Psychology and Deterrence

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The attempt to prevent war through the threat of force is by now an all too familiar strategy in contemporary international life. Formal theories that prescribe deterrence as strategy reason deductively, speak to the motivation of both the challenger and the defender in an adversarial relationship, and treat both as rational. Paradoxically, however, although formal theories are well articulated, the axiomatic logic parsimonious, and the prescriptive thrust evident, the workings of deterrence continue to remain elusive.

This chapter and the next seek to illuminate how deterrence works, to contribute to an explanatory theory of deterrence that is empirically rather than deductively derived. To do so, I look empirically at the calculations of the two protagonists in a deterrent relationship, the challenger and the defender, and attend in the first instance to the practice rather than the theory. In this chapter I begin with an examination of the calculations of Egypt’s leaders from 1969 to 1973, five years in which they considered a use of force five times. I pay careful attention not only to those instances where

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they chose to attack—where deterrence failed—but also to the cases where they refrained from a use of force—where deterrence held. In the next chapter I proceed to look at the estimates of Israel's leaders during much of the same period when they sought to deter military attack. Inevitably, though, I weave back and forth to some extent as I explore the dynamics of an interdependent relationship; these two chapters can best be conceived as the two sides of the same deterrence equation. They are animated by a common intellectual agenda: first, to explore the divergences between the expectations of formal theories of deterrence and the reality of its practice in an interdependent relationship over time; and second, to determine whether there were systematic perceptual biases in decisions about the use of force by the challenger or the defender—or both—and whether these biases were sufficiently important to defeat deterrence.

I begin with an examination of the calculations of Egypt, in this relationship the challenger contemplating a resort to force. Formal theories of deterrence speak clearly to this set of calculations. Elaborated largely through deductive reasoning, they build on the central proposition that, when a challenger considers that the likely benefits of military action will outweigh its probable costs, deterrence is likely to fail. If, on the other hand, leaders estimate that the probable costs of a use of force are greater than its putative benefits, deterrence succeeds. Crucial to these estimates of a challenger is the credibility of a defender's commitment, either to punish or to deny. Credibility in turn, formal theories hold, is generally a function of a challenger's estimate of a defender's capability and resolve. At its core, then, the concept of deterrence assumes that a rational challenger weighs all elements of the deterrence equation equally and pays attention to probability, cost, and benefit in choosing whether or not to use force. The deterrence argument, au fond, is one of motivation.

Precisely because it is a theory of motivation, deterrence cannot rest on axiomatic logic alone but must deal with the metaphysics and the psychopolitics of a challenger's calculations. Consequently, it is very much the abstract formalism and parsimonious logic of deterrence that has generated so much criticism among experts. Many consider deterrence ahistorical because, in the articulation of a set of logical maxims, it ignores important differences among challengers over time. It is also apolitical in its inadequate treatment of the political context of decisions and the political environment that shapes and alters the valuation of interests. It is remiss, behavioral scientists tell us, in its failure to treat fundamental cognitive processes, processes that compromise the capacity for the kind of
rational calculation required by formal theories of deterrence. Cognizant of these difficulties, scholars turned from formal theory to empirical investigation of the workings of deterrence.¹

The central building block of theories of deterrence is the subjective estimates challengers make of the likely costs and benefits of the consequences of military action. To assess these estimates of probability and value, one needs to know first how leaders identify their interests and perceive the issues and how they evaluate their military capabilities and the military balance. To examine their decisional calculus, one needs to know as well whether leaders consider alternatives to a use of force. And, to understand their choice, one must establish the weight they give to different elements of the deterrence equation: How do they weigh the interests at stake, the military balance, the importance of the available bargaining space, the alternatives to force, and their calculations of expected gain and loss?

Three sets of questions guide the examination of these factors. First, do leaders consider each of these factors? These elements may be part of their conceptual schema, or they may be omitted entirely from the analysis. If leaders do consider these factors, do they, as the rationality postulate expects, accord equal attention to all the critical components? Or, as much of psychological theory expects, are leaders selective in their attention? Are they systematically biased in what they include and what they ignore? Second, are there differences in the pattern of perception when leaders choose to use force and when they refrain from military action? This is not a trivial question if one holds that psychological processes are a necessary component in an explanation of deterrence failure. Finally, wherever hindsight permits, I propose to assess the accuracy of leaders' subjective judgments. Do senior leaders seriously miscalculate, and if they do, what is the impact of miscalculation on the outcome of deterrence? Does miscalculation defeat deterrence? If leaders had assessed interest, capabilities, or bargaining space more accurately, if they had been less biased in making critical decisions, would they likely have refrained from a resort to force?

Before an empirical investigation of the practice of deterrence can properly proceed, at least two conditions must hold. First, a challenger must actively consider a use of force, and second, a defender must actively try to prevent that use of force through a threat of military retaliation. If defenders are not trying to deter or challengers are not considering force, then deterrence is, of course, irrelevant. If these two conditions do obtain, however, not only the
failures but also the successes of deterrence can be identified and analyzed. From 1969 to 1973 Egypt's leaders seriously contemplated the use of force at least five times, and Israel threatened retaliation to deter military action. The context of the deterrence relationship set the framework for the strategic choices Egypt confronted.

The war of 1967 was one of miscalculation, an unplanned war that was unintended by any of the belligerents. It began with tension on Israel's border with Syria, escalated to an Egyptian blockade of the Straits of Tiran, and ended with Israel's occupation of the Sinai Peninsula, the Golan Heights, and the West Bank of the Jordan. The changed map at the core of the Middle East reshaped the strategic equation of the Arab-Israeli conflict and the memories, perceptions, and calculations of the major belligerents. Israel became the quintessential conservative power with an overwhelming interest in deterring military attack, while the Arab states were even less willing to accept the status quo after 1967 than they had been before.

At the end of the war, the intelligence services of the United States, the Soviet Union, Egypt, and Israel all agreed that Egypt's military capability was inferior to that of Israel: Egypt could not recapture the Sinai Peninsula in a general war. In formal terms, the stage was set for the success of conventional deterrence. Yet Egypt's leaders repeatedly considered a challenge to deterrence and at times did choose to use force. In early 1969 President Nasser abrogated the cease-fire and in March launched a war of attrition across the Suez Canal. Israel's deterrent strategy had failed. In 1971, not quite a year after Nasser's death, Anwar el-Sadat proclaimed a "year of decision" and planned an air strike against Israel's military installations in the Sinai preparatory to a landing of paratroopers. This time, Egypt's leaders chose not to attack as planned. Again in 1972 the president ordered the Egyptian general staff to prepare to attack across the canal but cancelled the attack in mid-November after dismissing his senior military commanders for refusing to follow his orders. For the fourth time, in early 1973, Egyptian military officers planned a surprise attack for limited military objectives in coordination with Syria. And again, in May, the attack was postponed. In the summer of 1973 Egypt and Syria jointly planned an attack across the cease-fire lines, and on 6 October the two armies launched a coordinated military attack. Five times, then, Egypt planned military action, but only twice did Egyptian armed forces actually attack. Israel's deterrent strategy may have succeeded three times but it failed, and failed badly, twice. Why?
The major obstacle to a valid answer to this question lies in the paucity of reliable evidence on the perceptions of Egypt's leaders and the processes they used to make their choices. This problem plagues the historian as well as the social scientist, and, other than waiting the usual thirty years for the opening of archives, there is no obvious and satisfactory solution. In Cairo, moreover, there are special problems with the classification and referencing of government documents. On the other hand, in Egypt fewer players were involved in making these decisions. Power was concentrated heavily in a few very senior officials and, except for a short period in 1970–71, particularly in the presidency. The president and senior army officers have written autobiographies and memoirs, generating a great deal of heat and some light. Civilian advisers have also written extensively. Mohamed Heikal, an influential adviser to both President Nasser and President Sadat until 1974, regularly used the editorial page of the semiofficial Al-Ahram to dissect government attitudes and policies. In their accounts of important debates and decisions, at times there are discrepancies between the president and his senior military commanders or civilian advisers. When these discrepancies do occur, I work with the president's reconstruction of the decision since, for all but the short interval from September 1970 to May 1971, the power and authority of the president to determine policy was unquestioned. In addition to the writings of senior military and civilian leaders, the semiofficial Institute for Strategic Studies at Al-Ahram in Cairo has an excellent collection of legislative debates and speeches given by government leaders. Finally, some of the senior leaders have been interviewed, and although these interviews are often illuminating, they are not especially valid since the “remembered probabilities of once-future things” differ quite markedly from the estimates leaders are likely to have made at the time. With careful attention to the validity of different kinds of evidence, I drew on these sources to reconstruct the calculation of Egypt's leaders about the use of force.

Deterrence: A Challenger's Perspective

Estimates of Interests

The first important component in the calculations of leaders contemplating a challenge to deterrence is their evaluation of the interests at stake, an evaluation that logically should shape their assessment of the cost and benefit of military action. One of the weaknesses of formal prescriptive theories of deterrence is their
inadequate attention to the interests at stake, especially those that are “intrinsic” rather than “strategic.” Intrinsic interest refers to the tangibles at issue and their worth, while strategic interest includes the bargaining reputation, the resolve, the credibility, and the prestige of a participant in an ongoing conflict. Deductive statements of the logic of deterrence can treat the interconnectedness among interests and the importance of reputation in an ongoing conflict, but they cannot speak to the initial evaluation challengers make of the interests at issue. One must look beyond the formal assumption of rationality to the psychological dynamics that may influence leaders' estimates of their interests.

I begin by looking at a challenger's comparative assessment of the interests at stake. Although formal theories of deterrence do not address these estimates directly, by implication one would expect first that leaders do compare interests. If they then consider their opponent's interests to be more heavily engaged than their own, they will estimate the defender's resolve to be high and the commitment to retaliate credible and, other things being equal, will forego military challenge. In an examination of crisis bargaining, however, Snyder and Diesing uncover very few instances of explicit estimation of the intensity of an opponent's interests. Rather, leaders appear to assess their own resolve by considering the worth of their interests but infer an opponent's likely resolve from its past behavior. In his study of Argentinian decision making before the occupation of the Falkland Islands, Lebow finds as well that leaders in Buenos Aires paid little attention to the underlying interests of Britain. Their evidence is consistent with psychological explanations that suggest that leaders are likely to pay attention to their own interests, interests that are psychologically salient, rather than to those of their opponent. A challenger's assumption of a favorable asymmetry of interest may be faulty in part because interests are rarely compared explicitly. Insofar as leaders do evaluate the interests of their adversary—and the estimates of these interests by the opposing leadership—they are likely to underestimate their worth in comparison to the value they attach to their own interests at stake in the conflict. Whether the bias is motivated—a challenger may seek to justify a use of force—or unmotivated, evaluations by leaders of the interests at issue will bear little resemblance to the expectations of formal theory.

When one looks at the calculations of Egypt's leaders from 1969 to 1973, one finds a poor fit between the expectations of deductive theories and Egyptian estimates. First, Egypt's leaders engaged in almost no comparison of interests; indeed, in only one case did they
discuss asymmetries in the interests at issue. As Egypt was about to launch the War of Attrition, Heikal noted that the importance attached by Egypt to return of the conquered territories was greater than Israel's readiness to defend the status quo. In the other four cases, although the credibility of Israel's commitment was not at issue, there is no Egyptian estimate of Israel's interests: the interests of their adversary were not psychologically salient. Certainly Egypt's leaders did not develop finely tuned calculations of relative interest to estimate Israel's likely response to a use of force. Perhaps they did not do so because they were considering direct military attack on the forces of their adversary and, consequently, had little doubt about Israel's response. Indeed, it appears that Israel's leaders succeeded, after the War of Attrition ended in 1970, in persuading Egypt's senior officers that a renewal of limited warfare would be met with a much broader military response. This is not usual: Lebow finds, for example, that challengers frequently resort to force, anticipating that defenders will acquiesce rather than retaliate. Although Egyptian leaders were not plagued by uncertainty and consequently had little incentive to examine Israel's interests, the almost complete inattention to the likely estimates of Israel's leaders is nevertheless striking: the estimate of a favorable asymmetry was an implicit premise in the calculations of Egypt's political and military leaders. Equally to the point, however, misperception did not confound deterrence: Egypt read Israel's threat to retaliate and did so accurately and independently of any explicit assessment of Israel's intrinsic or strategic interests.

What we do find is consistent emphasis by Egypt's leaders on the centrality of their own interests. They used almost apocalyptic language to describe the interests at stake: in November 1972 President Sadat defined the issue as "to be or not to be," and Heikal explained that the conflict with Israel was the "crisis of our life." Egypt's leaders paid more attention to their strategic interests, however, than to the worth of the specific interests at issue. Although they made frequent reference to the liberation of the Sinai and to the rights of the Palestinians, they placed these issues within a broader context. In 1969 General el-Shazli explained that Egypt would initiate military action "to symbolize our refusal to remain defeated," and in 1973 President Sadat argued that Egypt would refuse to acquiesce in a fait accompli. There is little specific reference to the worth of the intrinsic interests at issue.

What does this examination of Egyptian assessments of their own interests and those of Israel suggest? First, a strong emphasis on strategic interests dominated Egyptian thinking throughout. The limited attention that Egyptian leaders paid to Israel's interests,
either intrinsic or strategic, suggests that Egyptian leaders operated with an implicit premise that required no discussion.

Second, and equally interesting, although I could find almost no discussion of the relative interests involved, this gap in perception did not translate into a flawed estimate of Israel's commitment to retaliate. This particular misperception had no impact on the success or failure of deterrence; it was irrelevant. Paradoxically, however, in the one case where Egypt's leaders did consider asymmetries of interest, in 1969, they seriously underestimated Israel's interest and consequently miscalculated the scope of its response. They did not anticipate that, in response to unacceptable levels of casualties, Israel would escalate both its objectives and the scope of its military retaliation. Heikal based his estimate directly on an assessment of Israel's intrinsic interest: because Israel had no interest in the west bank of the canal, its forces would not cross in retaliation against Egyptian artillery fire. Moreover, he insisted, Israel was less committed to defending the status quo than was Egypt to recapturing the occupied territories. This analysis seriously underestimated Israel's strategic interest and did not consider the consequences of a prolonged and costly military stalemate for Israel's deterrent reputation. It seems likely that the bias in the estimate was motivated—Heikal underestimated the probability of an undesirable consequence. Whether motivated or unmotivated, this miscalculation was critical in defeating deterrence. It was not inattention to an adversary's estimate of its interests but underestimation of these estimates that led to a flawed calculation of the acceptable limits of risk and an inappropriate military challenge.

Finally, although Egyptian leaders placed great emphasis on the importance of the interests at stake, in only two of the five cases did they challenge deterrence and resort to force. Because Egyptian leaders consistently valued their interests highly, their estimates varied too little to explain the difference between deterrence failure and success; consequently, perceptions of interest provide a very weak explanation of the outcome of deterrence. My evidence suggests that, at most, a high valuation of strategic interest may be a necessary but insufficient condition of deterrence failure. And, more surprisingly, it seems that a low valuation by a challenger of its interest is not a prerequisite to the success of deterrence.

Estimates of Military Capabilities

A second component in a challenger's calculation, a component that is at the heart of the deterrence argument, is a leader's estimate of the military balance. Formal theories of deterrence begin with the
premise that interests are strong and leaders are powerfully motivated to attack, and then they consider a challenger's assessment of the balance of military capabilities as the critical component. Deterrence succeeds when leaders calculate that the likely costs of military action will outweigh its expected benefits. Central to these calculations are their estimates of military capabilities.

Working with a common assumption of rationality, students of deterrence have looked at different dimensions of military capabilities. The costs of military action generally refer to the estimated capacity of a defender to inflict military punishment or to deny military success on the battlefield. Not only assessments of the general balance but also estimates of changing trends in the balance may shape a decision on whether or not to resort to force. If leaders consider trends to be adverse, quite rationally they may feel a growing sense of urgency to act. Japanese leaders made very much this kind of calculation before choosing to strike at Pearl Harbor in 1941.

Analysts of military history have suggested that more important than the quantitative balance of power is the estimated impact of technology and force postures on strategy and the capacity for offense. If leaders consider that military technology or force postures favor the offense, they are likely to challenge. Evaluation by officers of the mobility of their forces may also be important in their estimates of offensive capability, but mobility can favor the defense as well. More to the point is a challenger's evaluation of the prospects of its military strategy. When leaders think they can launch a successful blitzkrieg that promises rapid military victory, again quite rationally they are likely to resort to force. When they see no alternative but a long, costly war of attrition, or a limited strategy that may degenerate into stalemate, they are likely to be deterred. Finally, in their empirical examination of the practice of deterrence, George and Smoke suggest that challengers will try to devise options that can finesse a defender's military superiority. They will attempt to choose a type of action at a level of violence that will make it difficult for a defender to use its most potent military resources. Leaders may examine any or all of these dimensions of military capability, and when they do so, theories of deterrence suggest, they carefully calculate the expected costs and benefits of military action and make the rational choice.

Psychological explanations do not expect leaders to engage in careful, "objective" consideration of military capabilities. On the contrary, a variety of biases may intrude to color the estimates they make of their own and their adversary's military options. Analysts of
national security suggest that leaders often tend to underestimate their own capabilities and overestimate those of their adversary. Biased estimates of this kind are especially common when military action does not seem imminent. The error may be motivated—challengers may try to increase defense spending and mobilize public support—or unmotivated—biases of anchoring and availability may lead senior officials to overgeneralize from their past military performance or that of their adversary. When leaders are considering immediate military action, they may underestimate the strength of an adversary and exaggerate their own. Highly motivated to challenge, they may well deny unpleasant value trade-offs. Estimates of military capability and usable force, the crucial estimates in a deterrence equation, are subject to the same set of biases that generally affect judgment and inference.

A careful inspection of the Egyptian evaluation of these military factors—their own capabilities as well as those of their opponent, their capacity for offense, usable military options, the likely battlefields results—challenges the central postulate of the deterrence argument. First, there is strong evidence of miscalculation in the estimates of Egyptian leaders. Even more damaging, if the bias in the estimates is discounted and the Egyptian analyses of military capabilities are taken as givens, the theory of deterrence fits poorly with the practice.

In March 1969 there is at least a partial fit between Egyptian estimates and the expectations of deterrence theory. Before they initiated the War of Attrition, Egyptian leaders considered that their forces enjoyed local superiority in the projected theater of battle. Muhammed Fawzi, the minister of war, estimated that although Egypt was inferior to Israel in its capacity for offense, it did have defensive superiority in manpower, armor, and artillery along the canal, and Heikal, writing in Al-Ahram, concurred that although Israel had superiority in the air, Egypt had the advantage on the ground in the canal zone. President Nasser argued even more strongly that Israel could not attack across the canal: it would confront a “sea of Arabs” and a massive Egyptian deployment along the line. At least along the canal front, both civilian and military leaders estimated that the military balance was favorable.

This estimate was central in Egyptian consideration of alternative military options. Closely related to this evaluation of local, defensive superiority in weaponry was an emphasis on quantitative superiority in manpower and a far greater capacity to absorb punishment. Heikal argued that, because of the depth of Egyptian territory and its unlimited population, a strategy of attrition was uniquely suited
to Egyptian capabilities: just as "lightning war" suited Israel, so protracted war suited Egypt. Even if Egypt sustained 50,000 casualties, it could absorb these losses, but if it inflicted 10,000 casualties, Israel would be forced to terminate the fighting. Drawing on these estimates, Egypt's military planners designed a four-part challenge to Israel's deterrent strategy: six to eight weeks of massive artillery bombardment, followed by hit-and-run commando attacks, then larger action across the canal to disrupt Israel's supply lines, and finally a large-scale canal crossing.18 As George and Smoke suggest challengers may do, Egyptian leaders "designed around" deterrence. They attempted to develop a military strategy to minimize Israel's advantages, to exploit the available constraints on the use by Israel of the full range of its military capabilities, to impose ground rules on the level and pattern of violence that would favor their assets and diminish their liabilities. In so doing, Egypt's leaders anticipated neither a rapid battlefield victory nor offensive military action. On the contrary, they quite deliberately eschewed a blitzkrieg strategy and chose a limited strategy of attrition warfare. Estimates of offensive superiority and rapid military success were not preconditions to this military challenge.

Were these estimates accurate? With the benefit of hindsight, it is apparent that almost every one of the critical estimates and attendant corollaries were flawed. Egypt enjoyed local superiority in fire power along the canal only so long as Israel refrained from committing its air force, but it was highly unlikely, indeed almost illogical, that Israel would refrain in the face of protracted war and high casualties. Indeed, within six months, Egypt's anti-aircraft defenses had been destroyed and Cairo's forces on the ground were exposed to punishing fire. It was not that Egyptian leaders failed to consider the risk of an escalation by Israel, an escalation that they knew would be damaging if it occurred. In the first place, they considered the risk and then dismissed it, despite their choice of a military strategy that would provoke the very contingency they sought to avoid. In the second place, Egyptian leaders miscalculated the relationship between military objectives and strategy: were Egypt's forces to cross the canal, the war would not remain limited, yet all Egyptian planning was based on a static limited war that would constrain Israel's options. Although military leaders had eliminated the option of a general war with Israel, the four-phase strategy they designed led precisely to such a war. Finally, Egyptian leaders grossly underestimated Israel's capacity for endurance and overestimated Egyptian capability to inflict casualties. Indeed, it is difficult to understand precisely how Egyptian leaders expected to inflict casualties of
10,000; at the height of the war, Israel’s casualties reached 150 per month—and provoked the escalation to air power. Yet Egyptian planners spoke of massive casualties within six to eight weeks. An error of such magnitude in an estimate is one of kind rather than degree.

The Egyptian analysis in 1969 was shot through with miscalculation that was critical to the defeat of Israel’s deterrent strategy. In assessing the balance of capabilities and Israel’s likely response, Egyptian leaders overestimated their own capacity to determine events and underestimated that of their adversary. In planning a strategy of local and limited war that would nevertheless culminate in a canal crossing, they denied unpleasant inconsistencies central to the analysis. In anticipating massive casualties among Israel’s forces, casualties that would nevertheless provide only a limited military response, Egyptian analysts tolerated logical contradiction in their expectations that can be explained only by some dynamic of wishful thinking. These errors were not the product of constrained information processing: Egyptian leaders were not confronted with a steady stream of new evidence. Nor did they grow out of biased estimation of probabilities: the usual heuristics of anchoring, availability, and retrievability were not relevant since Egyptian planners confronted a strategic dilemma with no precedent in their national experience. The biased estimates stemmed rather from processes of inconsistency management in response to an extraordinarily difficult and painful value conflict: Egypt could neither accept the status quo nor sustain a general military challenge. In seeking to escape this dilemma, Egyptian leaders embarked on a poorly conceived and miscalculated course of military action rather than acknowledge the value conflict and make the difficult trade-offs. In 1969 Israel’s deterrent strategy failed not because it was badly designed but because Egyptian calculations were so flawed that they defeated deterrence. What Israel’s leaders did not do, however, was recognize the costs to Egypt of a perpetuation of the status quo, costs that were so heavy that they were likely to promote motivated errors like wishful thinking and denial in an effort to escape an intolerable dilemma.

Much had changed by 1971. The available referent to Egyptian planners was now the War of Attrition, and they believed Israel’s repeated threat to retaliate with a general attack should Egypt attempt to renew limited military action. Israel’s deterrent strategy and Egypt’s experience ruled out the option of attrition warfare. Yet no other military option seemed feasible, much less attractive. Despite the strong air defense capability provided by Soviet per-
sonnel who manned an extensive and well-integrated anti-aircraft system, Egyptian military leaders argued strongly that Egypt was still incapable of a general attack across the canal. The general staff emphasized the lack of bridge-building equipment and aircraft that could strike at bases deep within Israeli-held territory. Again and again, senior Egyptian officers demanded improved offensive capability in the air as well as the equipment to strike at Israel's population centers to deter renewed strategic bombing of Egypt's civilians. In 1971, after seriously considering a challenge, President Sadat was deterred.

Deterrence held again one year later. Following the expulsion of Soviet military advisers from Egypt in July 1972, Egyptian officers were even more pessimistic in their evaluation of the military balance. Senior commanders strongly opposed President Sadat's directive to prepare to attack in mid-November 1972. At an acrimonious meeting of the Armed Forces Supreme Council on 24 October, the commander of the Third Army, General Wasel, the commander in chief, General Sadeq, and the vice minister of war, General Abdel Qader Hassan, all opposed military action, arguing that even a limited ground operation without adequate offensive capability in the air could turn into a disastrous defeat. General el-Shazli, commander of the Red Sea District and a member of the general staff, acknowledged that Egypt's air force had limited capability to provide cover and ground support for offensive operations and that the army was deficient in its ground transport capability. He suggested nevertheless that Egypt did have the capability to mount a limited operation across the canal. The commander of the Third Army insisted, however, that both offensive and defensive capability were inadequate even for a limited operation. The commander of the central district, General Ali Abdel Khabir, was even more alarmist in his insistence that Egyptian capabilities were decreasing rather than increasing in comparison to those of Israel; the trend was adverse. Two days later, President Sadat dismissed the principal dissenters and confirmed as chief of staff General el-Shazli, the leading proponent of attack for limited military objectives. General Ahmed Ismail Ali became the new minister of war.

By May 1973 the pessimistic evaluation of the military balance had changed significantly, not only in response to accelerated arms deliveries from the Soviet Union, which had resumed in early 1973, but also, and equally importantly because of the reorientation of Egypt's military strategy. The general staff was now planning a canal crossing and a ground offensive that would not exceed the range of a dense anti-aircraft system. Consequently, the absence of offensive
capability in the air became considerably less important. Neverthe-
less, Egyptian commanders and even the president were uncer-
tain of Egyptian capability to mount a successful attack, even if the
campaign were limited. They worried about their capacity to move
troops quickly across the canal and to storm the formidable de-
fensive fortifications Israel had built along the east bank. Egyptian
officers wanted additional time to absorb new deliveries of Soviet
equipment and to coordinate planning with the Syrian armed
forces. Egyptian military and civilian leaders decided to delay the
planned military action. At the end of August, after Soviet delivery
of the long-promised SCUD missile, which could strike at Israel's
population centers, the receipt of large numbers of antitank and
anti-aircraft missiles, and intensified joint planning with Syria,
Sadat estimated that Egypt, though still inferior to Israel, had
nevertheless reached the zenith of its capacity. Egypt was unlikely to
achieve military parity with Israel in the foreseeable future, nor was
it likely to receive further significant military aid. The president
concluded that this would be Egypt's best chance for several years to
come.

This overview of Egyptian military calculations from 1971 to 1973
suggests at least two conclusions, both of which again challenge
conventional wisdom about conventional deterrence. First, an esti-
mate of inferior military capability was only a temporary deterrent
to a use of force. When Egyptian military leaders first began serious
consideration of a military option, their negative assessments of the
military balance dissuaded them from a use of force. As expected,
they emphasized their inferior offensive capability. A determined
president, however, replaced these military leaders and challenged
their successors to develop a military strategy to compensate for
strategic weakness. Egypt's generals did just that. A new set of senior
officers planned force deployments, adapted military technology,
and built deception into their strategy to confound the advantage of
their opponent. By multiplying military advantage through sur-
prise, Egyptian officers hoped to meet their limited military objec-
tives even from a position of military inferiority. This reading of
Egyptian estimates of the military balance over time underlines the
frailty of superior military capabilities as a durable deterrent to a use
of force. An unfavorable estimate of the military balance was not an
insuperable barrier but an obstacle to be overcome.

Second, more important than the negative assessment of the
military balance in the debate about the use of force was the evalua-
tion of trends in relative capabilities. When military officers saw a
growing gap in relative capabilities in the autumn of 1972, they
opposed the use of force. But when the president considered that Egypt's capabilities had peaked and that decline was likely in the future, he urged his generals to attack. A negative assessment of future rather than present capabilities was an essential component in Egyptian calculations. Here Egypt behaved very much as did Japan in 1941.

Were these Egyptian military estimates generally complete and accurate? Unlike their assessment of the interests at stake, Egyptian leaders paid attention to all the obvious elements of military capability: the balance of capabilities, trends in that balance, and the capacity for offense and defense as a function of technology. Quite legitimately, they did not evaluate the likelihood of rapid military success since their estimate of the military balance precluded strategies of blitzkrieg and quick decisive victory. In 1971 and 1972, moreover, their analysis was generally correct: Egypt did not have the offensive capability to mount a general attack.

By the spring of 1973, however, after Egyptian strategy had been reformulated and the ground forces equipped with Soviet antitank as well as anti-aircraft missiles and other military supplies, the general staff underestimated their army's capability to cross the canal and hold a limited amount of territory. The estimate was quite different in Israel. In April of that year, Israel's military intelligence estimated that Egyptian forces had the capability to cross the canal, but that they would not do so because of their continuing emphasis on their inadequate capability in the air. The paradox is striking: Egypt could but thought it couldn't, while Israel thought Egypt could but wouldn't because Egypt thought it couldn't. It is not difficult to trace the origin of the Egyptian miscalculation. Both in 1967 and more recently during the War of Attrition, Egyptian ground forces had suffered badly at the hands of Israel's air force. These available and salient analogies explain both the inordinate emphasis by the Egyptian general staff on offensive aerial capability and their underestimation of their ground forces. In the spring of 1973, Egyptian miscalculation reinforced rather than defeated Israel's strategy of deterrence. By October 1973 this miscalculation had been partially corrected, and deterrence failed.

Egyptian evaluations of the military balance were the central component in determining the timing of their challenge to deterrence. Their estimates of military capabilities, however, did not have quite the impact one would expect from a reading of formal, prescriptive theory. First, in all five cases, military leaders dismissed completely the feasibility of an offensive strategy and rapid military success, but nevertheless challenged deterrence twice. And in only
one of these challenges did they consider the military balance favorable; an estimate of inferior military capability did not preclude a use of force. Second, over time even unfavorable estimates served as a spur rather than as a barrier to Egyptian officers, who designed a strategy to compensate for acknowledged military weakness. Third, leaders weighed their estimates of the trends in the military balance heavily in deciding whether or not to use force. Finally, misperception of military capabilities occurred at least twice, but its impact varied. In 1969 miscalculation defeated deterrence, but in May 1973 it reinforced deterrence.

Estimates of the Bargaining Space

A third component in the calculus of leaders is their evaluation of the alternatives to a use of force. Formal theories of deterrence pay no explicit attention to diplomatic options; they concentrate exclusively on the likely costs and benefits of the single option of military action. More recently, empirical investigations of the workings of deterrence have suggested that a challenger may abstain from a use of force if its leaders see a plausible diplomatic alternative to military action. If, on the other hand, leaders consider that no option but military action can bring about the minimum change they require, and if this judgment is reinforced by a sense of urgency, then deterrence failure becomes likely.\(^{22}\) I explicitly move beyond consideration of the single option of military action to assess both the impact and the accuracy of leaders' evaluation of bargaining space.

In examining the perceptions of Egypt's leaders, one notices a very modest relationship between a pessimistic estimate of bargaining space, a low expectation of a favorable diplomatic outcome, and a use of force. In the first of the five cases, there was no relationship, a priori, between the estimated bargaining space and a challenge to deterrence: in 1969 President Nasser excluded diplomatic negotiations as a policy option. When the four-power talks began at the United Nations that year, he urged the Soviet Union to make no concessions and insisted that what had been lost by force could be regained only by force.\(^{23}\) It is not surprising, given Nasser's rejection of diplomacy, that he moved to a strategy of military attrition. This was no longer so after Sadat assumed the presidency in 1970. In February 1971, in a speech to the People's Assembly, Egypt's president departed from past practice and offered to sign a peace agreement with Israel in return for a full withdrawal to the borders of 4 June 1967.\(^{24}\) Sadat explicitly rejected the normalization of relations but expressed interest in a diplomatic resolution of the
conflict. Shortly before, Israel’s minister of defense had proposed an interim agreement along the canal, a proposal received with some interest by President Sadat. For the next several months, the U.S. secretary of state worked on the details of a partial agreement. Although the two sides were unable to agree on terms, throughout most of 1971 Egypt’s leaders did see some alternative to force and actively pursued diplomatic options even while they prepared for military action.25

They were considerably less optimistic by the end of 1972. Diplomatic negotiations were stalemated, and, in a speech to the Arab Socialist Union that December, President Sadat argued that there was no alternative to a use of force if Israel were to be dislodged from the occupied territories.26 At the same time, however, Sadat engaged in private diplomacy with the United States in an effort to get the United States to exert pressure on Israel to alter its bargaining posture, and that autumn secret negotiations through a “back channel” began between Henry Kissinger, then national security adviser to President Nixon, and Hafez Ismail, his counterpart in Cairo.27 At least in these two cases—when Egypt did not resort to force—its leaders could see some prospect, no matter how dim, of diplomatic progress. Scope for bargaining, though not large and constantly diminishing, nevertheless did exist.

Even this residual hope of diplomatic progress had disappeared by 1973. In his May Day speech President Sadat acknowledged that negotiations with the United States had failed to produce results and again concluded that Egypt would not receive help from any quarter unless it took military action to break the deadlock.28 Six months later Egypt challenged Israel’s deterrent strategy.

An evaluation of even modest diplomatic prospects does appear to have made some contribution to the success of deterrence, at least for Egypt between 1969 and 1973. Egyptian leaders did not resort to force when they entertained some hope of diplomatic progress but did so when they considered negotiations fruitless. This is not to suggest that these assessments were sufficient in and of themselves to determine the outcome of deterrence; far from it. Other considerations—the estimates of military trends, for example, and the sense of urgency—were crucially important in determining whether or not to challenge deterrence. Thus, although Egyptian leaders were not optimistic about the prospects of bargaining in the spring of 1973, they did not resort to force then because of their expectation of future military aid that would help to compensate for ongoing military inferiority. However, even in the hostile climate that then prevailed between Egypt and Israel, estimates of the
prospects of bargaining did contribute, to some degree, to the success or failure of deterrence.

Because there are no objective boundaries to a bargaining range, it is far more difficult to evaluate the accuracy of estimates of the scope for bargaining than it is to assess their impact. Generally, leaders first set the minimum limits for bargaining and then consider whether or not negotiation promises to reach these thresholds. In Egypt's case, evaluation of the prospects of negotiation within the given limits was generally accurate, but the limits themselves often precluded negotiation. Bargaining was excluded not through miscalculation, however, but because of an unwillingness to meet the minimum criteria of the adversary. By 1969, for example, President Nasser had ruled out recognition of and negotiation with Israel; given these limits, he was of course accurate in his estimate that there was no scope for bargaining. In 1971 President Sadat extended Egypt's limits, and his estimates of very modest prospects seem reasonable. In 1973, after two years of indirect bargaining with an at times not very enthusiastic United States—bargaining that failed to produce tangible results within the limits imposed by both Egypt and Israel—Sadat's pessimistic evaluation was appropriate. Bargaining failed not through miscalculated moves or misread signals but for the far more fundamental reason of mutually exclusive objectives. Consequently, deterrence failed not because leaders misinterpreted the intentions of their adversary but because they preferred military action to diplomatic concession.

Calculation of Likely Costs and Benefits of Alternatives

Egyptian valuations of the interests at stake, their estimates of military capabilities, and their assessments of the alternatives to military action were the crucial components in their final calculations about a use of force. Central to the theory of deterrence is the assumption that leaders make rational choices, that they estimate the probable consequences of a use of force and conclude that the likely costs of military action exceed its expected benefits. Consequently, if challengers do not calculate expected cost and benefit, if they do not choose the option that maximizes expected value, then they cannot be judged rational, and deterrence cannot work as expected. Still working with the postulate of rationality, some scholars have reformulated classical deterrence theory to argue that leaders do not compare expected cost and benefit of action but rather assess the likely losses of action and inaction; they compare the "alternative risks" of action and inaction and choose the least
damaging option.\textsuperscript{31} Here the minimization of expected loss rather than the maximization of expected gain is the decision rule. The reformulation is not trivial: it directs our attention beyond military action to assessments by leaders of the likely costs of accepting the status quo. But, whether a challenger minimizes loss or maximizes gain, formal statements of deterrence assume some variant of a probability-utility calculus and rational choice as the critical mechanism of decision.

Psychological explanations question this fundamental assumption of rational choice. There is some evidence that leaders at times do approximate relaxed norms of comparative calculation and efficient choice, but most empirical studies of national security decision making document considerable deviation from the formal requirements of a probability-utility calculus. Leaders often weigh only one option at a time and have considerable difficulty identifying the relevant consequences of options, much less calculating their likely cost and benefit.\textsuperscript{32} Cognitive psychologists who have examined risk taking in controlled environments find that people tend to pay far more attention to payoffs than they do to probabilities.\textsuperscript{33} If this proposition were to hold in international politics as well, leaders would not, contrary to the expectations of the rationality postulate, weight all parts of the deterrence equation equally. When calculations are obvious because interests and consequences are prominent, these deviations from rational norms may have little impact on the outcome of deterrence. If, however, consequences are numerous and interests varied, the more finely tuned calculations that are required may prove too demanding of a challenger and defeat deterrence.

To assess the rationality of Egyptian decision making and its impact on deterrence,\textsuperscript{34} one looks to the number of policy options leaders considered and to their identification of the consequences of these options. Did Egypt's leaders list the obvious consequences, examine their likely cost and benefit, and compare policy alternatives? If they even roughly approximated these procedures, then they met the minimum requirements of procedural rationality. If, however, they deviated significantly from these norms, were their miscalculations of sufficient magnitude to defeat deterrence?

It is immediately apparent that Egyptian leaders deviated grossly from norms of rational procedure in making their decisions about the use of force. The significance of these deviations, however, is not clear: biases in the process of choice persisted both when deterrence succeeded and when it failed. Leaders were most adept at structuring the problem and identifying policy options, but their proc-
esses of estimation and evaluation bear little resemblance to the archetype of rational choice required by formal theories of deterrence.

In 1969, for example, Egypt's leaders put four options on the table: a direct frontal attack across the canal; an aerial strike; a strategy of attrition; and continued inaction. A problem structure of four options is a good approximation to rational norms, but leaders estimated the consequence of these options far less thoroughly. Some of the consequences were obvious. Military officers were unequivocal in their estimate that a direct attack would lead to defeat; they considered that such an attack required a two-to-one force ratio in favor of the challenger, and Egypt simply did not have that advantage. Similarly, a first strike in the air would fail: Israel's air force was always on full alert; Egypt's fighters and bombers did not have sufficient range to strike deep at Israel's bases; its interceptor aircraft, the MIG-21, was slow and vulnerable; and Israel had a capable air defense. The third option, continued inaction, would lead to an unacceptable perpetuation of the status quo. By a process of elimination, the only remaining option was a strategy of attrition.

Ironically, however, Egyptian leaders were least thorough in costing this option. As we saw, they miscalculated Israel's response, anticipated a canal crossing within eight weeks, and spoke only in very general terms of casualties and damage to economic and civilian installations in the canal zone, losses they judged acceptable. In discussing these consequences, Egyptian leaders offered almost no quasi-probabilistic estimates; only once, when considering a direct military attack, did officers estimate that at best a canal crossing stood a 50 percent chance of success. It can be argued, perhaps, that a strategy of attrition, unlike the alternative policy options, did not require as finely tuned calculations; leaders could monitor the program and its costs and continually reassess whether it was worth continuing. Egyptian leaders did consider the likely consequences of attrition, however, but spoke in the language of certainty. Theirs was not an attitude of trial and error. Because their judgments were categorical, they could not, by definition, have approximated a probability-utility calculus in making their choice. In 1969 Egypt's decision to challenge deterrence was the product of a highly simplified and biased process of estimation, a process that ignored probabilities and emphasized loss.

It is not surprising that a biased process of choice should precede deterrence failure, but very much the same kind of decision making occurred when deterrence succeeded. Under President Sadat, mili-
tary and civilian leaders emphasized the losses of the options they considered and again resorted to categorical judgments of certainty rather than estimates of likelihood. In 1971 and 1972 military officers debated the merits of the three alternatives of general attack, an attack for limited objectives, and inaction; by the spring of 1973 they had eliminated a general attack as an option. Both when they chose war and when they refrained from action, Egyptian leaders paid a great deal of attention to the losses that would accrue from inaction as well as action.

As early as 1971, after learning from his minister of finance that Egypt's economy could not recover as long as Egypt took no military action. Sadat was also pessimistic about the political and diplomatic consequences of inaction; his argument that time was running out as Egypt came face-to-face with "lasting facts" reflected his sense of urgency. And as I have pointed out, the general staff also considered that the losses of action would be grave. Moreover, so resonant were the memories of 1967 and 1969–70 that Heikal argued that war should not be initiated until victory was "certain." In 1971 leaders dealt in certainties, not in probabilities. They were certain and negative about the consequences of both action and inaction. Theirs was a painful choice.

One year later the dilemma had become even more acute. The president warned that if the stalemate were not broken, there would be serious domestic disturbances. He worried also that postponement of action month after month would consolidate the cease-fire: "the world will forget our problem." On the other hand, Sadat too was unwilling to risk war if defeat were even possible. "We cannot go to war unless victory is guaranteed. The country cannot take another defeat." On this point his generals were pessimistic: while most spoke of the unfavorable certainties, some did worry about the uncertainties. General Ismail, at that time the head of the National Intelligence Service, warned that a renewal of attrition would invite a "certain" and sharper response from Israel, while General Hassan, the vice-minister of war, considered the uncertainties so great that even limited military action could develop into a full-scale offensive very quickly. The commander in chief, General Mohammad Sadeq, in turn firmly opposed a large-scale attack that might lead to "disaster." Again, leaders made no reference whatsoever to benefits from either action or inaction. They thought in terms of loss and compared the costs of action to those of inaction.

In the spring of 1973 President Sadat spoke again of the "explosive" consequences of continued inaction, the intolerable impact on domestic morale, and the alarming deterioration of Egypt's
position in the Arab world. He still anticipated substantial losses, however, from military action. Inadequate opportunity for coordination with Syria, deficiencies in deliveries of Soviet equipment, military readiness in Israel—all these factors dimmed the prospects of a use of force. The president also expressed reluctance to disrupt the Nixon-Brezhnev summit, a consequence that would follow inevitably from an Egyptian attack.

By the end of the summer, however, President Sadat identified fewer losses from a use of force. The summit was over, extensive consultation had taken place between Egyptian and Syrian officers, and the president anticipated that military aid from the Soviet Union had peaked. Sadat subsequently recalled the Soviet estimate that an attack across the canal would probably entail the loss of 40 percent of Egyptian aircraft and a high level of military casualties, losses he did not consider insupportable. He was graphic, however, in his evaluation of the losses of inaction: Egypt was the "laughing stock" of the Arab world, and its economy had "fallen below zero." The choice was much easier than it had been six months earlier.

Evidence drawn from this look at Egyptian decision making shows, then, that contrary to the expectation of formal theories of deterrence, Egypt's leaders did not compare the likely gains and losses of military action. Rather, they concentrated heavily on projected loss and estimated the costs that would flow from a use of force and from inaction. Their estimates were rough and qualitative rather than precise. In formal language, civilian and military leaders saw no "good" choice, and so they considered "alternative risks" and concentrated on minimizing their losses. In considering these losses, however, they paid strikingly little attention to probabilities but focused almost exclusively on payoffs; this pattern is consistent with the expectations of cognitive psychologists and violates the norms of rational choice.

If this pattern of decision making were to prove more generally valid, concepts of deterrence would have to accommodate a substantially revised mechanism of decision. This is so because prescriptive theories of deterrence assume rational choice on the part of a challenger in generating policy recommendations for the defender. The impact of a revised mechanism of decision on the design of deterrence strategies, however, is not obvious. Both when deterrence succeeded and when it failed, Egyptian leaders were remarkably consistent in their processes of choice: in all five cases, we find an overwhelming emphasis on loss but very little attention to the probabilities of these losses. Consequently, this particular pattern of oversimplification and partial calculation cannot be associated with deterrence failure or success.
Calculation and Miscalculation: Their Impact on Deterrence

In an effort to develop an empirically based explanation of the outcome of deterrence, I began this inquiry by asking three sets of questions. First, what factors do leaders consider and what do they omit when they contemplate a challenge to deterrence? Do they, as deductive theories expect, weigh all parts of the deterrence equation equally, or are leaders systematically biased in what they include and what they ignore? Second, are there differences in the pattern of perception when deterrence succeeds and when it fails? And finally, do characteristic kinds of miscalculations have predictable kinds of consequences for the outcome of deterrence? To address these questions, and to compare the expectations of formal theory with evidence of how a challenger considers a use of force and chooses among available options, I examined Egyptian calculations at five points in time over five years.

What can be concluded from this examination of Egyptian thinking? First, caution must be the watchword here. This is only a partial analysis of Egyptian calculations. Second, the five cases are not truly independent of one another; on the contrary, what leaders thought and did at one point very likely influenced what they thought and did in subsequent consideration of the use of force. Finally, it is inappropriate to generalize to other cases in different historical contexts. Yet Egypt's response to Israel's deterrent strategy is in many ways an interesting and relevant case. First, deterrence here was conventional rather than nuclear. Conventional deterrence generally has received less attention over the last three decades, but it is terribly important. We need only look at the incidence of war during these last thirty years, wars that often threatened to embroil the nuclear powers, to appreciate its relevance. In the post–World War II period as well, conventional deterrence has been most frequently studied from the perspective of the defender, which, moreover, was trying to deter attack on smaller allies rather than on its own territory; undoubtedly this is at least partly a function of the ready access to U.S. evidence. The case under scrutiny here is different in both respects: Israel was trying to deter an attack against its own forces rather than against an ally and, secondly, I look at the success and failure of deterrence from the perspective of the challenger. Finally, because there is good evidence that Egyptian leaders considered and rejected a use of force at least three times, deterrence success and failure can be compared, a comparison essential to the development of valid explanations of deterrence.
The overriding conclusion that emerges from this investigation is the limited usefulness of formal theories built around the concept of rationality in explaining the success or failure of deterrence. Its shortcomings are of three kinds. First, it did not identify some of the relevant dimensions of leaders' calculations. Formal statements of deterrence, for example, do not direct our attention to a challenger's estimate of the alternatives to force, yet this was an important component in Egyptian thinking. More troubling, when leaders did consider those factors identified by formal theory, their processes of evaluation and choice did not conform to the norms of rationality. Evaluation of their adversary's interests, for example, was generally unimportant in Egyptian estimates of Israel's likely response to a use of force. At least in this relationship, when the challenger considered a direct military attack against the defender, finely tuned calculations of relative interest were conspicuous by their absence. Nor did Egypt's leaders make their decisions about the use of force through some variant of a probability-utility calculus. In violation of the norms of rationality, they paid overwhelming attention to loss and virtually ignored probabilities; they did not weigh all components of the deterrence equation equally. Finally, and perhaps most damaging to a formal prescriptive theory of deterrence, the challenger did not always behave as expected even when its leaders considered the relevant factors and made the appropriate calculations. Although Egyptian officials evaluated multiple dimensions of capabilities and acknowledged their general military inferiority, they chose to challenge deterrence in 1973. To explain the workings of deterrence, one must look beyond formal deductive theories that purport to predict the outcome of deterrence and examine the perceptions of policy makers who are considering a possible resort to force.

This analysis of Egyptian calculations suggests that two perceptual parameters and two variables may help to explain the outcome of deterrence. First, Egyptian leaders valued their strategic interests highly when they chose to use force, but they did so also in the three cases when they were deterred. Consequently, an estimate of strong interest appears to be a necessary but far from sufficient component of deterrence failure. It is worth noting as well that Egypt's leaders paid more attention to their strategic interests than to the worth of the specific interests at stake. They talked less of the Sinai than of their reputation—and their humiliation. Second, Egyptian leaders paid overwhelming attention to loss when considering a use of force. What was unusual was not the focus on the losses of action but the heavy emphasis on those of inaction, both
when deterrence succeeded and when it failed. And, far from becoming resigned to an unpleasant reality, over time Egyptian leaders were increasingly persuaded by their negative assessments of the economic, political, and diplomatic consequences of the status quo. Like an assessment of strong strategic interest, this emphasis by a challenger on the losses of inaction appears to be a necessary but insufficient condition of these deterrence failures.

What did vary were estimates of military capabilities and alternatives to force. When deterrence held, leaders did see some prospect of bargaining, but when they chose to use force, they had no hope of diplomatic progress. Egyptian leaders also resorted to force when they considered that they had local defensive superiority in the battle zone or that trends in the balance would further erode their capability. They made this decision despite their adverse estimate of the general military balance. Two points are relevant here. First, an estimate of inferior military capability was only a temporary deterrent to a use of force. Examination of a sequence of cases over time shows that such an estimate spurred military planners to design a strategy to compensate for weakness; given the ingenuity of the military mind and the flexibility of modern multipurpose conventional technology, development of such a strategy was only a matter of time. Second, an explanation of deterrence that ignores leaders' estimates of the bargaining range is seriously incomplete.

Finally, the evidence shows that the impact of misperception on the failure of deterrence is mixed. Certainly, misperception was rife throughout these five cases. Egyptian leaders ignored the interest of their adversary in all but one instance, and then they underestimated Israel's interests, but this gap in perception generally had little consequence for their estimates of the defender's response. Far more relevant were errors in the estimation of both their own and their adversary's military capabilities. Capability estimates at times were exaggerated or undervalued; very likely, the errors were both motivated and unmotivated. The impact on deterrence of over- and underestimation is, of course, quite different: when capabilities were exaggerated, miscalculation was central to deterrence failure, but when Egyptian leaders underestimated their military prowess, their misperception contributed to the success of deterrence. As has been noted, Egypt's leaders did not even roughly approximate the rational processes of choice anticipated by theories of deterrence. Yet here again the impact of biased estimation and decision did not appear to be terribly significant. Leaders were not more rational in the performance of essential decisional tasks when deterrence succeeded than they were when it failed.
Generally, the highly abstract formulations characteristic of so much of the writing on deterrence were of little help in pinpointing the critical expectations of Egyptian leaders as they considered a use of force. The practice often bore little resemblance to formal prescriptive theory. If there is to be a better fit between theory and practice, we must relax some of the norms of rationality and encompass the substance of leaders' expectations and their processes of decision making both when deterrence succeeds and when it fails. The agenda for research is clear.