

A RAND NOTE

AVOIDING NUCLEAR WAR: A RAND RESEARCH
APPROACH AND AGENDA

Mark A. Lorell, Nanette C. Brown

September 1985

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Rand

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PREFACE

Numerous, sometimes disparate research efforts on the problem of avoiding nuclear war have drawn public attention in recent years. This Note provides a broad conceptual framework to help coordinate ongoing Rand research in this area and to give greater guidance and coherence to future research. It is the product of an iterative process involving both the primary authors and specialists from various disciplines inside and outside of Rand, supported by The Rand Corporation, using its own funds.

The Note is divided into two parts. The first part presents an overview of the current debate on the causes of war and the effect of nuclear weapons on international behavior. The second part proposes alternative approaches to these issues and suggests possible high-payoff areas for further research. This part is currently being incorporated into a variety of existing projects and future proposals for continuing work at Rand.

This material should be of interest to defense analysts and to academics involved in research on questions of war, peace, and crisis in the nuclear age.

SUMMARY

This Note seeks to identify the basic issues that are emerging in the current debate on the avoidance of nuclear war and to define a research agenda suitable for addressing those issues.

While increasing numbers of academics and analysts have turned their attention to the problem of avoiding nuclear war, serious disagreement persists regarding three fundamental issues:

- *The paths to war.* A major issue in recent research is the intent attributed to key decisionmakers. Many authorities emphasize "inadvertent" war--that is, war caused by misperceptions or decisionmaking pathologies during brinkmanship crises. Others downplay the notion of inadvertence and argue that wars begin with conscious decisions based on rational calculations.
- *The effect of nuclear weapons on the role of war in international relations.* No one disputes the fact that nuclear weapons have dramatically altered crisis decisionmaking, but the ways in which decisionmaking has changed are uncertain. In one view, the advent of nuclear weapons has sharply reduced, if not completely eliminated, paths to war that rest upon deliberate decisions of state policy. The opposing view insists that the use of nuclear weapons in the service of state policy remains the most likely path to war.
- *The objectives of escalation control and management.* The classic literature on escalation is closely connected to deterrence theory, defining the objective of escalation management as the manipulation of threats, including nuclear threats, at each level of escalation to protect or advance national interests that are at stake in the crisis. More recently, increasing numbers of studies have examined escalation from the perspective of terminating a conflict at the lowest possible level; the ultimate objective here is to avoid conflict or to prevent conflict from escalating.

We believe that the analytical framework for studying these issues should encompass the entire escalation process, beginning with peace and moving to the level of massive nuclear exchanges. The goal should be to develop measures that might be taken to manage the process successfully, i.e., to avoid nuclear war and to achieve outcomes consistent with other national interests. The framework should focus on a better understanding of how national interests are defined and perceived, and on the intent behind each discrete decision throughout the escalation process.

The perception of the relative importance of national interests during a crisis helps determine the severity and manageability of the crisis. Yet it is difficult to assess objectively the role interests play in the escalation process, because of the problems of perception and misperception. A better understanding is needed of the intent behind discrete decisions during escalation, because the appropriate measures to reduce the risk of nuclear war and the potential tradeoffs among alternative measures depend critically on the intent of the actors.

Our initial examination of the escalation process suggests that the effectiveness of different management measures may vary considerably depending on (1) the intent of the actors, (2) the accuracy of their assessments, and (3) the stage of the situation in the escalation process. Consequently, dilemmas far more serious than are generally recognized may confront analysts attempting to develop appropriate crisis management measures.

In conclusion, the Note recommends several potentially high-payoff areas for further research.

ACKNOWLEDGMENTS

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I. INTRODUCTION

PURPOSE

This Note describes and assesses current research on the avoidance of nuclear war and outlines an overall research approach to the problem. This approach seeks to identify the basic issues that are emerging in the current debate and to define a research agenda suitable for addressing those issues.

BASIC ISSUES

Growing concern with the possibility of nuclear catastrophe has led increasing numbers of academics, analysts, and other observers to focus their efforts on the study of its avoidance. The wide variety of approaches that has emerged reflects differing emphases, as well as fundamental philosophical differences. Much recent research on the problem of avoiding nuclear war is characterized by a "two-cultures" phenomenon: Researchers representing different philosophical camps often talk past one another rather than collaborating to attain a common objective. In contrast, our goal is to help formulate a unified and comprehensive approach to the problem.

It is necessary first to define the areas of disagreement, the most important of which appear to be:

- The paths to war in general and to nuclear war in particular.
- The effect of nuclear weapons on the role of war in international relations.
- The objectives of escalation control and management.

The debate on nuclear war has rekindled interest in the causes of war. Indeed, the question of the effect of nuclear weapons on the role of war in international relations appears, in many cases, to have been grafted onto the long-standing debate about the paths to war.

A major issue in recent research on the subject is the intent attributed to the key decisionmakers on the question of war or peace. Many scholars and analysts emphasize "inadvertent" war--that is, war that evolves out of the crisis behavior of national leaders and their advisors, but that neither side originally intended or contemplated. The July Crisis of 1914 is frequently cited as an example of an inadvertent war, when (according to this view) a variety of factors impinged upon crisis decisionmaking to trigger World War I. These factors included entangling alliances, rigid war plans and mobilization schedules, misperceptions and misunderstandings arising from stress and the press of events, and "brinkmanship"--situations in which each side expects the other to back down first. Advocates of the "inadvertent war" view argue that many major wars in modern times have been caused by misperceptions or decisionmaking pathologies during brinkmanship crises. Richard Lebow, for example, categorizes many of the major crises of the twentieth century, including July 1914 and September 1939, as brinkmanship crises.¹

Other historians and analysts downplay the notion that misperception and inadvertence during crises is the most likely path to war. In the words of Geoffrey Blainey, "no wars are unintended or 'accidental'."² Rather, according to Michael Howard, "wars begin with conscious and reasoned decisions based on the calculation, made by *both* parties, that they can achieve more by going to war than by remaining at peace."³ Howard believes that Germany consciously provoked general war in 1914 for rational reasons of state: to maintain and enhance its power in an international system dominated by its adversaries.⁴ Fritz

¹ Richard Ned Lebow, *Between Peace and War: The Nature of International Crises*, The John Hopkins University Press, Baltimore and London, 1981.

² Geoffrey Blainey, *The Causes of War*, The Free Press, New York, 1973, p. 249.

³ Michael Howard, *The Causes of Wars and Other Essays*, 2d ed., Harvard University Press, Cambridge, Massachusetts, 1984, p. 22.

⁴ Howard, pp. 15-16.

Fischer argues that Germany's leaders were willing to risk a general European war not because they erroneously anticipated that the other great powers would back down, but because they believed--incorrectly--that Germany could militarily defeat its opponents in a war.⁵

The applicability of this historical debate to the present-day problem of avoiding nuclear war is uncertain. Nuclear weapons have obviously changed things dramatically. But exactly how have they changed things and how will they affect the crisis decisionmaking of national leaderships? These questions have elicited a wide variety of opinions over the past 35 years. For the purpose of analysis, we can categorize these opinions into either of two broad approaches, both of which see nuclear weapons as having profound effects on a national leadership's decision to go to war or to nuclear war, but which emphasize those effects in different ways.

In one view, the advent of nuclear weapons has sharply reduced, if not completely eliminated, paths to war that rest on "deliberate decisions of state policy." Believing that nuclear weapons have no political-military use beyond deterrence, advocates of this view tend to believe that a nuclear war between the superpowers would almost certainly be an "inadvertent war." They argue that the extreme destructive potential of nuclear weapons would make a decisionmaker very unlikely to contemplate their use (or even the large-scale use of conventional forces, because of the risk of escalation in a crisis). In this context, the term "inadvertent war" has no precise definition. The public debate often emphasizes concerns about nuclear war initiated by accident, e.g., by computer malfunctions or by unauthorized individuals. More commonly, however, the term reflects the conventional definition, i.e., the unintended result of an uncontrolled chain of events.

The recommendations made by proponents of this view to reduce these risks tend to focus on crisis-management techniques, improving communications, and other means of avoiding misperceptions, misunderstandings, unintended provocations, and miscalculations. They stress the necessity for developing a better understanding of decisionmaking dynamics, the interactions of bureaucracies, the role of

⁵ Fritz Fischer, *Germany's Aims in the First World War*, W. W. Norton & Co., New York, 1967, pp. 50-92.

domestic politics, and other factors that lead to unintended outcomes during crises.

The contrasting approach to the effects of nuclear weapons on crisis decisionmaking is known as "deterrence theory." This approach has dominated the behavior of governments for the past 35 years. Deterrence theory is based on the view that war is a consequence of rational calculation by national leaders.⁶ In this view, nuclear weapons are seen as having substantially changed the nature of calculations by national leaders about whether to use force and under what circumstances. But "deterriers" tend not to view nuclear weapons as having so fundamentally altered state relations as to preclude intentional decisions to employ nuclear weapons; rather, they argue that the *use of nuclear weapons in service of state policy* remains the most likely path to nuclear war. While the deliberate resort to war, particularly to nuclear war, may seem self-evidently criminal and senseless to some, the advocates of deterrence theory argue that it may appear eminently reasonable to some leader in a crisis where the employment of nuclear weapons seems the least undesirable option available. They emphasize the importance of deterrence as a means to reduce the risks of premeditated use of force that could lead to a nuclear exchange, rather than crisis-management techniques and decisionmaking dynamics. Wars are avoided, they claim, when the potential aggressor recognizes that the likely costs of threatening another state's interests far outweigh any conceivable gain, or that the costs would be unacceptable, no matter what the gain. Thus, deterrence-theory advocates are primarily concerned with such issues as carefully defining and clearly communicating national interests and developing the military capabilities and national resolve to assure the successful defense of those interests.

In many respects, the debate over the effects of nuclear weapons on international relations is a variation of the earlier debate over the causes of war. Posed in this fashion, it ignores the dynamic process of escalation. For example, when we speak of "inadvertent" or "advertent,"

⁶ Some distinction is made in deterrence theory between "day-to-day" deterrence and deterrence in a severe crisis. It is in the latter case, where war is more likely, that leaders calculate their nuclear options.

are we talking about a decision to use force, to go to war, to use nuclear weapons, or to launch a massive nuclear attack? Do the terms "inadvertent," "intentional," and "premeditated" apply to discrete events or to a chain of events? Could an intentional event be part of an inadvertent process leading to all-out nuclear war? These questions suggest that care is needed in the use of terms and that research on the avoidance of nuclear war should examine the escalation process as a series of discrete but closely connected events. It may be possible to characterize the intention of the national decisionmakers initiating each event, but not the overall process or the end result as either clearly advertent or inadvertent.

The escalation process has been a subject of analysis for years in the academic and defense analytic communities. The classic literature on escalation is closely connected to deterrence theory,⁷ defining the objective of escalation management as the manipulation of threats, including nuclear threats, at each level of escalation to protect or advance national interests that are at stake in a crisis. The threat to escalate is traditionally seen as a way to secure national interests by causing the adversary to give way. In some cases, analysts have taken this approach to the extreme and examined the requirements of prevailing at the highest level of escalation--that is, fighting and winning a nuclear war⁸--an approach that has been widely criticized because of its failure to appreciate the costs, risks, and difficulty of "prevailing" against a nuclear-armed adversary of equivalent strength. The purpose of escalation management, then, is to assure the preservation and enhancement of national interests during the escalation process, while deterring the opponent from moving up the escalation "ladder." Escalation management combines "crisis bargaining" and deterrence.

⁷ See, for example, Herman Kahn, *On Escalation: Metaphors and Scenarios*, Praeger, New York, 1965; Herman Kahn, *On Thermonuclear War*, Princeton University Press, Princeton, New Jersey, 1960; and Thomas Schelling, *Arms and Influence*, Yale University Press, New Haven, Connecticut, 1966.

⁸ See Colin Gray, "Nuclear Strategy and the Case for a Theory of Victory," *International Security*, Vol. 4, No. 1, Summer 1979.

More recently, increasing numbers of studies have examined escalation from the perspective of terminating a conflict at the lowest possible level.⁹ In this context, threats to escalate are seen primarily in terms of their danger, especially the danger of triggering an uncontrollable process. The ultimate objective here is to avoid conflict or to prevent conflict from escalating to higher levels. These analyses are open to the criticism that they do not take sufficient account of the importance of national interests other than conflict avoidance.¹⁰ Indeed, some observers have noted that the most effective way to assure deescalation and avoid conflict is to surrender preemptively.

The causes of war and the avoidance of nuclear war are extremely complex issues. Most of the current approaches to the problem contain a substantial degree of validity within their own frames of reference. Therefore, a research framework should be designed to accommodate-- and contribute to an assessment of--these differing approaches.

⁹ As examples, see Robert Jervis, *Perception and Misperception in International Politics*, Princeton University Press, Princeton, New Jersey, 1976; and Arthur Stein, "When Misperception Matters," *World Politics*, Vol. 34, 1982, pp. 505-526.

¹⁰ Alexander George, "Crisis Management: The Interactions of Political and Military Considerations," *Survival*, September/October 1984, pp. 223-234.

II. THE ESCALATION PROCESS

THE FRAMEWORK

The goals of research on avoiding nuclear war should be (1) to contribute to the understanding of the process that could result in a U.S. or Soviet decision to escalate from a situation of peace to a crisis, from a crisis to the use of force, or from conventional to nuclear conflict; and (2) to suggest measures that might be taken to manage the process successfully, i.e., to both avoid nuclear war and achieve outcomes consistent with national interests. The analytic framework should encompass the entire escalation process, beginning with peace and moving to the level of massive nuclear exchanges, concentrating on the intent behind each discrete decision that leads to escalation, rather than on characterizing the entire process. It is particularly important to examine the interactive nature of decisions to escalate, complementing our understanding of U.S. decisionmaking with expertise on Soviet affairs. The issues to be explored should include:

- How national interests are defined and redefined in making decisions on escalation in the nuclear age.
- How choices are defined and redefined in a crisis.
- How national intentions in an escalatory step are signaled and understood; how important unintended actions might be in escalation.
- The role of misperception of interests, capabilities, or intentions in the process of escalation.
- The factors that drive an action-reaction cycle into unwanted, difficult-to-control escalation.
- The actions military forces will be expected to take in a crisis, and how decisions about the disposition of military forces interact.

UNDERSTANDING THE ESCALATION PROCESS

What turns a situation of relative peace into a crisis? Why do some crises escalate to the use of force? What factors might influence a nation's decision to escalate to the use of nuclear weapons? The primary factors that appear to drive escalation are perceptions of national interest and the intent (both actual and perceived) of decisionmakers in an escalatory situation.

Crises, Wars, and National Interests

The perception of the relative importance of national interests during a crisis helps determine the severity and manageability of the crisis. If the decision to escalate is at root a cost-benefit calculation, leaders are most likely to use force when they perceive their state's vital national interests to be threatened. Conversely, they are unlikely to risk the potentially awesome costs of a major conflict--particularly a nuclear conflict--to protect or acquire interests of secondary or peripheral importance.

Figure 1 presents a conceptual approach to the relative importance of various interests in East-West frictions.¹ The potential for avoiding nuclear war in a time of tension is greatest when the interests of one or both of the superpowers involved are peripheral; likewise, the probability of escalation is greatest when interests deemed vital by both sides are directly threatened. The importance of interests may vary over time, with long-term competitions and crises moving from the relatively stable mutually "important" category to the highly unstable mutually "vital" category.

The role interests play in the escalation process is difficult to assess objectively because of the problems of perception and misperception. No agreement exists on how nations define their interests. Some observers assume that national interests are objective facts based on geopolitical realities, while others argue that interests evolve according to a dialectical process involving one's opponent. Thus, interests can be initially "staked out" as a strategic move; relative importance rises with increasing commitment to the interest.

¹ The items shown in the boxes in Fig. 1 are illustrative only.

		BLUE		
		Vital	Very important	Important
R E D	Vital		Eastern Europe	
	Very important	Western Europe Japan	Middle East	Afghanistan
	Important	Caribbean SW Asia	Korea	

Fig. 1 -- East-West interests

Domestic political and alliance contexts play a strong role in dictating the relative importance of interests, the ability to stake them out, and the ability to retreat from commitments that have been made. Local factors also affect superpower behavior. For example, as Fig. 1 indicates, the Middle East and Korea are of interest to both the United States and the Soviet Union, but the perceived controllability of events in these regions will affect the extent to which either side would be willing to get involved.

In competitive international politics, each leadership develops perceptions of its opponent's national interests as well as its own. Because the escalation process is driven by a series of interactions between nations, there is a potential for conflicts to arise out of misperceptions of the relative value that one's opponent attaches to a disputed interest. Historical cases of such misperceptions abound. For example, Germany misjudged the importance to Great Britain of the interests Germany was threatening prior to both World Wars. Conversely,

the correct perception of the other side's vital interests can control the escalation process. The United States and the Soviet Union are deterred from aggressive behavior in Eastern Europe and Western Europe, respectively, because each recognizes the other's vital interests in these areas.

Intent, Resolve, and Perceptions

Figure 2 categorizes the issues surrounding the debate about "inadvertent" versus "advertent" war. Since these terms probably cloud more than clarify the issues, we shall examine escalatory events only in terms of whether they are "intentional" or "unintentional."

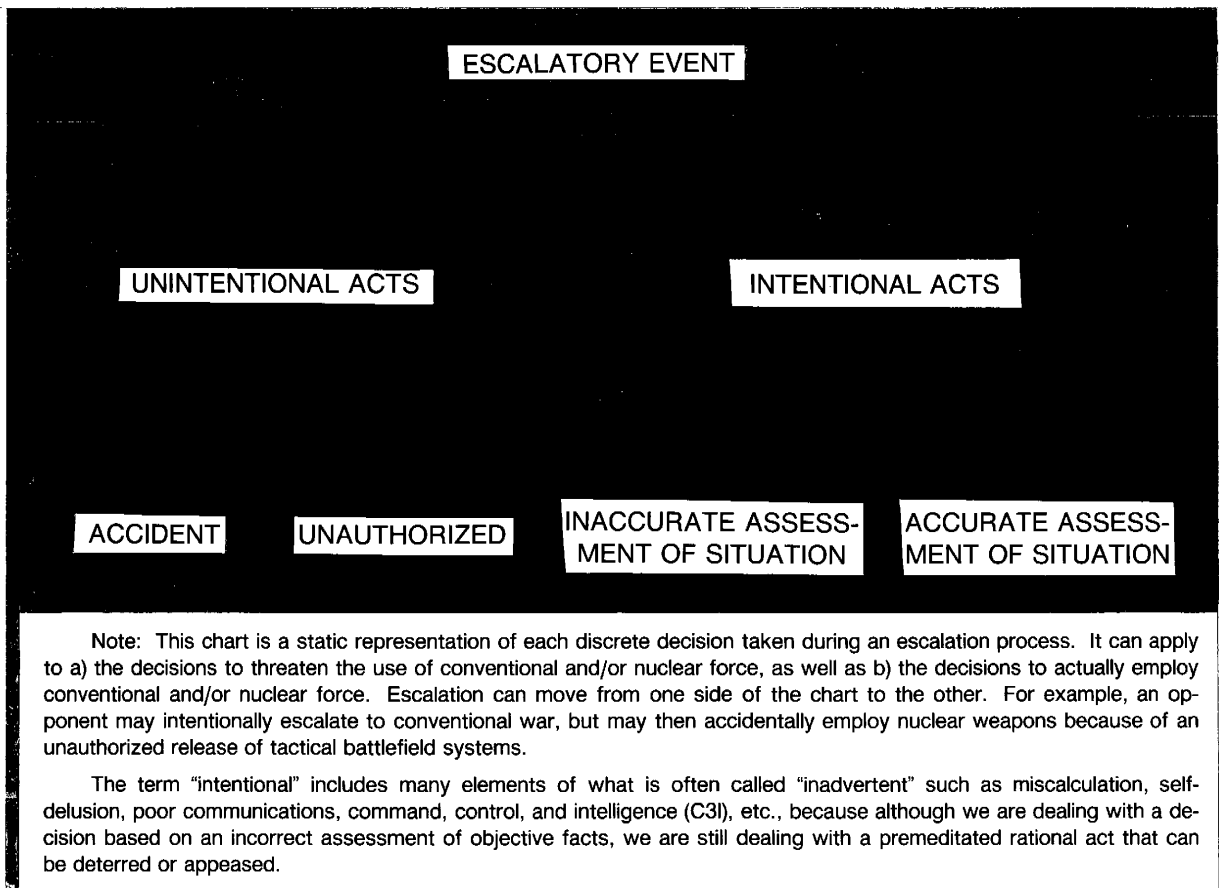


Fig. 2 -- Escalation intent

We have chosen to examine "intention," because the appropriate measures to reduce the risk of nuclear war and the potential tradeoffs among alternative measures depend critically upon this issue. The left-hand side of Fig. 2 presents unintentional escalations resulting from accidents or actions unauthorized by the national command authorities. The shooting down of Korean Airlines Flight 007 could probably be characterized as an example of this type of incident. Since the motivation to deliberately threaten an opponent's interest is absent, these types of escalation may be the most easily contained. In most cases, good communications and signals of good faith--such as the implementation of confidence-building measures (CBMs)--are all that are necessary. However, the difficulty of deescalation following an unintentional event will depend upon what has occurred previously in the escalation process.

The right-hand side of Fig. 2 presents intentional escalatory events, which can be divided into two subcategories on the basis of whether or not the intentional act is the result of a reasonably accurate assessment of objective conditions. When leaderships inaccurately assess the objective situation, their decisions may push events in an unanticipated and undesired direction. The ultimate danger is that one side may mistakenly come to believe that an acceptable compromise is impossible: If the interests at stake are important enough, and the leadership comes to believe that backing down presents a greater risk than escalation, an escalatory step will probably result. The nature of communications between the superpowers can play an important role in increasing or reducing this danger.

However, escalation can also occur when a leadership accurately assesses the situation and uses escalation to force the adversary to back down. If this succeeds, the escalation process is over and national interests have been protected. These types of intentional acts can also occur when the instigator either (1) desires a pretext for escalation, (2) prefers the peaceful attainment of his aims but is willing to escalate if forced to by an adversary's intransigence, even while accurately recognizing that his escalatory act may not succeed as planned, or (3) wishes to hedge against the possibility that crisis

management may fail. In crises or escalations of the first two types, better communications and CBMs are probably not very effective and may even be dangerous, since they can be used for purposes of deception (as were, for example, the U.S.-Japanese negotiations in late 1941).

Research into the escalatory process should seek to understand how national interests, the communication of national intent, and the mutual perceptions of these factors influence the evolution of the escalatory process by:

- Examining these issues historically, looking at a number of crises and contrasting states' behavior in the nuclear age with behavior in the pre-nuclear age to determine the extent to which the existence of nuclear weapons may or may not have changed the conditions for escalation.
- Examining evolving Soviet views on the effects of nuclear weapons on the role of force in international politics, on military strategy, and on escalation and crisis behavior, in particular, analyzing how recent changes in the U.S.-Soviet nuclear and other military balances have affected Soviet strategy and behavior in these respects.
- Examining the role of perception and misperception in the escalation process, relying heavily on the previous two research activities for the development of hypotheses.

Recent technological advances have made plausible the use of political/military gaming as a tool for examining the role of perception and misperception. A computer-assisted, free-form gaming series that permits more players and more replicability than earlier manual games would be particularly useful. The recently developed ability to include not only representatives of both the U.S. and Soviet command authorities, but also their respective military, diplomatic, and intelligence communities greatly enhances the playing out of U.S.-Soviet perceptions and misperceptions of national interests.

MANAGING THE ESCALATION PROCESS

The second key element of a research framework would address the question, *How can the escalation process be controlled and managed so as to avoid a chain of events that could lead to a nuclear war while protecting other national interests?*

As indicated above, the applicability of different types of escalation management measures is in part a function of the intent of the actors and the accuracy of their assessments. Table 1 provides examples of appropriate management measures--according to intent of the actor--for different points in the escalation process. This table shows that different management measures may vary considerably in effectiveness according to (1) the intent of the actors, (2) the accuracy of their assessment, and (3) the specific position of the situation on the escalation ladder.

Of the responses to "unintentional" actions, various CBMs, improved communications, and better C3I may yield the greatest benefits. For example, a close examination of naval rules of engagement and standard operating procedures, e.g., for the release of tactical nuclear weapons, might suggest improvements that could be very useful in minimizing accidental and unauthorized acts. CBMs that regulate the activities of both sides' military forces could also minimize the chances of accidents or unauthorized acts triggering further escalation.

Table 1 suggests that analysts assessing the appropriateness of various escalation control measures may face serious dilemmas. For example, it is difficult to determine the impact of raising or lowering the nuclear threshold in the abstract. If measures aimed at raising the nuclear threshold are instituted, they may reduce deterrence of conventional war, thus possibly contributing to a greater probability of escalation to nuclear war.

As another example, "launch under attack" may be a good policy for deterring deliberate surprise nuclear attacks, but it may also increase the risks of unintentional war. CBMs may be useful for protecting against unintentional escalation, but less useful for controlling "intentional" acts based on an accurate perception of the situation, because CBMs and improved communications may be used manipulatively to

Table 1
ESCALATION-MANAGEMENT MEASURES

Management Measures	
Stage in Escalation Process	
Instigator's Actions	Peace → Crisis → Conventional War → Nuclear War
Unintentional acts (accidental or unauthorized)	<p>Implementation of CBMs, hotlines, consultation centers; enhancement of C3I; improvement of rules of engagement and standard operating procedures.</p> <p>→</p>
Intentional acts based on inaccurate assessments (due to poor intelligence; crisis pressure; misreading of opponent's motivations or capabilities; and/or hedging)	<p>Clear definition and communication of interests, objectives, priorities and military capabilities; understanding of same factors for opponent; improvements in intelligence; implementation of CBMs.</p> <p>↔</p> <p>Implementation of CBMs, hotlines, consultation centers; improvement of conventional and nuclear deterrent capabilities.</p> <p>→</p>
Intentional acts based on accurate assessments (to show resolve; to forestall opponent's moves; to reverse a deteriorating situation; for domestic diversion; and/or hedging)	<p>Maintenance of conventional and nuclear deterrent capabilities; ceasefires; negotiation; yielding.</p> <p>↔</p> <p>Maintenance of robust second-strike nuclear capability (strategic, C3I); ceasefires; negotiation; yielding.</p>

misinform or deceive. This suggests that there may be difficult trade-offs among various measures.

Research on escalation management should build on the work developed in connection with understanding escalation. More specifically, studies should be undertaken to:

- Examine and contrast U.S. and Soviet national and international crisis-management techniques. This includes developing fresh perspectives on existing empirical work on past U.S.-Soviet crises, by identifying critical points at which escalatory-deescalatory options arose and attempting to determine what promoted or thwarted the selection of the available options. For example, a gaming series could include reenactments of historical crises to test alternative decisionmaking options at crucial breakpoints.
- Analyzing the "tradeoff" issue by providing a comprehensive survey of management techniques available throughout the escalation process--hotline, arms control, deterrence, improved conventional capabilities, etc.--and then examining the potential for conflict among these measures as a function of intent.

