for the Conquer-Kuwait Option

Likelihood of U.S. defending Kuwait	Likelihood of U.S. deploying into Saudi Arabia	Consequences of U.S. deploying into Saudi Arabia	Attitudes in Arab world about invasion (attitudes toward Iraq)	Risks
Low	High	Very Bad	—	Very High
Low	Marginal	Very Bad	Bad	High
Low	Marginal	Very Bad	Marginal or Good	High
Low	Low	Very Bad	Bad	Low
Low	Low	Very Bad	Marginal or Good	Low
Low	High	Bad	Bad	High
Low	High	Bad	Marginal or Good	High
Low	Marginal	Bad	Bad or Marginal	Marginal
Low	Marginal	Bad	Good	Marginal
Low	Low	Bad	Bad	Low
Low	Low	Bad	Marginal or Good	Low
Low	High	Marginal	Bad	Marginal
Low	High	Marginal	Marginal or Good	Marginal
Low	Marginal	Marginal	Bad	Low
Low	Marginal	Marginal	Marginal or Good	Low
Low	Low	Marginal	Bad	Very Low
Low	Low	Marginal	Marginal or Good	Very Low
Low	—	Good or Very Good	—	[Not plausible]
Marginal	—	—	—	High or Very High
High	—	—	—	Very High

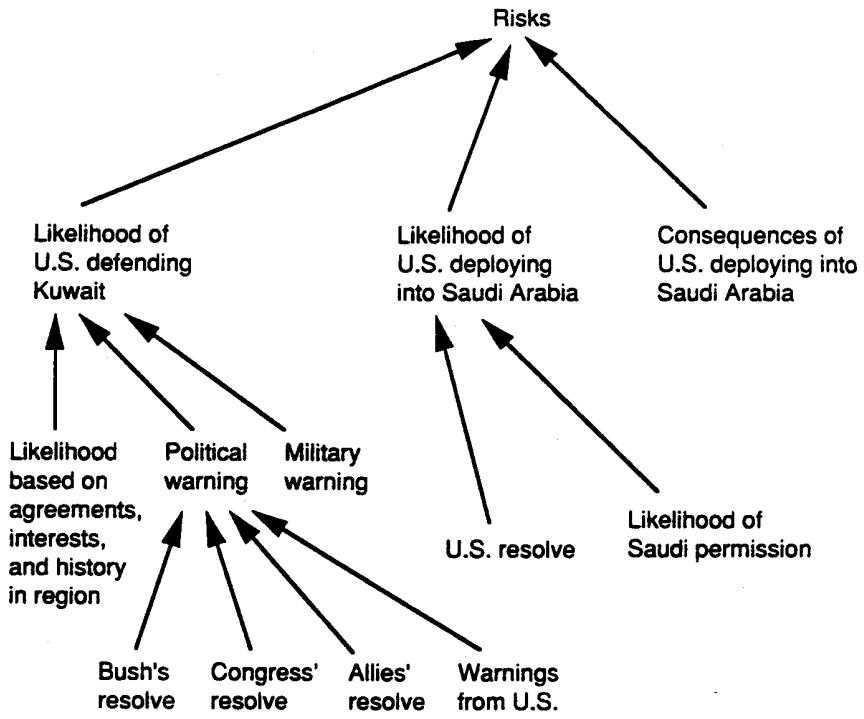

Fig. 3.1—Factors Affecting Risk Judgment for the Invade-Kuwait Option

To assess our overall methodology, the reader must judge the degree to which the judgements we make in Tables 3.9–3.10 would have been clear had there been an effort to develop and work with a Model Two of Saddam. What evidence was there for Saddam to work from? Ambassador Glaspie had apparently said, "We have no opinion on the Arab-Arab conflicts, like your border disagreement with Kuwait." Yes, she had been firm in urging Saddam not to use force and in asserting that the United States would defend its vital interests. However, she had not said (and, we believe, she *could* not have said, given then-current U.S. ambivalence, policies, and guidance to her)

Table 3.9

Model Two's Assessment of U.S. Intervention Likelihood

Inherent Warning Based on U.S. Agreements, Interests, and History	Political Warning	Military Warning	Likelihood of U.S. Intervention to Defend Kuwait
High	—	Marginal or High	High
High	Marginal	Low	Marginal
High	High	Low	High
High	Low	Low	Low
Marginal	High	Marginal or High	High
Marginal	High	Low	Marginal
Marginal	Marginal	High	High
Marginal	Marginal	Marginal or Low	Marginal
Low	High	High	High
Low	High	Marginal	Marginal
Low	High	Low	Low
Low	Marginal	High	High
Low	Marginal	Marginal	Marginal
Low	Marginal	Low	Low
Low	Low	Marginal or High	Marginal
Low	Low	Low	Low

Table 3.10

Model Two's Assessment of Political Warning

Bush's Resolve	Congress' Resolve	Allies' Resolve	Warnings from U.S.	Political Warning
High	High	Marginal or High	Marginal or High	High
High	High	Marginal or High	Low	Marginal
High	High	Low	Marginal or High	High
High	High	Low	Low	Marginal
High	Marginal	Marginal or High	—	Marginal
High	Marginal	Low	High	High
High	Marginal	Low	Marginal or Low	Low
High	Low	High	High	High
High	Low	High	Marginal or Low	Marginal
High	Low	Marginal	High	Marginal or High
High	Low	Marginal or Low	Marginal or Low	Low
High	Low	Low	High	Low
Marginal	Marginal or High	Marginal or High	High	High
Marginal	Marginal or High	Marginal or High	Marginal	Marginal
Marginal	Marginal or High	Marginal or High	Low	Low
Marginal	**Marginal or High**	**Low**	—	**Low**
Marginal	Low	High	High or Marginal	Marginal
Marginal	Low	High	Low	Low
Marginal	Low	Marginal	High or Marginal	Marginal
Marginal	Low	Marginal	Low	Low
Marginal	Low	Low	—	Low
Low	—	—	High	Marginal
Low	—	—	**Marginal or Low**	**Low**

that Kuwait's independence was a vital U.S. interest.[16] Yes, the United States had conducted a well-publicized naval exercise, but it was manifest from the minor nature of the exercise that it was a mere political signal, and an exceedingly modest one at that: The United States had deployed no air forces or ground forces to the region and had only modest naval forces there. In our view, this would have been an "antideterrent" to any decisionmaker like a Model Two.[17] Political signals are notoriously difficult to send successfully, but to attempt to demonstrate concern and resolve with a trivial movement of naval forces with minimal offensive military capability is very inappropriate—especially when dealing with an opponent known to respect only power and will.[18]

Interestingly, Saddam gave a clue to his thinking on this subject when he publicly responded to Mubarak's warnings regarding U.S. might. He said, in January of 1991, that "we are not ones to be intimidated by navies" (Murphy, 1991, p. 12). To reflect a distinction found in the political science literature, the United States had done nothing to move from a posture of "general deterrence" to a posture of "immediate deterrence," where we use these terms in the sense of Morgan (1983, p. 30):

> General deterrence applies to "opponents who maintain armed forces to regulate their relationship even though neither is anywhere near mounting an attack."

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[16]See Gigot (1991) for discussion of the signals the United States gave during this period. Even as late as July 31st, Assistant Secretary of State Kelly pointedly did not offer security guarantees to Kuwait during his testimony to Congress, although saying "but we have certainly, as have all administrations, resoundingly called for the peaceful settlement of disputes and differences in the region." Regardless of U.S. intent, the signal given was tepid at best. Indeed, it is one of the indicators used by the conspiratorialists who argue that the "real" U.S. objective was to entice Saddam Hussein into invading!

[17]President Bush may or may not have sent a message to Saddam on July 28th, stressing U.S. commitment to its friends in the region. If so, it probably repeated the same statements being made by the State Department.

[18]Most of our study avoids introducing anything that might be construed as an "Arab model," because we believe that the key factors are not unique to particular cultures and because not all Arab leaders would react in the same way to circumstances, including political-military signals. Nonetheless, it seems remarkable that the U.S. government should attempt to deter a stereotypical Middle Eastern despot with such a manifestly weak and temporary show of "force." See also the apparent views of Prince Bandar (Woodward, 1991, p. 240). Were we building models of U.S. decisionmaking, it seems evident that organizational factors would be critical, since such half-way measures are clearly the results of compromise: One side wants to do something impressive; another wants to do nothing provocative; the compromise is to do something trivial.

Immediate deterrence exists "where at least one side is seriously contemplating an attack while the other is mounting a threat of retaliation in order to prevent it."

It is also significant that even if Saddam Hussein had had impeccable knowledge of the thinking of U.S. military planners, he would have been less rather than more deterred: The fact is that U.S. military planning had not focused on Kuwait, but on Saudi Arabia. It would not be surprising if this had been inferred by Iraqi intelligence on the basis of years of Congressional testimony, the lack of U.S.-Kuwaiti ties,[19] the perceived indefensibility of Kuwait per se, and the objective fact that greater oil riches lie in Saudi Arabia.

It is crucial to some of our argument later that even Model Two's Saddam almost surely recognized that the United States *might* decide it wanted to deploy forces into Saudi Arabia. He probably believed, however—as did many regional specialists in the United States—that the Saudis would not permit it. Also, he would recognize that while the deployment *might* happen, its significance could be discounted, since, even if there was a political brouhaha for awhile, the Saudis would later insist on the United States leaving—once the situation had stabilized again.[20] Saddam could make a variety of promises and could argue that there had never been any disputes with the Saudis. He could even note that he and Saudi Arabia had signed a nonaggression pact. It is not our purpose here to argue that Model Two's Saddam would have welcomed or didn't care about the possibility of a U.S. deployment in response to the invasion, but rather that he would have concluded that the worst-case temporary outcome was tolerable. After all, the invasion would have doubled his wealth. A key point here is that we assume Model Two's Saddam would have "dismissed" the risk that the United States would not only deploy into Saudi Arabia, but then begin a counteroffensive to dislodge him from Kuwait. Although that was obviously possible, it probably seemed so unlikely that Saddam ignored the risk in his calculations. Again, then, we are applying the concept of *thresholding* in decisionmaking.

[19]One could argue that the reflagging of Kuwaiti tankers had been evidence of a tie or some kind of commitment. However, that operation involved one-of-a-kind circumstances and had come about only when the Kuwaitis had gone to the Soviet Union for help.

[20]News accounts after the invasion reported Iraqi officials expressing a philosophical belief that the U.S. could not retain its stance longer than perhaps six months. That was consistent with Saddam's contempt for U.S. staying power (see discussion in Khalilzad and Davis, forthcoming).

All of this, we believe, could and probably *would* have correctly been diagnosed in developing a Model Two of the situation at the time. The enemy of U.S. planning was the paralysis associated with focusing on the best-estimate judgment and, as discussed later, the belief that nothing could be done anyway because of various political constraints.

This Model-Two judgement also reflects a conscious effort to reflect descriptively the *probable* form of reasoning under these circumstances by a Model-Two decisionmaker operating without benefit of internal debate. Such decisionmakers—operating in a psychological regime called the "domain of losses"—are prone to taking, ignoring, or underestimating risks (see discussion and references in Davis and Arquilla, 1991). A careful calculation with utility theory would have raised the Risks estimate. After all, even a 10 percent likelihood of the United States going to war over Kuwait would be multiplied by a very high disutility. It is a characteristic of human reasoning, however, that "low-probability" risks are thresholded-out when the reasoner is eager for action.

Yet another psychological factor here is the sense that a Model-Two Saddam would have had of being in control of events. This tends to embolden people generally, and especially people with a self-image of greatness such as Saddam. It seems likely to us that the invasion of Kuwait had been planned well in advance and covered by an elaborate and successful deception campaign. Even if Saddam deferred his final decisions until late in the game, he was clearly in control of events—i.e., he *controlled the initiative*.

In summary, then, our assessment of how a Model-Two Saddam would have judged Risks is affected by both objective and subjective factors. We believe, nonetheless, that someone attempting to apply Model Two on August 1, 1990 should have reached the same conclusions—or at least recognized that this conclusion was *quite* plausible. Instead, the belief that he would not invade dominated, with some going only as far as believing that he might occupy a portion of Kuwait, but not the whole.[21]

[21]There is a view that Saddam may not have originally intended to conquer all of Kuwait, but that he went on to do so because he met no resistance. One argument for this view depends on reports that most of Saddam's invasion forces didn't have the ammunition that would have been expected for a true invasion (see accounts in Darwish and Alexander, 1991). Our own view is that Saddam had planned the invasion for some time. We note, for example, that the plundering of Kuwait was executed swiftly and with precision—including the detailed plundering even of museums. Also, the well-executed heliborne assault on Kuwait City appears to us to be evidence of considerable preparation. General Schwarzkopf went further and stated: [The vast

As it happens, of course, Saddam made a colossal strategic error.[22] The President reacted immediately to the invasion. In his mind, at least, there may never have been doubt that the invasion must be rolled back. Nonetheless, Saddam had good reason to doubt such a strong reaction would occur.

Interestingly, we believe that those who had concluded in the last days of July that Iraq was about to invade would also have been much more concerned about Iraq conquering *all* of Kuwait than they apparently were, if they had merely been exposed to Model-Two logic.

To recapitulate, Model-Two Saddam probably judged Risks to be Marginal or less because (a) the United States had no defense commitments with Kuwait; (b) Kuwait per se was not a vital interest to the United States; and (c) the United States had pointedly avoided identifying Kuwait as a vital interest—either publicly or in the comments by Ambassador Glaspie; (d) Saddam may have known that the U.S. military establishment did not relish the thought of attempting to defend in Kuwait, starting from half-way around the world; and, in any case, (e) Saddam controlled the initiative—something that routinely causes overconfidence and risk-taking behavior, in part because it provides many options and perceived opportunities to change course later if necessary (Davis and Arquilla, 1991).[23] In addition, Saddam probably did not seriously imagine that the United States would not only deploy into Saudi Arabia, but also initiate war to force him to withdraw. This, indeed, proved to be one of Saddam's biggest errors.[24] It was an error, however, that Americans made also.

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amount of prepositioned supplies found by the allied armies in Kuwait were] "far in excess of anything anyone would need either to attack Kuwait or defend Kuwait. So I think we're all pretty well convinced that he had greater ambitions that just taking Kuwait" (Pyle, 1991, p. 114).

[22]This is a description of the outcome rather than a claim about "irrationality." As Table 3.11 indicates, Saddam's decision was quite understandable within limited rationality.

[23]See also Kahneman and Lovallo (1990) for a more detailed discussion of the empirical evidence on this.

[24]One reviewer asked whether a factor on how the opponents read each other should be explicit in the model. In our current approach, that should appear as a factor contributing to judgments about risk. See, for example, Fig. 2.10, which does *not* elaborate on how Saddam might judge the consequences of the United States deploying into Saudi Arabia. Had this been elaborated, it would have shown possibilities for stalemate and, in principle, possibilities for the U.S. mounting a counteroffensive.

Choosing Between Models: Counterfactual Analysis[25]

If Models One and Two fairly represent the choices available in thinking about Saddam Hussein during this period of the crisis and conflict, then the dramatic invasion and conquering of all Kuwait on August 2 seems to have strongly argued for accepting Model Two, or at least rejecting Model One. The facts of the situation were simply not consistent with the pre-existing best-estimate of Saddam Hussein. Had the invasion been limited to the islands and the Rumeilah oil field, or if the invasion had seemed more of an *ad hoc* affair, the story would have been more difficult to tell. It is possible that a Model-One Saddam would have been "forced" into military action as some authors suggest happened. However, to go for all of Kuwait seems to us clearly to represent a different kind of mind-set.

As mentioned earlier, there have been some speculations to the effect that the invasion's objectives were extended as a last-minute decision because the going was so easy (see Darwish and Alexander, 1991). However, that account does not square with the views of CIA and DIA immediately prior to the invasion, as reported in the most detail by Woodward (1991) or the well-executed heliborne strike on Kuwait City. Apparently, it was late in the game before the final preparations were made, but those preparations did occur and the invasion itself gave the appearance of having been a well-planned and well-executed large-scale maneuver.

In summary, then, we conclude that for the remainder of the crisis and conflict, assessment of Saddam Hussein's reasoning should have been dominated by the Model Two image. For brevity, we do not discuss Model One much in the remainder of this report, although as a matter of methodology it should be carried along because the effect of events might at any point have been sufficient to shock Saddam into a different style of behavior. Thus, Model One should have been a plausible, but not the best-estimate, model after the invasion.

THE PERIOD OF U.S. RESPONSE: AUGUST 7–NOVEMBER 15

In the weeks and months after the invasion of Kuwait, a formidable opposing coalition arose against Saddam, one that emphasized political and economic coercion, but held out also the possibility of the use of force to achieve his withdrawal.

[25]For discussion of counterfactual analysis methods, see Fearon (1991).

Saddam had at least seven options: holding out (and fighting a war if necessary), two variants of partial withdrawal (with and without a prior deal, probably secret), two similar variants of total withdrawal, and two types of attack (with and without the intention of stopping early). Table 3.11 shows these options and our analysis of his assessments.

First, note that we argue his current status had improved to Marginal or Bad (in his eyes). He had consolidated his gains, had plundered much of Kuwait's wealth, and dug in his forces. Moreover, he maintained the initiative (he could back out, partly or altogether, at any time). War or prolonged economic strangulation was likely, with the likely outcome of that Bad, but not necessarily catastrophic. And, to be sure, Risks were high if he held out—since that could mean a big war, which he might lose badly. At the same time, however, there was Opportunity—a distinct upside potential. In particular, it was by no means clear that Congress would support President Bush. Some antiwar demonstrations were occurring in the United States and elsewhere, and many members of Congress were strongly opposed to offensive military actions. Further, there was considerable support within the Arab world for Saddam (primarily, but not exclusively, Palestinians). For example, there were reportedly 300,000 supporters in a rally in Rabat, Morocco. Under these circumstances, our baseline Saddam model concluded that the Hold-out option was Marginal or even Good overall.[26]

By contrast, conventional wisdom during much of this period was increasingly to the effect that some kind of deal would be struck. Indeed, there was considerable concern that Saddam might follow one of what Table 3.11 refers to as Options 2–5. From the U.S. perspective, Options 2 or 3 represented "worst cases," since they would undercut the coalition's resolve and leave Saddam with significant gains.

Model-Two Saddam's view of the situation was quite different. In particular, he saw Risks being Very High in these options, with Opportunity Marginal at best. Why? As we explained earlier, in this

[26]The perceptive reader may have noticed that we have implicitly rescaled the values of the variables, Prospects, Risks, Opportunity, and Net Assessment. Clearly, the Hold-out option was not as good in this period as the invasion option had appeared to be before August 2: The baseline was different.

Table 3.11

Evaluating Saddam's Options, August–November 1990

Option	Current Status	Likely Prospects	Risks Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
1. Hold out (and fight if necessary)	**Bad or Marginal**	**Bad or Marginal**	**Bad or Marginal**	**Very Good**	**Marginal or Good**
2. Withdraw partially	Bad or Marginal	Marginal	Very High	Marginal	Marginal
3. Withdraw partially with a secret deal	Bad or Marginal	Marginal	Very High	Marginal	Marginal
4. Withdraw totally	Bad or Marginal	Bad	Very High	Poor	Bad
5. Withdraw totally with a secret deal	Bad or Marginal	Bad	Very High	Poor	Bad
6. Attack	Bad or Marginal	Very Bad	Very High	Very Poor	Very Bad
7. Attack, then terminate quickly	Bad or Marginal	Very Bad	Very High	Poor	Very Bad

model of Saddam, minor gains, such as control over the islands, were by no means adequate to support his long-term ambitions, which required a major increase in wealth. Further, in the view we imputed to Saddam, it was virtually certain that Saudi Arabia, Kuwait, and the United States would doublecross him in any deal struck and would continue to apply economic strangulation and political isolation one way or another. Thus, the downside was Very Bad and the upside only Marginal for the options many in the West thought he would consider attractive. The options for attacking almost surely seemed Very Bad to him—at least after the U.S. buildup had gone on for some weeks, and perhaps sooner, given that the news media (a likely source of considerable information to Saddam) conveyed the impression that the U.S. deployment was even faster and more decisive than was the case)— because the Iraqi army would have been engaged under the worst possible circumstances, given its capabilities: offensive operations against high-quality ground and air forces and with the defender having complete air superiority. Major losses were very likely, and there would be no way to guarantee that the coalition would terminate the war merely if, at some point, Saddam wished to do so. Under these circumstances, then, the model said that Saddam would hold out, fighting if necessary.[27]

It is important to observe here that a Model-One analysis should still have been carried forward at this point—but not as a best estimate. Model One *might* still have been right, because it was at least plausible that the shock of seeing a unified community of nations and a large-scale U.S. deployment at the invitation of the Saudis would have caused Saddam to become more cautious.[28] Thus, the various efforts to achieve a rollback through coercive diplomacy (the economic sanctions and diplomatic pressures, backed up by military power) were reasonable actions even if one now believes that the dominant model should have been Model Two. Saddam's slipping into a more conservative pattern of behavior would have been more likely if the

[27]Once again, we should actually distinguish between the first weeks of the U.S. buildup and thereafter. Ultimately, we believe Saddam saw the Attack-Saudi-Arabia option as Very Bad even early on, because it was evident, even to this frequent exhibitor of bad judgment, that starting a war with the United States would be a disaster. An early victory would be possible, although not certain, but the United States would certainly retaliate against Iraq itself.

[28]For the record, we ourselves believed, through October, that there was a "significant" chance that Saddam might pull out, partially, and that the policy of containment and strangulation might succeed to some extent. This seemed unlikely after we solidified our concept of Model Two in November and early December. As a matter of methodology, however, it would have been a mistake to "tilt" exclusively toward Model Two.

initial U.S. response had been unequivocal in terms of rolling back the invasion by force of arms, with strong Congressional support. In that instance, the cognitive shock might have been great enough to give Saddam pause.

Had our methodology been available during this period, Saddam's behavior would have been less surprising, but the United States should still have pursued much the same course of action because in no case should our (or any other) model have been accepted as certainly correct.

AWAITING THE DEADLINE: NOVEMBER 15–JANUARY 12

After the middle of November, Saddam had to recognize the distinct probability that there would be war over Kuwait. The President had ordered a major second deployment of offensively capable armored units from Germany to Saudi Arabia. Interestingly, however, this would not have changed Saddam's relative assessment of options according to Model Two, nor did it seem to affect his assessment in the real world. Table 3.11 would have applied to this period also. Saddam could believe that he still retained the initiative: He could back off at any point,[29] whereas it was not yet certain that President Bush would receive the support of the Congress. Indeed, there were strong and highly influential Americans arguing to continue sanctions (e.g., Admiral Crowe, the previous Chairman of the Joint Chiefs of Staff, Senator Nunn, and most of the Democratic party). To cite some examples from the Congressional debate before the president was authorized to use force to enforce the UN resolutions:

> Is Kuwait worth the life of a GI? Not at all. (Senator Ernest Hollings)
>
> Is it going to be worth 1000, 5000 or 10,000 people to get one despot? . . . American's national, societal and economic stability is not threatened . . . Is Saddam Hussein worth the sacrifice of American life and blood? I say, hell no. (Rep. Douglas Applegate)
>
> Nothing large happened. A nasty little country invaded a littler but just as nasty country. (Sen. Daniel Moynihan)[30]

[29]An alternative view here is that Saddam could *not* have backed off, because it would have been interpreted by the masses as cowardly. There is arguably a strong streak in Arab culture to the effect that survival in defeat, even if permanently weakened, is preferable to running away. Regional specialists disagreed, however, as to whether Saddam would back out because of such cultural factors.

[30]Taken from the *Congressional Record* and condensed in "Gulf War: Remembering Their Words," *Reader's Digest*, June, 1991, pp. 157–159.

Ultimately, of course, the Congress did authorize force, but the vote in the Senate was close, only 52 to 47. Thus, Saddam's assessment that Congress might undercut the President cannot be faulted for lack of rationality.

Why, however, did Saddam not throw in the towel once the President had his authorization for war? There could be little doubt that President Bush would indeed unleash U.S. forces shortly after the U.N. deadline expired on January 15. Table 3.12 gives our assessment of Saddam's likely thinking. The best-case outcome would still have been judged Very Good, because the vision of standing up to the United States and enforcing a stalemate was attractive. Still, the option of sticking it out and fighting if necessary now amounted to fighting, and this was probably less attractive than before (Marginal). We show it as Marginal +, because the upside potential would be a tie-breaker for Model Two.[31] That is, the net assessment would be only Marginal, but in choosing among Marginal options, this one would look best because of the Opportunity. Model One's Saddam, at this point, would have seen Opportunity as Good under at least Options 2 and 3, but Model Two's Saddam would not, because he would have made at most marginal gains toward his goal.

With regard to "holding and fighting," Saddam can have been under few illusions. The best-guess estimate of what would happen had to be bad, while the worst-case scenario would have been disastrous. On the other hand, the balance of forces in the theater was not outrageously against him. It was still plausible that a best-case outcome would be good: Perhaps U.S. air forces would be punishing, but it probably seemed obvious to Saddam (relatively unacquainted with the capabilities of high-quality air forces) that the United States would have to mount a ground offensive to dislodge him. And, with fortified positions to fight from, the Iraqi army might reasonably embarrass the United States—inflicting enough casualties early on that

[31]Our sensitivity analysis included a Model Two Prime, which is more risk taking because of being more subject to behavioral errors and even more focused on upside potential, especially in Very Bad circumstances. Model Two Prime would have considered Option One to be (relatively) Good at this point. The behavior represented by Model Two Prime seems to be well within the range of what might be considered plausible for such personalities as Saddam.

Table 3.12

Evaluating Saddam's Options, January 12–15, 1991

Option	Current Status	Likely Prospects	Risks (Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
1. Hold out (and fight if necessary)	Bad or Very Bad	Bad	Very Bad	Good or Very Good	Marginal +[a]
2. Withdraw partially	Bad or Very Bad	Bad	Very Bad	Marginal	Marginal
3. Withdraw partially with a secret deal	Bad or Very Bad	Bad	Very Bad	Marginal	Marginal
4. Withdraw totally	Bad or Very Bad	Bad	Very Bad	Poor	Bad
5. Withdraw totally with a secret deal	Bad or Very Bad	Bad	Very Bad	Poor	Bad
6. Attack	Bad or Very Bad	Very Bad	Very Bad	Very Poor	Very Bad
7. Attack, then terminate quickly	Bad or Very Bad	Very Bad	Very Bad	Poor	Very Bad

[a]The "+" indicates that this option is favored because the favorable value of Opportunity breaks the tie with other options with the same (Marginal) net assessment.

the United States would decide to strike a deal rather than pay the price for a full military victory. Saddam had been conspicuously contemptuous of American staying power and ability to accept the human costs of war, while justifiably confident of his own ability to both accept pain and impose discipline. The following is revealing:

> Brothers, the weakness of a big body lies in its bulkiness. All strong men have their Achilles' heel. Therefore . . . we saw that the United States . . . departed Lebanon immediately when some Marines were killed. . . . The whole U.S. Administration would have been called into question had the forces that conquered Panama continued to be engaged by the Panamanian Armed Forces. The United States has been defeated in some combat arenas for all the forces it possesses, and it has displayed signs of fatigue, frustration, and hesitation when committing aggression on other peoples' rights and acting from motives of arrogance and hegemony. . . . [32]

A critical element of the evaluation here is that even the "likely" outcome probably seemed to Saddam to be Bad, not catastrophic. Yes, there would be many casualties, and yes, the United States would prove itself militarily superior. However, it probably seemed likely to Saddam that the war's outcome would be ambiguous—with him retaining at least some control over Kuwait. If this was his reasoning (as we expected it to be, albeit with no great confidence), then holding out seemed the best of the options. The reason here, according to the model, is that Risks were very high in *all* options at this point. However, the best-case outcome was good only if he held out. One might call this "grasping at straws," but it is the kind of behavior one might expect from a Model-Two figure, such as we believe Saddam to be, and we do not consider it by any means "irrational."[33]

THE AIR WAR

Once the air offensive began, even Saddam's confidence must have been severely shaken—despite appearances to the contrary on televi-

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[32]Extracted from a speech given by Saddam Hussein at the opening of the fourth summit of the Arab Cooperation Council, Amman, February 24, 1990. See *FBIS*, NESA, February 27, 1990, pp. 1–5.

[33]Saddam's behavior can also be explained by asserting the primacy of irrational factors, such as an absolute unwillingness to accept defeat or a crazed sense of possible victory. It can also be explained by assuming Saddam would prefer to die fighting than to give in—as a matter of values rather than irrationality. We did not find any of these arguments persuasive before the war began, nor do we find any of them to be persuasive in the aftermath of the war. Indeed, his willingness to accept a cease-fire later, followed by his extraordinary success in holding together his government and putting down insurrections, reinforces our view that the conditionally rational model is more appropriate and certainly more useful.

sion. According to newspaper reports, he berated Soviet intermediaries, asking (paraphrased): Why didn't you tell me about what these air forces could do? We do not know in fact what information Saddam had about his own forces up until the time of the ground offensive, so it is difficult to judge whether he fully appreciated his situation. If he was aware of the massive desertions and heavy casualties in his front-line troops, then he probably recognized that the ground offensive would be successful and that the likely outcome was going to be Very Bad (Table 3.13). Even here, however, it is likely that Saddam grasped at straws. His Republican Guard units had not been broken, despite repeated bombing, and the distance between Saudi Arabia and Iraq was considerable. It was at least plausible that the coalition forces would still suffer high casualties, proceed slowly, and prove unable to completely reconquer Kuwait. Even to Saddam, Prospects surely did not appear anything better than Bad at this point, but there was at least the glimmer of a Marginal outcome if he stuck it out. In a sense, the worst was over, and now was the time to play his last card—which might or might not work. By contrast, the other options available to him were at least as bad or worse—with no upside potential. At this stage, there was no hope of gaining concessions or a favorable deal of any sort. Even a partial-withdrawal strategy, which many predicted, probably did not look at all attractive. The United States would not accept that as an outcome at this point, and he would have given up free the first hundreds of kilometers (we believe he considered his front-line forces a mere buffer of little intrinsic value). In any case, Model Two predicted that Saddam would endure the ground offensive before accepting terms and that he would indeed accept terms when necessary.

THE U.S. GROUND COUNTEROFFENSIVE FEBRUARY 24–28, 1991

Finally, of course, the United States began the long awaited ground counteroffensive. Conventional wisdom before this was that casualties would be high, although the Coalition would assuredly win. There were concerns about the counteroffensive being bogged down in urban fighting, chemical warfare, and possible rivers of fire. Better-informed figures were confident, but still expected the campaign might last several weeks.[34] Until the attack began, Saddam may well have greatly underestimated the extraordinary speed with which

[34]Schwarzkopf himself believed the war would last as much as 2–3 weeks and was particularly concerned about the chemical threat and the possibility that weather and oil fires would reduce the effectiveness of tactical air forces (Pyle, 1991, p. 144).

Table 3.13

Evaluating Options During the Air Offensive

Option	Current Status	Likely Prospects	Risks (Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
1. Hold out and fight	Very Bad	Bad or Very Bad	Very Bad	Marginal	Bad +
2. Withdraw partially and seek peace	Very Bad	Bad or Very Bad	Very Bad	Bad	Very Bad or Bad
3. Accept peace terms, including complete withdrawal	Very Bad	Very Bad	Very Bad	Very Bad	Very Bad

U.S. (and other) forces would maneuver at a theater level and even move through the layers of defenses along the Saudi-Kuwaiti border. Once the attack began, however, any such illusions were promptly shattered and it became evident that the coalition forces had the capability and will to destroy Saddam's army and, perhaps, to conquer much of Iraq, including Baghdad. Under these circumstances, a Model-Two Saddam would quickly capitulate—choosing the least awful of the alternatives still available (Table 3.14) and then going on to do the best he could. The real Saddam did precisely that, within 4 days. Contradicting notions that he would irrationally fight to the death (or fight to the death out of a sense of martyrdom), Saddam once again—albeit belatedly—showed his ultimate flexibility. He accepted the terms of cease fire and turned to the task of preserving his country and power. Unfortunately, as of the time of this report, it appears that he may be successful. Although half his army was destroyed, a substantial portion remains, and the Kurdish and Shia insurrections appear to have failed. We have not heard the last of Saddam Hussein.

CHEMICAL WEAPONS

The biggest single question about the last phase of the war may be why Saddam did not employ chemical weapons. Our own analysis goes as follows. First—in contrast with many experts—we suspect that, in the context of war with the United States, Saddam would have viewed chemical weapons as "strategic," not "tactical"—i.e., affecting the war as a whole rather than the battlefields in the narrow. Why? Because the United States had absolute dominance of the air, extremely effective conventional weapons, combat forces equipped and trained for chemical warfare, its own chemical weapons (which he probably assumed were primed and ready for use if needed),[35] and, of course, a vast range of nuclear weapons ranging from small-yield devices to city busters. How, then, could Saddam expect to turn tactical defeat into victory merely by using chemicals? He might have raised U.S. casualties, but the U.S. response would probably have

[35]We are unaware of any reports on whether the United States and other coalition forces in fact had deployed and readied chemical weapons. It is likely that U.S. commanders concluded that neither chemical nor nuclear weapons would be needed even if Iraq did employ chemicals, but that is mostly speculation. It is significant, perhaps, that a British general officer expressed the view to reporters that chemical use by Iraq would mean a nuclear response by the coalition forces.

been massive. He may well have been self-deterred in this respect.[36] By contrast, it might have been possible for his chemical weapons to deter the counteroffensive in the first place or to bring about calls for cease-fire and stalemate at some point during the ground war. That is, Saddam might have imagined that he could monitor the ground campaign and then, if necessary, employ or threaten to employ chemical weapons as a mechanism for bringing about a cease-fire before the coalition forces had completely driven him from Kuwait.

If he harbored any such notions, the nature and pace of the counteroffensive probably dashed his hopes. There were no good opportunities for a stalemate-encouraging use of chemicals on the battlefield. Indeed, it seems likely that such use would have resulted in the complete destruction of Iraq's army and a drive on Baghdad itself.

In summary, it seems to us consistent with Model Two that Saddam did not employ chemical weapons in the particular circumstances. However, we believe that Saddam Hussein would surely have used chemical weapons under other circumstances—notably, circumstances likely to have caused a stalemate. There is an important lesson here for military planners contemplating operations against an opponent with chemical weapons: The military operations should be planned so as to avoid creating opportunities for chemical weapons to be used in this "strategic" manner. Speed and maneuverability would appear to be critical. In this regard, then, the Desert Storm counteroffensive could not have been better planned.

[36]The *threat* to use chemical weapons tactically may, however, have provided some tactical advantage by forcing U.S. troops to operate with chemical gear. Iraqi forces, however, were probably ill-prepared for chemical warfare themselves, despite having the weapons. There are many questions about whether they had chemical suits and chemical training. The war with Iran had not provided relevant experience, since chemical use had been without opposition.

Table 3.14

Evaluating Options During the Ground Counteroffensive

Option	Current Status	Likely Prospects	Risks (Worst-Case Prospects)	Opportunity (Best-Case Prospects)	Net Assessment of Option
1. Hold out and fight	Very Bad	Bad or Very Bad	Very Bad	Very Poor	Very Bad
2. Withdraw partially and seek peace	Very Bad	Bad or Very Bad	Very Bad	Very Poor (implausible)	Very Bad
3. Accept peace terms, including complete withdrawal	**Very Bad**	**Very Bad**	**Very Bad**	**Poor**	**Bad or Very Bad**

4. DISCUSSION

THE LARGER PICTURE: AN N-PLAYER GAME

Before beginning to ask such obvious questions as whether we could have anticipated, deterred, or reversed the invasion by coercive diplomacy or limited military actions, we must broaden our discussion, expanding the notion of an opponent model to recognize that (a) the opponent also has a model of us, (b) both we and the opponent have models of third countries, and (c) the third countries have models of us and each other. Figure 4.1 suggests at least a part of this by showing the United States, Iraq, and Saudi Arabia interacting with each other; each has models of all other actors. That is, not only does the United States have a model of Iraq, and vice versa, so also the United States and Iraq have models of Saudi Arabia, and Saudi Arabia has models of the United States and Iraq. Although a generalized version of the figure would also show Egypt, the Soviet Union, and so on having models of all other actors, Fig. 4.2 focuses on the three major players in the Kuwait crisis: Saudi Arabia, Iraq, and the United States.

Let us next ask ourselves what some of the key perceptual judgments were shortly before the August 2 invasion. Table 4.1 is our best-estimate depiction, consistent with discussion in the last section. Although the table is very simple, we believe it is essentially accurate. According to this, the United States was aware that Iraq *might* invade, but thought it unlikely. In addition, the United States believed that there was nothing it could do in any case, because neither Kuwait nor Saudi Arabia would accept a U.S. deployment if it were offered.[1] Iraq believed that the United States would not defend Kuwait directly and might or might not deploy to Saudi Arabia in response to crisis. Iraq probably believed that the United States would be willing to deploy deterrent forces to Saudi Arabia if asked, but believed that neither Kuwait nor Saudi Arabia would make such a request. Indeed, it believed that Saudi Arabia would probably not even permit U.S. forces after a *fait accompli* in Kuwait. The situation, then, could scarcely have been worse for deterrence. Significantly, the various perceptions were not just happenstance, but were to a large extent manifestations of long-term strategies (or nonstrategies)

[1]See U. S. House of Representatives (1991) and Woodward (1991).

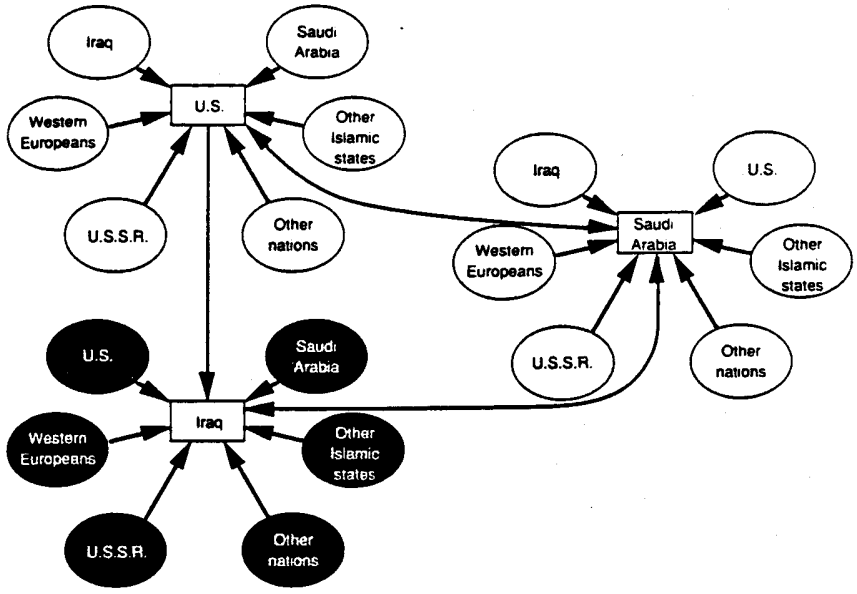

Fig. 4.1—Illustration of Actors and Actors' Models of Other Actors

and a current Iraqi deception campaign. Further, in contemplating crisis options, the United States, Kuwait, and Saudi Arabia should not have been conceiving each others' perceptions to be "exogenous variables" or "constraints," but rather as objects of strategy. That is, the nations should have been seeking to change the perceptions in appropriate ways—just as the United States should have been (and was) seeking to change Iraq's perceptions of the United States.[2]

This may seem trivial or pedantic, but it is not. The tendency before crises break is often to think of other nations' behavior and attitudes as constraints. By contrast, once the crisis breaks and decisions are made regarding action, persuading other nations to cooperate, assist,

[2]It is interesting to speculate on why the dominant view in the U.S. government was so strongly to the effect that the Saudis would not accept U.S. forces. Given the massive investment they had made in infrastructure designed specifically to permit defense of the Kingdom by the United States, one might have expected the argument to be more in terms of convincing the Saudis that "the time is now," rather than of convincing them to "think the unthinkable" of allowing U.S. forces into the country as a general principle.

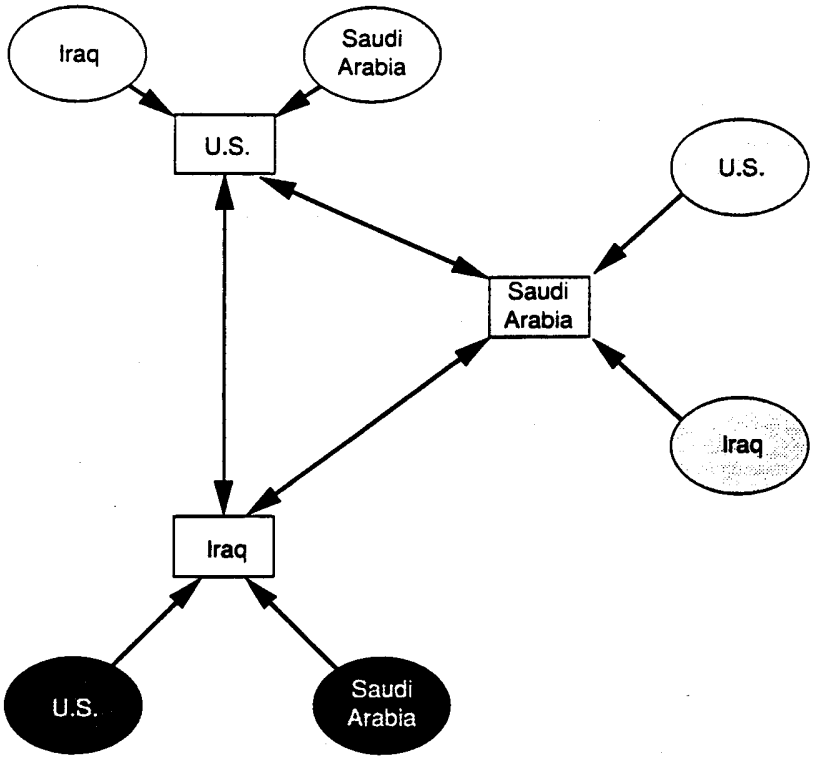

Fig. 4.2—Depiction of Crisis as Three-Party Game with Perceptions

or participate becomes a major element of policy. There are reasons for this, notably the reluctance of nations and their leaders to make commitments in the abstract, but if we postulate that improved contingency planning in peacetime and during the initial phases of crisis can produce wiser judgments and strategies within our own government (the rationale for the study), then it is reasonable also to postulate that the logic behind those judgments and strategies might also be the basis for persuading other nations to change their courses of action earlier rather than later.

COULD WE HAVE ANTICIPATED THE CRISIS?

As we look back upon events with the wisdom of hindsight, one of the most obvious questions is whether we could have done better in antic-

Table 4.1

Preinvasion Perceptions

U.S.' Model of Iraq	U.S.' Model of Kuwait & Saudi Arabia	Iraq's model of U.S.	Iraq's model of Kuwait & Saudi Arabia	Kuwait's and Saudi Arabia's models of U.S.	Kuwait's and Saudi Arabia's models of Iraq
Probably won't invade	Won't accept U.S. deterrent forces	Won't defend Kuwait; may deploy to S.A.	Won't accept U.S. deterrent forces	Not reliable defender	Won't invade

ipating and preparing for the crisis. Our conclusions on this are as follows:

- Strategists *did* recognize an Iraqi threat to Kuwait. There had been a breakdown in the regional balance of power after the Iran-Iraq war, leaving Iraq balanced by no one in the region itself. This, coupled with Kuwait's riches and the long-standing dispute about Kuwait's status, made an Iraqi scenario one of the most likely of the various crisis scenarios imagined in 1989 or 1990.[3]
- Regional specialists, however, had concluded that the actual use of military force by Iraq was unlikely because of Iraq's need to recover from the Iran-Iraq war. This view became the best-estimate assessment of the intelligence community (Woodward, 1991) and was reflected in conventional wisdom.
- The U.S. government (and the governments of Kuwait, Egypt, and Saudi Arabia, to mention only a few) then became victim to the *tyranny of the best estimate*—framing intelligence in terms of the imagery of that estimate—even when the evidence of invasion went beyond what was readily explainable as the trappings of bluff.[4] It is not that no one recognized the *possibility* of invasion, but rather that there was tremendous reluctance to "do anything" so long as there was a benign rationalization for what was happening.
- Given the objective plausibility of such an invasion and the existence of strategic warning as of July 17, it seems likely that U.S. policymakers and the leaders of other affected states could have benefited greatly from what the analytic community calls a *seminar-style political-military war game* rejecting the tyranny of the best estimate by talking through the "what ifs?" Further, despite the many demands on the time of policymakers, we would argue that it should become political doctrine to "make time" (probably a full day) for such a game under the conditions that applied after July 17. Based on our own experience and that of many other analysts over the last several decades, we believe that such gaming would be highly valuable to policymakers and that they would recognize its value once they participated—even if the crisis then dissipated. Policymakers would emerge with a common understanding of what may be called the *strategic game board.*

[3]See, for example, discussion in Gigot (1990) and Khalilzad and Davis (forthcoming), the latter of which has further references to the relevant literature.

[4]The most detailed account of this currently available is probably Chapter 17 of Woodward (1991).

- Although similar games at the staff level can be and have been valuable in the past, they are no substitute for involving the policymakers directly. Experience suggests that staff will not be able to transfer their knowledge and concerns to policymakers until the policymakers become emotionally convinced that there is a problem. That often requires personal involvement.[5]

In summary, the answer to the question is "yes," but the key is not that *someone* anticipate a crisis, but rather that *policymakers* anticipate it and understand the related game board. There have been very few major crises that have not been on the then-relevant "short list" of possibilities considered by analysts, but that has not proven adequate historically.[6]

COULD WE HAVE DETERRED THE INVASION?

Many critics have argued that American warnings to Saddam Hussein were tepid at best and that stronger warnings would have deterred his invasion. They cite, for example the statement of John Kelly, the Assistant Secretary of State, on July 31, 1990 to the House Foreign Affairs Committee:

> MR. KELLY: . . . You're aware of the threats and intimidation. . . . The US responded by speaking out publicly against these Iraqi tactics . . . we are conducting an air refueling exercise with the United Arab Emirates. This involves two KC-135 tankers and one C-141 cargo plane with maintenance equipment . . . . US Navy ships in the Gulf have increased their vigilance. . . . We plan to maintain a naval presence in the gulf . . . as we have during every administration since . . . Truman.
>
> REP. HAMILTON: What is precisely the nature of our commitment to supporting our friends in the gulf? I read a statement—I guess an indirect quotation in the press that Secretary Cheney said that the United States' commitment was to come to Kuwaiti—to Kuwait's defense if it is attacked . . . Perhaps you could clarify . . . ?
>
> MR. KELLY: I'm happy to . . . I'm not familiar with the quotation. . . . We have no defense treaty relationship with any Gulf country. That is clear. We support the security and independence of friendly states in the region . . . .

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[5]Long-time strategists have many anecdotes about staff-level games that proved extremely prescient. These have been conducted from time to time by the Joint Staff, the National Security Council Staff, and RAND.

[6]Past crises that were either anticipated by analysts or that lasted long enough to have permitted policymaker gaming include the 1961 Berlin Crisis, the Bay of Pigs, the Yom Kippur War, the fall of the Shah of Iran, and Panama.

REP. HAMILTON: If there—if Iraq, for example, charged across the border into Kuwait . . . what would be our position with regard to the use of US forces?

MR. KELLY: That . . . is a hypothetical or a contingency question, the kind of which I can't get into. Suffice it to say we would be extremely concerned, but I cannot get into the realm of "what if," answers.

The public statements of Mr. Kelly and Ms. Tutwiler, and the statements Ambassador Glaspie made to Saddam Hussein in late July, did not in our view provide the crystal-clear warning that would have been appropriate, although Ambassador Glaspie believes the message got across clearly.

The interesting point, however, is that even if Saddam fully received "the message," it is not evident that he would have been deterred. As discussed in Sec. 3, it was not clear that the United States had the *capability* to prevent a *fait accompli* or the will to reverse it. We shall return to this point below.

The most striking expression of fatalism on this point is probably that of Ambassador Glaspie in her House testimony before a committee chaired by Representative Lee Hamilton:

AMB. GLASPIE: . . . I am absolutely sure that he knew—that he knew that we would fight. I think it dawned on him as a truly—as a possibility on the 25th—or the 24th when he heard that announcement.

REP. GILMAN: So then in your mind there is very little we could have done to prevent him . . . .

AMB. GLASPIE: I am sure that members of this committee will find it perfectly extraordinary that I could say yes to that question, but I can. *I'm not suggesting that the policy succeeded, because obviously it didn't and we had to go to war. . . . How could we have prevented him? . . . I've tried to explain why before he invaded Kuwait we couldn't forge a blocking coalition. The Arabs wouldn't let us use their land, they didn't agree on the approach* . . . [emphasis added]

REP. HAMILTON: And just finally, Madam Ambassador, as you look back . . . what would you have done differently . . . ?

AMB. GLASPIE: I have, of course, been over this in my mind many times. . . . Given the fact . . . that we overestimated Saddam Hussein's instinct for self-preservation . . . I think that what we did was internally consistent. And our mistake—and you know, this is what I would change if I could—but with the data available to me at the time I do not believe that I would have come to a different conclusion no matter how hard I thought about it. . . .

The key to Ambassador Glaspie's thinking was simply that we could have done nothing more without Arab cooperation, which was not forthcoming. Thus, our actions were constrained.

Is it really plausible that we could have done *nothing* more than we did? Referring back to Tables 3.7–3.10, which describe Model-Two Saddam's reasoning about risks and benefits, it is indeed clear that "the message" was only one part of the problem. Applying the reasoning that underlies those tables, we conclude that

- Even if Saddam had become certain of U.S. intent to "do something" if he invaded all of Kuwait, he would probably have concluded that we *couldn't* do much—at most, we might deploy forces into Saudi Arabia and threaten him, perhaps imposing an embargo for a period of time. We couldn't *defend* Kuwait.
- This judgment would probably not have been changed if the U.S. had had a larger military presence, but one with only minimal fighting capability. That is, the judgment would probably not have been affected by, say (a) a CVBG in the Persian Gulf itself, (b) Maritime Prepositioning Ships (MPS) floating in the Arabian Sea, or (c) a brigade of the 82nd airborne and a tactical fighter wing deployed into Saudi Arabia. Such deployments would still have fallen within the range of possibilities he had probably discounted as "tolerable." He would have interpreted them within the framing concept of our being willing to defend Saudi Arabia, but not Kuwait—the same framing concept held by many of our own senior military officers and policymakers.
- By contrast, a preinvasion deployment of a tripwire force into Kuwait itself, as well as Saudi Arabia, might well have deterred his invasion—at least if the tripwire force were large enough and located in a place that could not be bypassed. There are no guarantees, but we believe that anything less than a tripwire force in Kuwait itself, or a warfighting force deployed in Saudi Arabia coupled with clear intention to strike Iraqi forces and Iraq itself upon Iraq crossing into Kuwait, would probably not have been sufficient to deter him.[7]
- A lesser deployment (e.g., the MPS ships, carrier battle group, or airborne brigade in Saudi Arabia) would have been a more plausible deterrent if inserted early enough in the crisis to change the baseline of Saddam's thinking. That is, his assessment of likely and worst-case risks would have been more alarmist. However, once the plan was well along and invasion was imminent (e.g., July 31), we believe these same actions would have been interpreted as within the band of acceptability for his plan. *Deterrent actions should occur before the die is cast.*
- The belief that "we could do nothing" because Kuwait and Saudi Arabia would not accept our forces should have been regarded as

[7]The record of tripwire forces is not good. See Huth and Russett (1988).

a challenge, not a constraint. There is reason to believe that a more decisive and unambiguous approach on our part could have persuaded both countries to hedge by accepting U.S. forces: Ultimately, the same logic that might have persuaded us should have persuaded them even more compellingly. In fact, however, their reluctance was due in part to doubts about our own intentions and credibility.[8] In the limiting case, the United States might have done precisely what some assumed we in fact did: deploy forces toward the region with a message saying "We're coming, and we expect to be welcomed." Such deployments are, after all, reversible.

- It seems likely that Saddam never took seriously the possibility that the United States would react to the *fait accompli* by slowly building up a massive force and then counterattacking. Thus, if we had been able to deploy forces into Saudi Arabia shortly before the invasion, we might still have been able to deter the invasion by laying out unequivocally for him our intention to do so. Because "nonimmediate power" is readily underestimated, we might have taken pains to make it less abstract: We could literally have laid out charts showing the buildup of forces that would occur over time and our intention to decimate Iraq's military infrastructure with bombing before beginning our invasion. This might well have deterred him; alternatively, it might have caused him to move farther and faster—into Saudi Arabia itself. His decisions on that would have depended on the quality of his decisionmaking (within "limited rationality"), the credibility of our resolve, and, importantly, our military capability to make good on our threats—first by defending our own forces and Saudi Arabia.
- The credibility of our military capability could have been enhanced by early deployment of B-52s to the region (even to Diego Garcia),[9] the early alerting of U.S. forces and sealift, and a variety of other purely military measures indicative of serious preparation.
- Finally, it might have been very useful to have had a message from the President stating unequivocally that "If you invade Kuwait, we will attack Iraq immediately and begin building the forces necessary to reverse your invasion and destroy your military capabilities forever. We understand that you may have ini-

[8]See the description of Prince Bandar's concerns on this matter in Woodward (1991).

[9]We do not know how effective Saddam considered his air defenses to be. It is possible that he would have concluded that the B-52s were not a serious enough threat to force a change of plans—and he might have been correct, since B-52s are highly vulnerable without a prior defense-suppression campaign. The B-2 would create a qualitatively different situation in this regard.

tial successes, but so also the Japanese had initial successes in World War II. Further, we will be able to attack you by air fairly soon." As discussed earlier, it seems that the United States had not reached the conclusion that would have allowed such a statement to have been sent.

Looking to the future, the likely effect of deterrent measures should be judged in the light of Desert Storm. It is unlikely that nations will soon underestimate the power of air forces or the capability of the United States to deploy massive ground and air forces over large distances. Nor will nations readily assume away the possibility of counteroffensives. Memories fade, however, and the history of deterrence in crisis is not a happy one. Thus, it should become an objective of foreign policy to ensure that potential adversaries not underestimate the risks they run in contemplating aggression:

- The United States does itself no good by overestimating the capability of third-country military forces—nor, certainly, by making it easy for potential opponents to overestimate their own capabilities. The habits of the Cold War, during which it was prudent to assume that Soviet forces were comparable to our own in fighting capability, should not be carried over lightly to the challenges we face today.
- The United States would do well to make it known—in general terms—that we study in great detail the air defenses and tactics of all potential antagonists and that we have technological mechanisms for exploiting their vulnerabilities. High priority and substantial resources should be placed on making this consistently true.

COULD WE HAVE COERCED SADDAM INTO PULLING OUT OF KUWAIT?

The next question is whether, given the disaster of the invasion itself, we could have convinced Saddam to reverse gears and pull out. This is a complex issue, because it requires us to think about what possible outcomes short of destroying Saddam's army and expelling him by force from all of Kuwait might have been acceptable in the end (see Davis and Khalilzad, 1990b, for discussion of this as of the end of August 1990). It is not our purpose to resolve that issue. Instead, let us merely comment on what we could have done to change Saddam's reasoning on the wisdom of "sticking it out, even if that meant war." Our observations are these:

- The strangulation policy *might* have worked to force Iraq's withdrawal from most of Kuwait—probably in the context of an

Arab-brokered deal that would have left Saddam with only some nominal gains that would have been difficult for him to exploit in a world in which he was a pariah and the United States maintained a military presence in the region to balance his power. It seems likely, however, that a year or more of sanctions would have been necessary, since Saddam had almost surely discounted the effects of a temporary (e.g., 6 months) period of sanctions. The historical record of economic coercion is poor, but this was a special case. Whether the coalition could have survived is anyone's guess. The President thought not.

- A basic impediment to successful coercive diplomacy was our apparent unwillingness to compromise—except to the extent of promising that we would not invade Iraq if Saddam conducted a full withdrawal from Kuwait (and perhaps agreed to pay reparations). There was not much of a "carrot" (George, forthcoming). Despite our public stance, it is not clear what outcomes would have been deemed acceptable if Saddam had in fact taken the initiative. A partial pull-out might have collapsed the coalition, with the Saudis even agreeing to end the embargo and persuade the United States to do likewise. Ironically, that probably did not *appear* plausible to Saddam, who believed in a conspiracy of Western and Arab states against Iraq.
- It is conceivable that the United States could have "educated" Saddam after building up enough forces in Saudi Arabia to defend successfully. We might have laid out in some detail the consequences of war—perhaps using the Soviets as intermediaries to explain what could be accomplished by air power and why his experience with successful defense against massed Iranian attacks was irrelevant for the type of warfare the United States would conduct. That would have been difficult, however, at a time when the United States itself was not entirely confident how well operations would succeed. Realistically, we conclude only that it should be easier to convince future aggressors of U.S. military power should we wish to do so.

WHAT WOULD HAVE BEEN DIFFERENT IN THE COLD WAR?

Many observers have expressed the view that the crisis and the U.S. response were strongly shaped by the Cold War having ended. We offer the following observations:

- Saddam Hussein's decision to invade Kuwait may or may not have been affected by the weakened position of the Soviet Union. Had Iraq been a Soviet client state, then the Soviets might have encouraged or, more likely, dissuaded him, but Iraq had not

been a true "client state." To be sure, Iraq depended on Soviet arms sales and Soviet training, but that dependence was hardly critical over a short period of time, such as a year.

- U.S. vital interests in the region were neither greater nor smaller by virtue of the Cold War ending. Thus, it is likely that the United States would have responded in much the same way to the invasion, at least initially. The original Rapid Deployment Force was developed in part with the purpose of responding to purely regional contingencies, such as an Iraqi threat to Kuwait.
- In the Cold War period, however, the United States might have been more reluctant to contemplate a counteroffensive that included attacking and devestating Iraq and its army. The Soviets might have promised support of Iraq, and that might have deterred an effective U.S. response to the *fait accompli.*
- Although we believe it likely that the United States would have been equally successful militarily without the deployment of VII Corps from Europe, the risks of the counteroffensive were clearly reduced by having overwhelming force. Military and political leaders might have been unwilling to conduct the operation without VII Corps; it is very unlikely that VII Corps would have been redeployed to Saudi Arabia if the Cold War had still been ongoing.
- Had the United States proceeded as it did in the actual crisis, however (with or without the VII Corps redeployment) it is not clear that the Cold-War Soviet Union would in the end have supported Iraq with its own forces. U.S. interests in the Persian Gulf are far greater than those of the Soviet Union, and always have been.
- The Soviets might have greatly complicated U.S. operations, however, by providing top-line equipment and advisors for air defense and other purposes. Soviet advisors might have been more concerned about large-scale maneuver warfare and might have convinced Iraq to guard better against what came to be famous as "the Left Hook." On the other hand, advisors have only very limited capability to convince their hosts, and it would not be surprising to us if Soviet military leaders warned Iraq against such possibilities in any case. Our best guess is that results would have been little different if the war had been fought with more Soviet assistance, except that the Soviet Union would have been even more greatly embarrassed by those results. The counterargument on this is that, had the Soviets provided appropriate reconnaissance information to the Iraqis, the surprise aspects of the Left Hook would have been impossible, because there had been a substantial and visible buildup of logistics.

In summary, the end of the Cold War surely affected the crisis, but it is difficult to know how.

WHY DIDN'T SADDAM INVADE SAUDI ARABIA?

It is painful to contemplate the difficulties the U.S. would have had, politically and militarily, if Saddam's forces had marched immediately upon Saudi Arabia on August 2, without stopping in Kuwait to consolidate. Given Saudi Arabia's oil wealth, why did Saddam *not* go on? As we discussed briefly in Sec. 3, our Model-Two Saddam would not have gone on to Saudi Arabia for several reasons. The most important is that doing so would have been perceived as making war with the United States likely if not certain. Risks would clearly have been Very High (see Table 3.3).[10] Other reasons are more speculative. For example, it is possible that conservative Iraqi commanders would have advised him against going on to Saudi Arabia directly, because they would have seen extremely vulnerable logistics tails, the potential for immediate air strikes from U.S. carrier battle groups and strategic bombers, and the likelihood of severe control problems. Some regional specialists believe that it is inconceivable that he would have invaded Saudi Arabia, because he would have sacrificed even more legitimacy and because he probably reasoned that he could control Saudi Arabia by coercion from a position of strength in Kuwait. Our own view, consistent with Model Two, is that if the United States had not reacted militarily, he would soon have contemplated a next move into Saudi Arabia.

[10]Other theories of deterrence would argue similarly. For example, George and Smoke (1974, p. 60) include a "calculation" of risks, benefits, and probabilities. If P (C + R) > (1 – P) B, where P is the probability of intervention, C is the cost of the aggression, R is the risk of the invasion, and B is the benefit of the invasion, then the would-be attacker will not invade. Whereas P was perceived to be "small" with respect to the United States intervening in defense of Kuwait, it would have been perceived to be large with respect to the United States intervening in defense of Saudi Arabia.

5. GENERIC CONCLUSIONS AND NEXT STEPS FOR RESEARCH

GENERIC CONCLUSIONS

This study has been an experimental application of a more general methodology. It is now reasonable to ask what generic conclusions can be drawn. The most important are those discussed in what follows.

Recognizing Our Own Behavioral Style

In contemplating future contingencies, we should recognize that the United States is a mature superpower, is strategically defensive and reactive, and will typically favor the *status quo* out of conservatism. Further, the United States is a maritime power distant from most likely points of crisis. Finally, we are a democracy, which tends to make us slower to act when problems arise and to create the impression of ambivalence when deterrence might be better served by firm expressions of will. All of this means that potential aggressors will frequently have the advantage of the initiative, underestimate our will (and even our strength in some cases), and see "opportunities" for *faits accomplis* that may encourage aggression.

Using Gaming to Prepare Policymakers for Crisis

Policymakers are often not intellectually prepared for crises when they arise. This makes it difficult to react quickly, decisively, and wisely when actions are needed—whether those be political, military, or economic. We believe that a lesson from the crisis is that policymakers should "make time"—perhaps as much as a day—for political-military-economic "gaming" when there is strategic warning of a crisis. The emphasis in such activities should be on *learning the strategic game board* and *thinking through U.S. interests.*

Mitigating Sources of Paralysis in Crisis

A variety of factors frequently operate against taking early actions of any type. Many could be mitigated by prior gaming. The factors are as follows:

1. *The Tyranny of the Best Estimate.* The tendency to accept the best estimate condemns those who see the potential for trouble to be seen as alarmists and causes intelligence indicators to be interpreted within the framework of a benign explanation. The solution here is to change the process by which estimates are reported—enhancing the status and legitimacy of alternative coherent estimates, providing indicators to be monitored, and noting the consequences of guessing wrong in crisis. Competent dissenting assessments should be sought and honored, not seen as troublesome.
2. *Perceived Constraints of Allied Noncooperation.* To the extent feasible, which can be considerable, there should be cross-national discussion and gaming of potential crises with likely allies. No promises need be made for this activity to be useful. Secure videoconferencing creates new opportunities for such activities.
3. *Costs of Reacting to False Alarms and Apparent False Alarms.* A major obstacle to action in crisis is that the actions themselves have costs by causing trouble—political problems domestically and in allied nations, economic problems, and perhaps foreign-relations problems. However, these costs are neither zero nor infinite: They can be characterized and traded off against the costs of inaction. Too often, however, these costs are not analyzed dispassionately, but are instead assumed large; they then become constraints on action until it is too late. A fruitful area for research here is finding ways to reduce the costs of early action. These might include bringing Congressional leaders and foreign leaders into early crisis gaming, or at least providing them early briefings on the results. Other ways to reduce the costs involve establishing confidence and security building measures (CSBMs) that reduce the ambiguity of threatening actions. For example, one could imagine (Shlapak and Davis, 1991) CSBMs prohibiting Iraq from mobilizing excessive forces or deploying them within a substantial distance from the Kuwaiti or Saudi border. Given such CSBMs, those activities would be more likely to stimulate prompt reactions. Yet another way to reduce the "costs" and friction of early and unequivocal actions is to develop formal treaties creating national obligations. Huth and Russett (1988, p. 43) provide historical evidence that the existence of treaties improves deterrence in crisis.
4. *Establishing Tripwires vs. Protecting Soldiers and Flexibility.* There is a fundamental tension between acting promptly to demonstrate resolve (e.g., by establishing a tripwire) and, on the

other hand, avoiding putting forces at risk and avoiding premature commitment to war. The tension cannot be eliminated, but the issues can be gamed through early or late; the earlier the better. We believe there would be considerable value in merely talking through the costs and benefits of tripwire action and inaction, as a function of what actually transpires. The net result will probably be an increased willingness to deploy tripwire forces early and consensus that the forces deployed should either be purely symbolic or rather substantial—with reinforcements coming along behind them.

5. *Establishing Guidelines on the Use of Forces.* Military and political leaders often have very different perceptions about what constitute proper and improper uses of force for signalling and other purposes. These need to be discussed in some depth by relevant staffs and reviewed early in crisis by policymakers. For example, some military actions are inherently reversible (and even deniable to some extent). Other actions are much less so. At present, however, there is no agreement on what is and is not. Naval forces are already seen as "reversible instruments," but we need to broaden that perception to include a range of deployment activities. Sometimes the whole purpose *is* to demonstrate an early commitment; in other cases, the purpose is more ambiguous.

Seeing Through the Eyes of the Opponent

It is not enough to have the relevant facts about the opponent's situation; to understand the opponent's thinking, one must to some extent internalize those facts and play them against values and ambitions, taking into account emotional factors and recent history. A combination of staff-level gaming and critical analysis can be very helpful in this regard, but adversarial discussions are essential because of the frequent tendency to converge on a best estimate.

Recognizing Dangers

There is a deep-seated reluctance on the part of Westerners to recognize and appreciate the behavior patterns and motivations of conquerors, ideologists, and revolutionaries. Our tendency is to assume a degree of pragmatism and incrementalism that may be quite inappropriate when projected onto potential opponents. This tendency may, ironically, be an overreaction to the Cold War's excesses. The perverse illogic may go as follows: Since Soviet leaders were not in

fact sanguine about fighting and winning nuclear wars, perhaps Saddam Husseins are not really Hitlers (even if they are known to admire Hitler and to have committed numerous atrocities themselves). Our methodology can be very helpful in this regard—so long as the requirement to maintain at least two competing models is maintained, with one of them being as threatening as seems plausible and consistent with the facts. If such parallel models are required, then the more threatening model will be more difficult to dismiss as alarmist and dangerous nonsense.

Culture-Specific Models

The case of Saddam Hussein reinforces our conclusion that it is neither necessary nor appropriate to "model" opponents in terms of culture-specific concepts such as "the Arab mind." To the contrary, the basic behavior patterns of interest occur in a variety of cultures, and, within a given culture, the behavior patterns of different leaders vary greatly (e.g., Mubarak vs. King Hussein vs. Saddam Hussein vs. Sadat). At the same time, understanding the background and culture of a particular opponent is often critical in making judgments. For example, Saddam's respect for naked and credible force rather than nuanced suggestions is readily understood within the context of traditional Middle Eastern strife at the level of individuals, tribes, and nations.

Recommendations

Although we shall not elaborate on this in the current report, we recommend that the National Security Council commission a study leading to procedural and organizational changes in the way the United States prepares for contingencies and conducts intracrisis discussions. These changes should include an emphasis on developing estimates with alternative opponent models, which goes well beyond having an occasional devil's advocate. They should also establish processes to mitigate the various paralysis-inducing problems identified above, such as by having policymakers participate early in political-military gaming when strategic warning is received and the need to address head-on and early the alleged constraints against action.

NEXT STEPS FOR RESEARCH

This report has been a first application of a new but intendedly general methodology. We are currently examining other historical twen-

tieth-century cases to see whether it appears the methodology would have been useful:

1. *Panama (1904)*—Panama rebelled against Colombian rule, establishing its independence. As the United States sought to build a canal across the isthmus, this area was deemed of vital interest. Colombia sought to reassert its authority, even against American opposition. Against all odds, the Colombians launched an invasion effort to reconquer Panama.
2. *Ethiopia (1935)*—Italy, under the leadership of Mussolini, sought expansion in Africa. Britain, along with the League of Nations, sought to deter Italian aggression, and later to compel Italian withdrawal. Sanctions were applied, unsuccessfully, and force was not used to liberate Ethiopia. Mussolini succeeded, and kept his gains until his hapless entry into World War II as Hitler's ally.
3. *Korea (1950)*—North Korea's invasion of the South has been much examined, and offers abundant data to assist in trying to explain how a limitedly rational actor might have thought that, despite American and UN opposition, it could succeed in such a naked "land grab."
4. *Quemoy-Matsu (1958)*—Another well-known case. This time, however, extended deterrence worked. Comparing this case to the three cases of failed extended deterrence should provide considerable insights into the nuances of decisionmaking behavior under the constraints of limited rationality.

These cases were chosen because they offer "tough tests" of the experimental model of limited rational choice. Colombia "should not" have defied the United States; Italy "should not" have been able, across the Mediterranean and Red seas, to defy the Royal Navy and the League of Nations. Similarly, North Korea "had no business" thinking that it could defy the U.S.-led UN forces. Yet all of these actors did. And, in the only case where the balance of power was not significantly against the aggressor, deterrence actually worked.

Our preliminary findings suggest that the general methodology seems to hold up well. Importantly, though, behavioral assumptions (e.g., the implications of prospect theory, which states that decisionmakers become increasingly risk taking as their satisfaction with the current situation shrinks) appear to be as important in these cases as in that of Saddam Hussein. Indeed, without the insights afforded by prospect theory, it would be extremely difficult to understand Chinese

risk-averse behavior in the Quemoy-Matsu Crisis, or Colombian risk acceptance in the struggle for control of Panama.

One further insight into the research program suggested by this study is that it is appropriate, in the examination of aggressor behavior, to consider the influence of an aggressor's allies or sponsors. While Colombia acted alone, Mussolini enjoyed the support and encouragement of Hitler. North Korea was encouraged in its aggression by the Soviet Union, much as China was tacitly discouraged from aggression by Moscow a few years later. As discussed in the last section for the case of Saddam, the Soviet Union's role may have been that of Sherlock Holmes' "dog that didn't bark in the night." Saddam *may* have been less inhibited about aggression because he was not subjected to the Soviet restraint that might have existed during the Cold War when the Soviets were more concerned about a possible conflict with the West. If this is so, then we may see more aggression rather than less in the years ahead, as the Soviets pull back from the frontiers of their empire. On the other hand, the consequences of Saddam's aggression should be a powerful deterrent for at least some period of time—at least in regions where the United States has clear-cut major interests.

Appendix A

COMBINING RULES USED IN DECISION TABLES

TRADING OFF QUALITATIVE VARIABLES TO REACH JUDGMENTS

Our approach frames the reaching of judgments and decisions in terms of trading off qualitative factors to assess options, as a function of their best-estimate, worst-case, and best-case outcomes (what we call Prospects, Risks, and Opportunities). Similarly, Risks itself is considered to be a judgment based on a variety of qualitative considerations, such as the perceived likelihood and consequences of various events. In many cases, the judgments can be reached by merely looking at the various qualitative factors and trading them off mentally. In other cases, it is convenient to have a formalized procedure to make the trade-offs. This can be used in group discussions or analysis as an *aid* that one may accept or reject, but that will help impose discipline of thought. Without such aids, there is a tendency for qualitative concepts such as "Bad" to have slippery intuitive meanings that shift over time in a work session as a function of context. Thus, while working in terms of such concepts as prospects and risks is quite natural, it is by no means always simple.

Having formalized aids is also useful for producing judgments quickly, for ensuring consistency and reproducibility, for communicating models to other people, and for sensitivity analysis in which one explores the sensitivity of overall judgments to the detailed rules employed in making subordinate judgments. This sensitivity analysis is important, because we are dealing with very fuzzy issues, and our conclusions, if they are to be valid, should therefore be relatively robust to changes in details. Although we do not report on it here, we conducted numerous sensitivity analyses in the course of this study before reporting our results.

In this study, we have developed two types of formalized aids. One type involves decision tables expressed in terms of the qualitative variables (and associated diagrams that are equivalent, but easier for some people to understand at a glance). The second type involves algorithmic procedures in which we translate qualitative concepts into numbers, perform some calculations based, for example, on weighted

sums, and then translate back into qualitative concepts. In what follows, we present examples of both. In the next section, we use the algorithmic procedures to reach net assessments of options for which we have characterized prospects, risks, and opportunities. In the section after that, we use rule-based procedures in the form of decision tables to describe how we assess overall risks when there are two or more risk factors.

Although these methods are to be seen primarily as aids, we have used them consistently within the text. Thus, they may be seen as partly *defining* our Models One and Two of Saddam Hussein—for the context of this study. Readers should appreciate, however, that we have tuned the methods by adjusting parameters and rules to ensure that the models behaved in ways consistent with our more abstract images in the circumstances considered in the study. We make no claims that the tuning would be good for an arbitrary new crisis involving Saddam Hussein. To put the matter differently, the abstract image developed through influence diagrams, attribute lists, and the like is more basic (and fuzzier) than the formulas and rules presented here. Why? Because we have a great deal of implicit knowledge (including beliefs that may or may not be valid) about context-dependent behavior that is not fully captured by the formulas and rules. That will continue to be true when discussing likely and possible behavior of real human beings.

CALCULATING NET ASSESSMENTS FROM QUALITATIVE INPUTS

General Approach

A recurring challenge in our methodology is making net assessments of options after first assessing each option's prospects, risks, and opportunities. We have found it useful to construct an algorithmic procedure for doing so and to implement it with a spreadsheet program, which permits us to generate a case's results quickly and to conduct sensitivity analyses in which we change some of the assumed combining rules.

Let P, R, O, and N represent Prospects, Risks, Opportunity, and Net Assessment for a particular option. As discussed in the text, P, R, and O are to be interpreted as the best-estimate, best-case, and worst-case outcomes of the option. The values of P, R, O, and N are all members of the set V = {Very Bad, Bad, Marginal, Good, Very Good}, except that some of them use synonyms (e.g., Very High for Risks and Very Poor for Opportunities are equivalent to Very Bad).

Let P′, R′, O′, and N denote numerical equivalents to P, R, O, and N. These values are in the set V′ = {–2, –1, 0, 1, 2}. P′, R′, and O′ are calculated from P, R, and O (e.g., Very Bad becomes –2). By contrast, N is calculated from N′. That is, we go from qualitative variables to numerical variables, compute a net assessment, N′, and then translate back into the qualitative variable N. This procedure requires a rounding convention, because in combining N′, P′, and R′ we sometimes get fractional values. For example, one might expect a Good plus a Marginal plus a Good to be somewhere in between Marginal and Good, but we have no such qualitative value.

The computation of N′ and the rounding convention can vary with model and situation. Allowing the situation dependence is important according to *prospect theory*, as discussed in the text. People become more risk taking when they perceive their situation to be bad.

N′ is computed, for convenience, according to the following generic formula:

$$N' = RN\left(\frac{aP' + bR' + cO'}{a + b + c}\right) \quad , \tag{1}$$

where a, b, and c are weighting factors, and RN is a rounding function. In the general case, a, b, and c may depend on P′, R′, and O′.

A "Rational Analytic" Reference, Model One

It is convenient to have a reference model that approximates rational-analytic reasoning. With this in mind, Model Zero is defined as weighing prospects, risks, and opportunities such that (a = 2, b = 1, c = 1):

$$N' = RN_c\left(\frac{2P' + R' + O'}{4}\right) \quad , \tag{2}$$

where RN_c is a rounding operator that rounds toward the center—i.e., toward 0. If it acts on 1.5, for example, it will produce 1. If it acts on –1.5, however, it will produce –1, not –2. We can now map N′ into its qualitative value using the inverse of the original mapping. Thus, if N′ is –1, N is Bad. This model can be regarded to be "rational-analytic" if the underlying probabilities and outcomes at issue can be described by some well-behaved function, such as that in Fig. A.1. In

other cases, there is only an obscure relationship between any of our models and rational-analytic thinking as that term is used in traditional decision analysis (see also App. A of Davis and Arquilla, 1991).

A "Conditionally Risk-Averse" Model, Model One

Model One is now defined to obey

$$N' = RN_d\left(\frac{aP' + bR' + cO'}{a + b + c}\right) , \quad (3)$$

where RN_d rounds down, consistent with risk aversion. Thus, it would transform –1.5 into –2 rather than –1. The values of a, b, and c depend on the situation and the value of R according to the following decision of Table A.1.

The logic here is that a Model One reasoner will, in most situations (those that are not Very Bad), look first at Risks. If they are Very High, he will consider the option in question to be Very Bad—without further reasoning. This is, in our experience, a very common decision heuristic. If Risks are High, but not Very High, the Model One reasoner will (again, in situations that are better than Very Bad) give more weight to Risks than would Model Zero. If Risks are Marginal, Low, or Very Low—i.e., low enough so that there is no "flag," he will reason as would Model Zero—balancing risks and opportunities equally. All of this, however, applies only if he perceives the situation to be better than Very Bad. Essentially by definition, a perception that the situation is Very Bad "demands" a different perspective, and in this case Model One will apply rational-analytic reasoning even if Risks are High or Very High. To Model One reasoners, that would be construed as risk taking.

Table A.1

Weighting Factors for Model One

Current Situation	Risks	a	b	c
>Very Bad (i.e., Bad, Marginal, Good or Very Good)	Very High	0	1	0
>Very Bad	High	1	2	0
>Very Bad	> High (i.e., Marginal, Low, or Very Low)	2	1	1
Very Bad	—	2	1	1

Let us again emphasize that the detailed values of a, b, and c were the result not only of "logic" and our mental "definition" of Model One, but also of looking at the behaviors generated. That comparison depends fundamentally on using something like Fig. A.1 from time to time so as to "calibrate" what words like "Very Bad" actually mean.

A "Conditionally Risk-Taking Model," Model Two

Model Two is now defined as obeying the following formula:

$$N' = RN_u\left(\frac{aP' + bR' + cO'}{a + b + c}\right) \quad , \tag{4}$$

where RN_u rounds "up" (toward higher numbers). Thus, it would round -1.5 to -1. The weighting factors are then given by Table A.2.

The reasoning here is that in most situations (ones that are Very Good, Good, and Marginal), Model Two will balance risks and benefits, as would Model Zero. If the current situation is Bad or Very Bad, however, he will focus more on the upside potential of options. If the situation is Very Bad, he will ignore Risks unless they are Very High

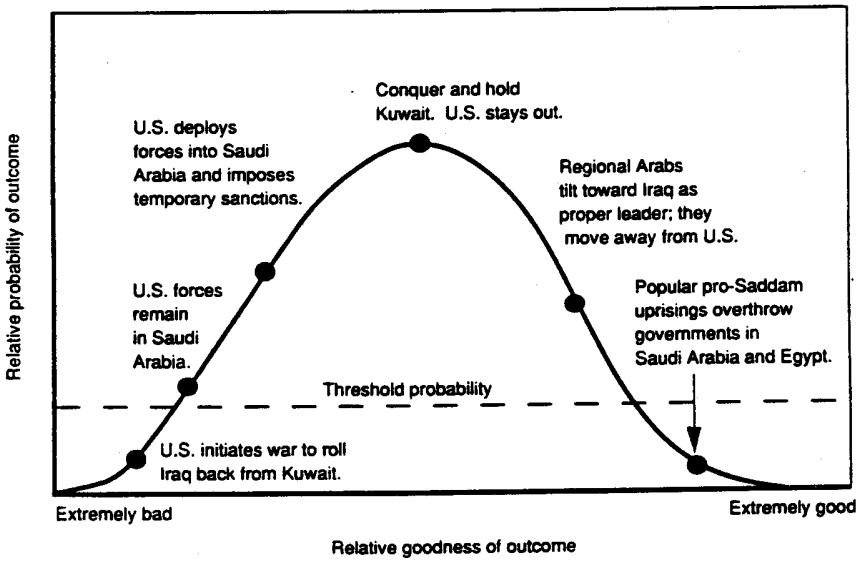

Fig. A.1—Illustrative Representation of Perceived Likelihood vs. Outcome, with Thresholding

Table A.2

Weighting Factors for Model Two

Current Situation	Risks	a	b	c
>Bad (i.e.,Marginal, Good or Very Good)	—	2	1	1
Very Bad	Very High	2	1	1
Very Bad	≥ High (i.e., no worse than High)	1	0	1
Bad	Very High	2	1	1
Bad	>Very High (i.e., no worse than High)	3	1	2

(another heuristic threshold), in which case he will still balance them off with opportunities. If the situation is Bad but not Very Bad, he will be "rational analytic" only if Risks are Very High; otherwise, he will be a bit more risk taking, but not remarkably so.

We have experimented with another model, Model Two Prime, which is even more risk taking, but have not used it in this report. It ignores risks in most cases and weighs Prospects and Opportunity equally.

Fig. A.2 shows a way to characterize the behavior of the various models as a function of current situation. In accordance with both common sense and the recent psychological literature, all of the models except the baseline, Model Zero, show increased risk taking whenthey deem the current situation to be unfavorable. The ordinate in Fig. A.2 is the average difference, over all logically permissible cases varying Prospects, Risks, and Opportunity, between the model's assessment and the "rational-analytic assessment" of Model Zero.[1] The calculation is done after the models have done their qualitative rounding. Notationally, if D denotes the difference in value between the net assessment with a given model in a given case and the assessment of Model Zero, and if there are five permissible combinations of Prospects, Risks, and Opportunity, then we can compute the average over the permissible-combination cases (hence the prime on the summation) as:

[1]The logically impermissible cases are ones in which, for example, Opportunity is "worse" than Prospects.

$$\overline{D} = \frac{\sum_{i,j,k}^{5'} \left(N'_{ijk} - N'_{ijk\,o} \right)}{\sum_{i,j,k}^{5'}} \qquad (5)$$

The scale is the same scale introduced earlier (e.g., Very Bad = –2). Thus, a variation of 0.5 means an average tendency to see an option about "a half notch" more optimistically than would Model Zero. In some cases (particularly the high-risk cases), the differences are much more substantial.

Fig. A.2 compares the behavior of the models as a function of situation so that we can see how the models relate to prospect theory. Note that Model Two's reasoning is really not particularly "risk taking" in a technical sense. Instead, the norm (something more like Model One) is highly risk averse—as are most political leaders when

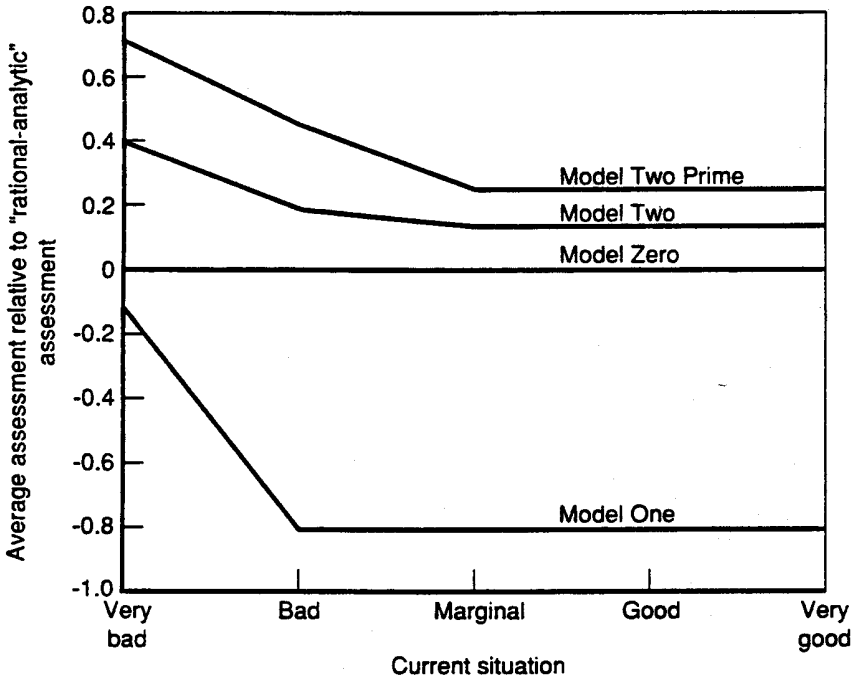

Fig. A.2—Risk-Taking Propensity as a Function of Model and Current Situation

the stakes involve possible destructive wars. This said, Model Two also suffers from a tendency to underestimate Risks (e.g., failing to take seriously the notion that the United States would not only respond to the invasion of Kuwait, but insist on rolling it back with a ground offensive). Thus, the overall risk-taking behavior of Model Two is due at least as much to misperceptions and biases (reflected in the assumed values of Prospects, Risks, and Opportunity) as to the reasoning logic treated here.

ASSESSING RISKS AND RISK FACTORS

Combining Comparable Risks to Assess Overall Risk

In qualitative reasoning, one must confront the problem of assessing net risks after accounting for a number of different factors that may be very different in character. There is no general algebra that one can use, because the combination rules depend on the *meaning* of the factors and details of context. As an analogy, suppose that one were given a box of fruit with N_a items of Type a and N_b items of Type b. What would the value of the fruit be? Would it be $N_a + N_b$? In fact, one can't answer without knowing what Types a and b are and how well one likes each of them. Further, on some days one might vastly prefer oranges over grapefruits, but on other days, grapefruits might be "just right." We avoided this problem when computing net assessments, because we expressed prospects, risks, and opportunities in the same terms: measures of the option's outcome according to some standard scale (e.g., the x axis of Figure A.1).

Despite the dangers of seeking generic formulas, we have found Table A.3 to be quite useful for a number of situations—if only as an analysis aid to ensure that our qualitative reasoning can be justified. That is, we can compare our qualitative reasoning with the results of Table A.3 (or Fig. A.3) and decide whether any differences are indeed justified by the details of the situation and subtleties of the language.

Table A.3 is a useful analysis aid when Risks are seen as the result of two factors, either of which alone is enough to cause serious troubles. The actual value for Risks, then, is the worse of the two contributing factors when the factors are unequal. However, if the factors are both Bad, then Risks is Very Bad—worse than either of the factors alone.

Table A.3

Generic Table for Assessing Risks from Two Comparably Serious Factors

Risk Factor One	Risk Factor Two	Risks
—	Very Bad	Very Bad
Very Bad	≥ Bad	Very Bad
Bad	Bad	Very Bad
Bad	≥ Marginal	Bad
≥ Marginal	Bad	Bad
Marginal	≥ Marginal	Marginal
≥ Low	Marginal	Marginal
Low	≥ Low	Low
Very Low	Low	Low
Very Low	Very Low	Very Low

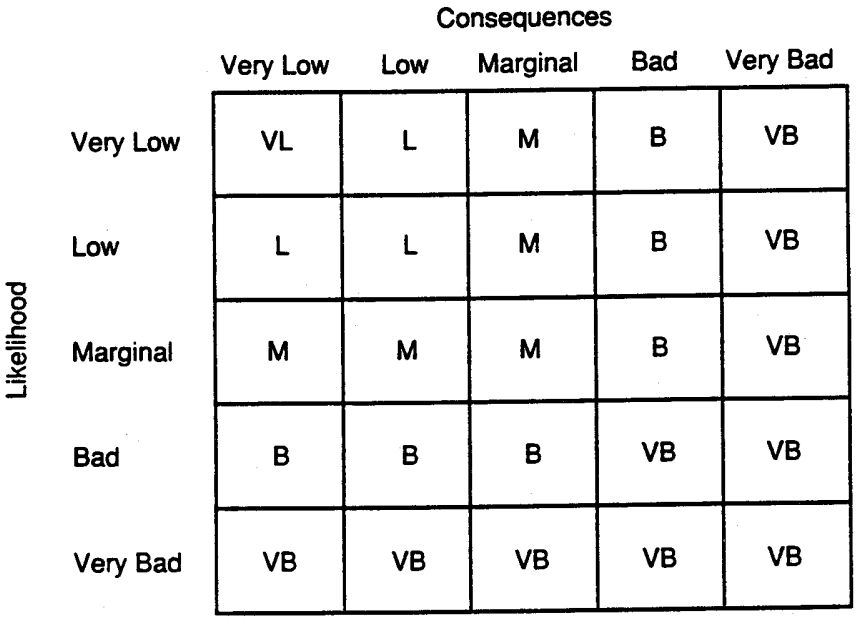

Fig. A.3—Graphical Depiction of Rules Determining Risks

By contrast, if both risk factors are Marginal or Low, they don't combine to make a higher risk.[2] Table A.3 represents this logic formally. Fig. A.3 depicts the logic more graphically. This is the logic that we used in assessing risks in the text, for both Models One and Two. We illustrate the method at the end of this appendix.

Assessing Risk from Estimates of Likelihood and Consequences

A different problem arises in estimating risk when the discussion of risk decomposes into a discussion of factors for likelihood and consequences (of a given set of events). Table A.4 shows analysis aids for Model-One and Model-Two behavior. Figures A.3 and A.4 show the same results pictorially. Although we emphasize that these aids are not truly generic and should be used with caution, they proved useful to us and were the basis for the detailed results shown in the text.

Consider now Table A.4. This table is not straightforwardly equivalent to stating that the risk is the product of likelihood and consequences, using a mapping of qualitative values to integers. A Model One would tend to apply thresholding to see risks even where the likelihood of the outcome in question was considered low. That is, Model One would interpret "Low" likelihood to mean "relatively low, but still high enough to be taken seriously," whereas Model Two would tend to equate "Low" likelihood with zero. After experimenting with a variety of numerical schemes for generating the table, we concluded that the best way to produce it was "intuitively," which allowed us to recognize that when words like "Low" are used, they really do *not* correspond to precisely 0.2 or some other number. We believe Table A.3 captures the essence of what most people would find comfortable, although empirical work is needed, and by no means do we wish to imply either that the combining rules we used are "correct" or even the best possible. Ultimately, we see no substitute for sensitivity analysis. This is straightforward if one develops calculational methods to generate the tables, as discussed in the footnote to Table A.4.

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[2]Again, this is a context-dependent judgment. In the examples treated in the text, we believe this assumption best conveys the sense of the Saddam models we had in mind. However, in other cases we would have assumed, for example, that a Low and a Low make a Marginal or that a Bad and a Bad make a Bad rather than a Very Bad. Or, we might have distinguished here between Models One and Two. We have been careful to test the sensitivity of the study's conclusions to these assumptions and feel comfortable with the results.

Table A.4

Illustrative Assessment of Risk Factors from Likelihood and Consequences

Likelihood	Consequences	Risk Factor (Model One)	Risk Factor (Model Two)
High	Very Bad	Very High	Very High
High	Bad	High	High
High	Marginal	Marginal	Marginal
High	Low	Low	Low
High	Very Low	Very Low	Very Low
Marginal	Very Bad	High	High
Marginal	Bad	Marginal	Marginal
Marginal	Marginal	Low	Low
Marginal	Low	Very Low	Very Low
Marginal	Very Low	Very Low	Very Low
Low	Very Bad	Marginal	Low
Low	Bad	Low	Very Low
Low	Marginal	Very Low	Very Low
Low	Low	Very Low	Very Low
Low	Very Low	Very Low	Very Low

NOTE: One can reproduce this table using 0, 1, 2, 3, and 4 to represent Very Low, Low, Marginal, High, and Very High, respectively; by using 0.2, 0.6, and 0.8 to represent Low, Marginal, and High likelihoods for Model Two; by using 0.4, 0.6, and 0.9 to represent the same likelihoods for Model One; and by treating the resulting products as Very High, High, Marginal, Low, or Very Low if they are in the ranges ≥ 3.2, ≥ 2.4, ≥ 1.6, ≥ 0.8, or ≥ 0, respectively.

A likelihood factor should be considered to be the sum of the likelihoods of paths to the same result. A consequences factor may be computed with Table A.1 or with other expressions in which the consequences are more like the weighted sum of the contributing consequences. Model Two, for example, cares little about the short-term foreign-policy consequences of its actions, while Model One cares a great deal. Compare Model Two's assessment in Fig. A.5.

EXAMPLES

Defining the Scale

Since words like "Bad" have only relative meanings, we recommend starting analysis by constructing something like Fig. A.6, which essentially defines scales for the qualitative characterizations of

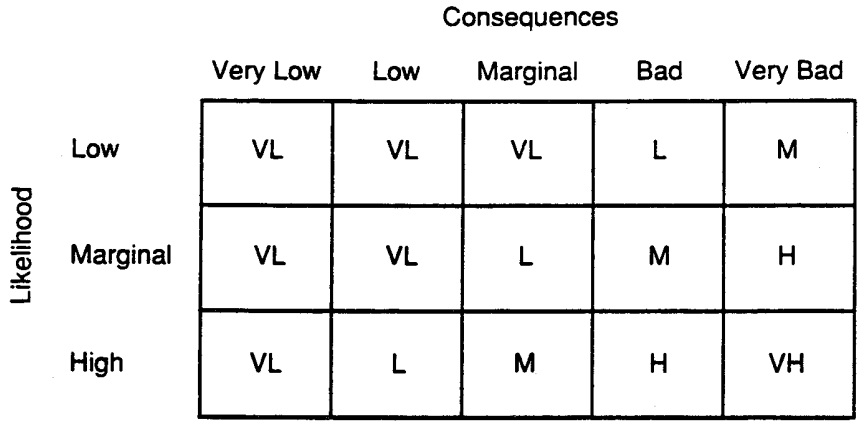

Fig. A.4—Graphical Depiction of Risk Factor Calculation for Model One

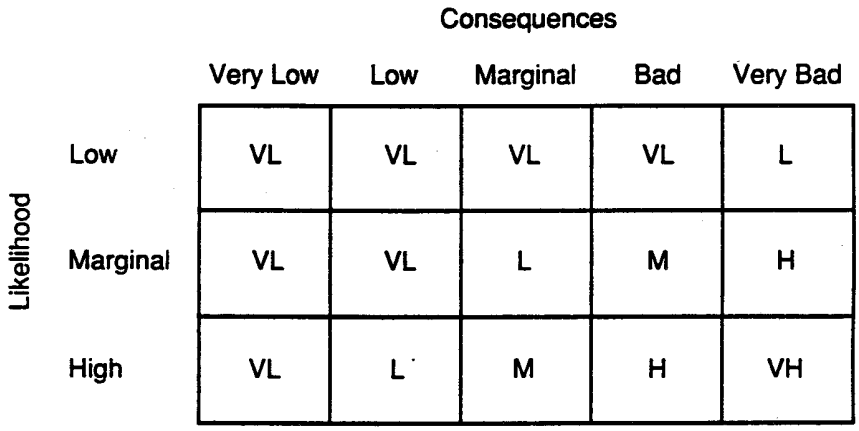

Fig. A.5—Graphical Depiction of Risk Factor Calculation for Model Two

outcome. Keeping this in mind is important, because it reminds us that Model One and Model Two have different anchor points for measuring goodness. Model Two's mind is very much on the ultimate goal, whereas Model One barely thinks of it and would settle for much less. Further, Model One thinks much better of the current situation than does Model Two. To construct scales like this, one should can draw upon the same reasoning as is reflected in the influence and weighting diagrams discussed earlier (e.g., Figs. 2.1–2.8).

Calculating a Net Assessment

Next, consider Option Two of Table 3.1 in which Status (situation), Prospects, Risks, and Opportunity are Bad, Marginal, Marginal, and Good, respectively. This table applies to Model One. Table A.1 also applies, and we find that the weighting factors a, b, and c should be 2, 1, and 1, corresponding to rational-analytic reasoning. The Net Assessment of this option, then, is the result of rounding (0 + 0 +1) / 3 toward the center. The result is 0, which corresponds to Marginal.

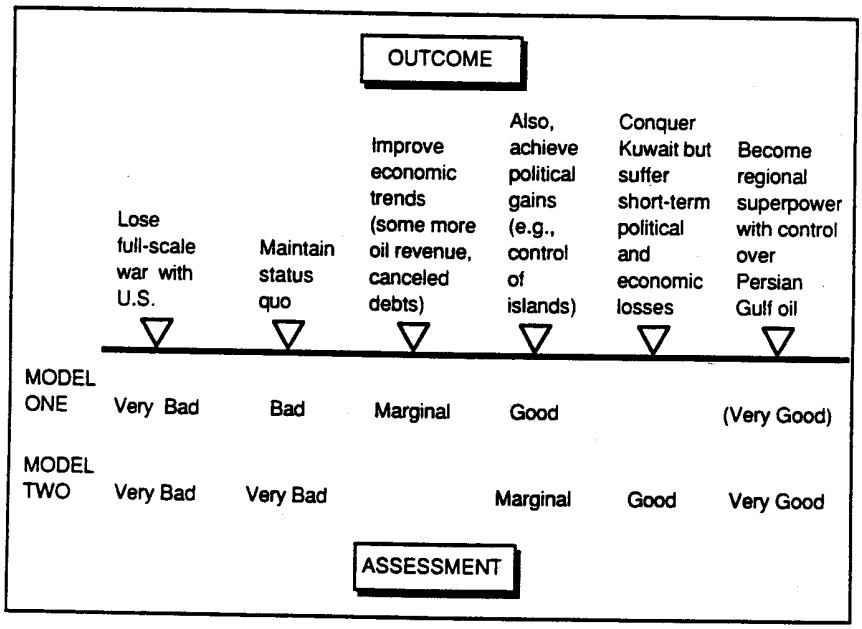

Fig. A.6—A Subjective Scale for Calibrating Outcomes

Calculating Risks with the Quasi-Generic Formula

Next, consider some risk calculations. Table 3.2 computes risks as seen by Model One in terms of four factors, two of them likelihoods and two of them consequences. Upon inspection, we realize that the overall calculation involves what are, for Model One only, three "comparably serious factors." That is, an option's Risks would be High or Very High if the United States defended Kuwait directly, if the United States deployed into Saudi Arabia with Bad likely consequences, *or* if the invasion severely antagonized the Arab world. The latter factor would play a much smaller role for Model Two (compare Figs. 2.5 and 2.6), but Table 3.2 applies to Model One. To evaluate risks in this case, we need to apply Table A.2 or Fig. A.3 repetitively. Doing this for the second line of the table (the one in bold), we see immediately that Risks for this case cannot be less than High because of the Bad in the "Attitudes-in-Arab . . ." column. Looking at Fig. A.3, we see that if either one of two risk factors is Bad, then the overall Risk will be High or Very High.

The first risk factor is actually the likelihood of the United States defending Kuwait directly (the first column) and an *implicit* consequences factor (implicit because it is "obivious" that the consequences would be Very Bad). Using Fig. A.4, we see that this produces a Marginal risk factor.

The second risk factor is the likelihood of the United States deploying into Saudi Arabia (the second column) times the consequences (third column). We have here a Marginal and a Very Bad. Using Fig. A.4 again, we see the result is High Risks.

The risk factors, then, are Marginal, High, and High (treating High as a synonym for Bad here). Using Fig. A.3, we conclude that the overall value of Risks is Very High[3] (the United States might defend Kuwait directly or the United States might deploy into Saudi Arabia, which would have a variety of possible bad consequences).

An Example of How to Develop Ad-Hoc Rules

Often, the judgment one may be seeking will not be expressed in one of the standard forms. Instead, it will depend on highly situation-de-

[3]As one measure of the value of this technique, we had assessed the overall risks as merely High in our first draft, without the benefit of having done the "calculations" for this particular table. In retrospect, however, looking at the calculation and its logic, we believe the calculation rather than our "off-the-top-of-the-head" folding together of risk factors. In other cases, we might reject the calculations and would record the reasons.

pendent factors. We cannot provide general guidance on this, but we can illustrate issues and procedures using Table 3.9 as the example. In that table, the output is to be the likelihood of U.S. intervention to defend Kuwait. The independent variables are (a) inherent warning based on U.S. agreements, interests, and history; (b) political warning; and (c) military warning. These variables are by no means unique, but they happened to be the variables we thought of when thinking about how to think in more detail about the likelihood of U.S. intervention.

The first variable is clearly different in kind from the others, and the relative importance of the second and third would vary with details of context. For example, a stern message from a leader known to have backed down in other instances would mean far less than an identical message from someone with a record of action. Also, the relative weight to be placed on these variables would probably vary with the decisionmaker. Model One might consider all of the warnings important and take the most serious of them as definitive (thereby applying the method of Table A.3 and Fig. A.3). Model Two, however, might not be much impressed by political warning, looking primarily to evidence of military power and intentions, although considering the other factors. In that case, Model Two would be treating the three factors as "indicators" and would essentially base his overall judgment on a sum of the strength of indicators (not an average).

In this particular case, we experimented with various schemes and came up with the following formula, which represented our sense of Model Two's likely reasoning. We computed a likelihood L as follows:

$$L = aF1 + bF2 + cF3 \quad ,$$

where a, b, and c are weighting factors and F1, F2, and F3 are the numerical equivalents of Low, Marginal, and High (0, 1, and 2, respectively). We set a, b, and c equal to 2, 1, and 3, respectively, for Model Two. Then we assessed the qualitative value of L by stating:

Likelihood . . . is High if $L \geq 6$

is Marginal if $2 \leq L < 6$

is Low if $L \leq 2$.

How did we arrive at the various numbers used here? First, we clearly wanted Model Two to give more weight to military warning

than to the other factors. We then concluded that Model-Two Saddam, being particularly sensitive to *realpolitik* considerations, would next look at inherent warning. That is, he would be relatively sensitive to the opponent's stakes. He would be least sensitive to political warning. As to the numerical weights, we experimented, looked at the behavior generated, adjusted, and finally settled on the ones shown. All of this took perhaps ten minutes. We do not know a better procedure, given that the judgment in this case is so strongly driven by implicit knowledge and context-dependent factors. Once again, however, this ad-hoc aid proved quite useful, causing us to change a few of the original judgments we had imputed to Model Two in Table 3.9.

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