

# RETOOLING DETERRENCE FOR THE LONG WAR

BY

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USAWC CLASS OF 2008

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# Report Documentation Page

Form Approved  
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE <b>15 MAR 2008</b>		2. REPORT TYPE <b>Strategy Research Project</b>		3. DATES COVERED <b>00-00-2007 to 00-00-2008</b>	
4. TITLE AND SUBTITLE <b>Retooling Deterrence for the Long War</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) <b>Norman Worthen</b>				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>U.S. Army War College ,122 Forbes Ave.,Carlisle,PA,17013-5220</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <b>see attached</b>					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
<b>unclassified</b>	<b>unclassified</b>	<b>unclassified</b>	<b>Same as Report (SAR)</b>	<b>32</b>	

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USAWC STRATEGY RESEARCH PROJECT

**RETOOLING DETERRENCE FOR THE LONG WAR**

by

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## **ABSTRACT**

**AUTHOR:** Lieutenant Colonel Norman M. Worthen  
**TITLE:** Retooling Deterrence for the Long War  
**FORMAT:** Strategy Research Project  
**DATE:** 14 March 2008      **WORD COUNT:** 5,950      **PAGES:** 32  
**KEY TERMS:** Terrorism, al Qaeda, National Security Strategy  
**CLASSIFICATION:** Unclassified

The 2006 National Security Strategy solicited new approaches to deterrence that will affect terrorists not deterrable through traditional means. Recent national strategy and doctrine documents have answered the call by redefining deterrence so that the traditional defensive, reactive concept is conflated with offensive preemptive action. This re-imagining of deterrence was misguided. Theory suggests the new approach weakened deterrence instead of strengthening it and exchanged long-term progress for short-term risk avoidance. This project examines deterrence in history, exposes the divergence between traditional deterrence and current strategy, and proposes a new model of deterrence that illustrates the limitations of a strategy based on the physical effects generated by preemptive conventional weapons in a war against terrorists. The paper then recommends changes in policy that unlinks preemption from deterrence, emphasizes psychological effects and influence, and sets realistic expectations.



## RETOOLING DETERRENCE FOR THE LONG WAR

The 2002 National Security Strategy identified a security environment radically different from that of its two year-old predecessor. Informed by the shocking terrorist attacks of 11 September 2001, the new document introduced an equally radical doctrine of preemptive action. This controversial doctrine justified the use of military force to prevent attacks on U.S. interests even if the timing of an adversary's attack was not clear. The shifting tide had swept away a decade-old vision of peaceful global engagement and replaced it with a war cry that President George W. Bush would use to justify the 2003 invasion of Iraq.<sup>1</sup>

The current National Security Strategy appears less strident. The 2006 edition retains the concept of preemption, but the policy is no longer highlighted in the President's introduction. Another theme from 2002, deterrence, also survived the transition to the current strategy. Unlike preemption, though, emphasis on deterrence has grown. The 2002 National Security Strategy proposed that terrorists largely were not deterrable and focused the relevance of deterrence on rogue states, which might sponsor terrorist networks, and potential users of weapons of mass destruction.<sup>2</sup> In contrast, the 2006 National Security Strategy as well as the current crop of associated national-level strategies and plans suggest terrorist organizations often can be deterred, and as a result deterrence has become a key element of the national strategy to prevent terrorist attacks.<sup>3</sup>

Close examination of the current strategy exposes a problem, though. Several recent national strategy and doctrine documents have conflated the concepts of deterrence and preemption. Now these two traditionally separate concepts form

elements of a singular definition. This recasting of deterrence is misguided. By improperly applying the logic of deterrence, the new approach weakens deterrence and exchanges long-term progress for short-term risk avoidance. This project examines deterrence in history, the conflict between traditional deterrence and current ideas, and proposes a new model of deterrence that illustrates the limitations of a strategy based on physical effects generated preemptively by conventional weapons in a war against terrorists. The paper then recommends a new course that sets realistic expectations while steering toward a concept emphasizing psychological effects and influence.

### Deterrence in History

Modern deterrence was born in a mushroom cloud over Hiroshima, but the concept needed time to mature. The United States enjoyed a nuclear monopoly as the year 1950 approached. Approximately fifty “Fat Man” plutonium implosion bombs of the type exploded over Nagasaki filled an arsenal that was unmatched and growing every month.<sup>4</sup> A meeting at the White House on 13 September 1948 confirmed the role of the atomic arsenal as a tool of war.<sup>5</sup> There, President Harry S. Truman vowed that he would not hesitate to use the atomic bomb against the Soviet Union if war came as a result of the Berlin crisis.<sup>6</sup> Eleven days later, the U.S. Ambassador to Moscow, Walter B. Smith, explained why the atomic bombs were useful only as weapons to employ: The Soviet Union’s vast land area and diversified industry rendered the atomic arsenal worthless as a deterrent.<sup>7</sup> Truman’s readiness to use atomic bombs is understandable. His staff estimated the Soviet Union was unlikely to build an atomic weapon until the mid-1950s.<sup>8</sup> During the interim, the lack of a Soviet nuclear threat would afford the United States considerable freedom to craft an aggressive atomic weapons policy.

The shock of an unexpected Soviet atomic bomb test in 1949 drove rapid adjustments to policy. In April 1950 the top secret “United States Objectives and Programs for National Security,” commonly known as NSC-68, identified the means, ways, and ends of deterrence. Within an American grand strategy of containment, it proposed that “the role of military power is to serve the national purpose by deterring an attack upon us while we seek by other means to create an environment in which our free society can flourish...”<sup>9</sup> In October 1953 NSC-162/2 outlined a unique “grammar” of deterrence to provide the concept’s first systematic examination.<sup>10</sup> Just three months later, Secretary of State John Foster Dulles unveiled “massive retaliation” as the policy through which the United States would pursue deterrence.<sup>11</sup> By January 1954 deterrence had been cemented as a cornerstone of policy and had been linked inextricably with nuclear weapons.

Deterrence continued to gain traction for nearly a decade despite a lack of critical thinking on the subject.<sup>12</sup> Before 1960 there was no scientific literature on deterrence. No theoretical structure or terminology existed for deterrence that other fields of study such as economics enjoyed.<sup>13</sup> By the early 1960s, however, theorists such as Herman Kahn, Bernard Brodie, and Thomas Schelling had begun to leverage the emerging academic disciplines of game theory and systems theory to create an analytic framework for understanding deterrence. Within a few years, a general theory of non-use of military force emerged—one in which the best course of action could be counterintuitive and therefore provable only through mathematics. One equation captured the essence of the theory for the duration of the Cold War: Deterrence = Capability × Intent.

In this model, the deterrent effect is easy to understand. As capability and intent to produce unacceptable consequences increase, the deterrent effect increases. The opposite also holds true. Unless an actor possesses the ability and the willingness to harm another, deterrence is not credible.<sup>14</sup> Both superpowers seemed to possess the capability and intent to use nuclear weapons, but an important aspect of Cold War relations moderated deterrence. A mutual understanding existed that only an unacceptable provocation by either side would result in unacceptable reprisal from the other. As a practical strategy, each side pursued the objective of deterrence through offensive means—nuclear weapons—but in ways that were defensive—reactive use. The linkage of objective, ways, and means reinforced a tense but workable status quo as the United States and the Soviet Union pursued their own interests.

### A Clash of Definitions

The synthesis of theory and experience informed a definition of deterrence still in common use: “deterring or preventing by fear” specifically with respect to “the reduction of the likelihood of war by the fear that nuclear weapons will be used against an aggressor.”<sup>15</sup> This definition is simple, but it obscures a complicated logic.<sup>16</sup> Despite efforts to analyze deterrence with hard science or to understand it as a hard science, deterrence remains at least as much qualitative as quantitative. It cannot be reduced to any one aspect such as buying more of a deterrent, so predictions such as marginal return on investment can be difficult.<sup>17</sup> Complexities underpinning a simple definition did not matter greatly when a bipolar balance of power, however dangerous, was in many ways itself simple.<sup>18</sup> Compared with the Cold War, though, today’s security environment is volatile, uncertain, complex, and ambiguous. Shades of meaning matter now more

than ever because the threat has become more complex. States armed with nuclear weapons still pose a challenge, but stateless terrorists who have no return address pose the gravest threat to the security of the United States.<sup>19</sup>

Policy makers have recast deterrence to meet the new threat. Before 11 September 2001 the Department of Defense defined deterrence as “the prevention from action by fear of the consequences” and further explained that “deterrence is a state of mind brought about by the existence of a credible threat of unacceptable counteraction.”<sup>20</sup> A different definition emerged in 2006. Deterrence then could be seen as “actions taken to disrupt, prevent, or preclude acts of aggression” to include “preemptive actions to unhinge the ability to conduct operations.”<sup>21</sup> The former definition is classic; it conceives of deterrence as a state of equilibrium that will be disturbed only in the event of transgression. The latter definition shares few words and little meaning with its predecessor. The new concept emphasizes action instead of posturing and preemption instead of retaliation. An additional difference becomes apparent only in context. The older definition was not tied to a particular time or circumstance. The new definition, however, is calculated specifically to help win the War on Terrorism.

Missing from the conversation is critical thinking necessary to show how the administration’s new view of deterrence will work. Over time, strategic nuclear deterrence has become synonymous with deterrence in general,<sup>22</sup> and no significant body of thought exists on deterrence at the operational and tactical levels of conflict.<sup>23</sup> Further, John Mearsheimer, an authority on deterrence through conventional weapons, proposes that deterrence does not apply to guerrilla-type forces.<sup>24</sup> Finally, another author has concluded that deterrence is neither isolatable nor analyzable at the low end

of the spectrum of conflict where terrorist activity typically occurs.<sup>25</sup> A new model of deterrence, discussed below, suggests not only that conventional weapons may not deter terrorists effectively but also that current policy weakens any deterrent effect that otherwise could be generated.

### A New Model of Deterrence

The degree to which an actor can be deterred depends on more than a multiplication of capability and intent. Figure 1 proposes a more comprehensive equation:

$$\begin{array}{c}
 \begin{array}{c} \text{Capability} \\ \times \\ \text{Intent} \\ \times \\ \text{Credibility} \end{array} \\
 \Downarrow \\
 \text{Deterrence} = \frac{\text{Potential}}{\text{Resistance}} \\
 \Uparrow \\
 \begin{array}{c} \text{Hardness} \\ + \\ \text{Regeneration} \\ + \\ \text{Motivation} \\ + \\ \text{Unpredictability} \end{array}
 \end{array}$$

Figure 1<sup>26</sup>

Potential is a characteristic of the deterring actor defined as the amount of pressure that actor can bring to bear on the target of deterrence. Three variables, capability, intent, and credibility, factor into potential. Capability is the force available to the deterring actor.<sup>27</sup> Intent measures the deterring actor's willingness to use the available capability. Credibility describes the degree to which the deterring actor

projects a believable capability and intent. Potential cannot exist unless all three of its variables are present. For example, intent to deter cannot generate any potential unless some capability exists to produce an unacceptable consequence.<sup>28</sup> Therefore, the calculation of potential is multiplicative operation. Potential is greatest when all three variables are strong, and it falls to zero when any of the variables is absent.

Resistance is a characteristic of the target of deterrence defined as the degree to which that actor can oppose the potential of the deterring agent. Four variables, hardness, regeneration, motivation, and unpredictability, contribute to resistance. Hardness is the ability to avoid or withstand an attack. Regeneration refers to the ability to repair the damage resulting from an attack. Motivation describes the strength of desire to pursue a course of action. Unpredictability measures the degree to which the target of deterrence compares costs and benefits differently than the deterring actor. Unlike potential, resistance can exist as long as any of its variables are present. An impregnable, infinitely hard defense, for example, would generate infinite resistance that no amount of potential could overcome. No other variable of resistance would be needed. In practice, values of any variable probably would not approach infinity. However, even a small measure of any variable would yield at least a small amount of resistance. Like potential, though, resistance is strongest when all of its variables are present and strong.

This model helps explain not only the efficacy of Cold War nuclear deterrence but also why the simple formula of capability multiplied by intent adequately described the dynamic. During the Cold War, both superpowers enjoyed enormous potential. Once large stockpiles had been produced, nuclear weapons afforded each side a capability to

inflict harm that was unacceptable if not incalculable. Each also expressed intent to use the capability available if the other side crossed an often ambiguously defined threshold.<sup>29</sup> Strong credibility existed on both sides, too, because the Americans and the Soviets believed each other's rhetoric.<sup>30</sup> Resistance, by comparison, was minimal. Neither side could avoid or withstand a nuclear attack once it was launched, nor could either regenerate quickly afterwards.<sup>31</sup> The bipolar balance of power benefited both nations, and each had a great deal to lose by upsetting the status quo in ways they might not be able to control. As a result, motivation to pursue intentionally provocative, risky courses of action generally was low. Finally, each side pursued similar interests such as territorial integrity, ideological exportation, and economic expansion through ways and means informed by a generally like-minded decision-making process. As a result, sufficient "sameness" existed to keep unpredictability low. Potential dominated resistance, then, and created a strong and stable deterrent effect throughout most of the Cold War. Deterrence never was certain, of course, but history and this model suggest that only something unforeseen—an accident or a grave miscalculation—could have caused deterrence to fail.

Applied to the Long War, though, this model suggests that the utility of deterrence, especially classical deterrence informed by Cold War experience, is less certain. The punitive capability of the United States has diminished drastically in a fight where it must (presumably) keep its nuclear guns holstered and employ conventional force with restraint. Every other element of deterrence favors the terrorist threat, and conflating preemption with deterrence further weakens the position of the United States.

## Conventional Deterrence Is Weaker Than Nuclear Deterrence

Nations have attempted to leverage conventional force for deterrence across the ages. More than 2,400 years ago, the Greek historian Thucydides described how Athens and Sparta attempted to convince each other that starting what would become the Peloponnesian War, a conflict that would ruin winner and loser alike, would not be worth the cost.<sup>32</sup> Today, the presence of America's conventional military forces overseas is said to avert crises by signaling the nation's intent and capability to prevent conflict and respond if necessary.<sup>33</sup> But in the same way that "skunks deter some predators; Roman legions deter some enemies; police deter some crime,"<sup>34</sup> conventional forces deter only some of the time. The word "some" is key. It drives home the historical reality that conventional deterrence often fails or fails to apply.<sup>35</sup>

Of course, conventional deterrence has had many more opportunities to fail than nuclear deterrence. It is not certain that nuclear deterrence would continue to succeed or fail across the span of human history. All that can be said for certain is that no major war between nuclear powers has occurred during the era of nuclear deterrence. In contrast, conventional deterrence has failed, even during the nuclear era, and seems likely to fail again in the future. The intent here is not to ascribe failures of conventional deterrence solely to time. The point is that experience with nuclear deterrence is relatively limited, so theory may not describe every element of importance when comparing nuclear and conventional deterrence. Nevertheless, theory implies two key elements that render conventional weapons less deterring to any actor than nuclear weapons.

First, nuclear weapons and conventional weapons produce quantitatively and qualitatively different first order effects. The drastic quantitative differences between

nuclear and conventional weapons effects are well documented. Even small, one-kiloton nuclear weapon (equivalent to one thousand tons of TNT) creates orders of magnitude more physical damage than the largest conventional explosive ever employed in battle. Moreover, the damage mechanisms differ. Conventional explosions generate most of their damaging effects from blast and fragmentation. Nuclear weapons create an enormous blast wave, but they also emit tremendous heat, prompt radiation, and fallout that cause worse, more varied, and sometimes delayed trauma. Less understood is a crucial qualitative difference. Nuclear deterrence separates the means of punishment—nuclear weapons—from the means of defense—missile defenses, for example—if there can be any defense at all. However, in conventional deterrence, conventional forces provide both the means of punishment and the means of defense.<sup>36</sup> In other words, the military that protects a nation also dispenses retribution. It is not clear that the drastically different quantitative or qualitative first order effects of conventional weapons can generate the higher order effect of impairing an enemy's will to fight.<sup>37</sup> In a nuclear war, the so-called "loser" conceivably could inflict as much damage as the winner. Such is not the case with conventional warfare. The loser in a conventional war typically endures much greater destruction than does the victor. Even so, the loser's share of damage may be tolerable depending on the interests at stake, and the comparatively light burden borne by the victor makes it easier for an actor who enjoys a position of advantage to conclude warfare is worth the risk. The differences in first order effects decrease the capability of a deterring actor in ways that may not be readily apparent. As a result, conventional weapons confer less potential to deter than nuclear weapons.

Second, the employment of a weapon, nuclear or conventional, weakens deterrence by removing a stabilizing element of doubt. Deterrence is most stable when the target of deterrence is certain that the deterring actor has the capability and intent to retaliate when provoked but is unsure exactly what would be a sufficient provocation. The vagueness of a trigger event creates doubt in the mind of the target of deterrence. Doubt then causes hesitation to pursue a wider range of actions than certainty about the trigger would necessitate. At the same time, vagueness preserves flexibility by allowing the deterring actor not to respond to any particular provocation without losing face. Both conditions stabilize deterrence. Conventional weapons upset the balance, however. They are employed often, unclocking the threshold with each application of force. Further, each successive use of conventional force demonstrates the would-be deterring actor lacks the ability to deter or to achieve a decisive outcome through retaliation. Because decisions made using the calculus of deterrence often hinge more on power than willingness,<sup>38</sup> the resulting predicament weakens deterrence by creating a feedback loop. With each trip around the loop, the target of deterrence learns that its ability to endure punishment confers increasingly more freedom to provoke.

#### Terrorists Are Less Deterrable Than Traditional Actors

Terrorist groups like al Qaeda are difficult to deter because they possess resistance that state actors lack. When compared with terrorists, most states are disadvantaged in terms of hardness, regeneration, unpredictability, and motivation. So-called “rogue” states are more resistant to deterrence because they are less predictable and sometimes more motivated to pursue provocative courses of action than are responsible states. However, a deterring actor can gain traction by leveraging the

physical manifestation of a rogue state—its fixed territory, infrastructure, and population—because these attributes generally are neither hard nor easy to regenerate. In contrast, because terrorists may shun the trappings of statehood, organize in loose networks, possess strong motivation to act, and think less predictably than state actors, it is debatable whether they are deterrable at all.<sup>39</sup> At the very least, this model implies that because terrorists are relatively strong across all the variables of resistance, they are much harder to deter than current policy suggests.

To begin, terrorist organizations possess great hardness. This proposition may seem counterintuitive. After all, terrorists typically do not operate from reinforced underground command centers, move via sophisticated armored vehicles, or wear high-technology body armor. On the contrary, they often operate from mud huts, move on foot, and wear no ballistic protection. However, terrorist organizations possess a different but equally important hardness: They are hard to find. Often they are indistinguishable from the civilian populace, so they sometimes hide in plain sight. At other times they elude pursuit by evaporating into vast, inaccessible terrain. The natural ability of terrorists either to blend or evade reverses the traditional idea of hardness that American military forces have been optimized to defeat. In the Cold War, Soviet forces were easy to find but hard to kill. Terrorists, though, are easy to kill but hard to find. Because Western military systems have been optimized to kill rather than to find, on balance, the terrorists' brand of hardness confers a great deal of resistance not enjoyed by Occidental states.

Next, when attacked, terrorist networks can rapidly regenerate their operational capability. Terrorist networks run on far fewer operatives than do traditional military

forces. The former take few casualties and need few replacements. This low human operating cost makes regeneration relatively easy in a protracted war. As long as terrorists can tap into a reservoir of disaffected people, the supply of aspiring operators likely will meet the limited demand. At a systems level, groups like Al Qaeda also regenerate operational capability quickly because of their loose structure.<sup>40</sup> Their systems, like other transient, fluid, non-hierarchical networks, pose great difficulty for analysts looking for vulnerabilities that can be targeted. Moreover, even when a node in a system can be isolated, the rest of the flat network exhibits a remarkable degree of self-healing that allows operations to continue with minimal degradation. In effect, then, terrorist networks share more in common with the Internet, a self-healing network descended from a Cold War command, control, and communications system designed to be resistant to nuclear attack, than they do rigidly structured organizations like the militaries that hunt them. As a result, successfully targeting a node or two of a terrorist network may have no more operational impact on the organization than would the loss of a server or two on the capacity of the Internet. A significant portion of the entire terrorist network would have to be successfully attacked within a short period of time to weaken its ability to regenerate.

Further, objectives for which there can be no accommodation generate tremendous motivation. Terrorists may be willing to pay any price for metaphysical gains that a logical cost/benefit calculation cannot define. Achieving paradise as a martyr, for example, has no quantifiable value. That is not to say, though, that its value is meaningless. If a suicide terrorist is willing to kill himself to achieve a goal, the payoff must be important. However, the payoff cannot be used to predict accurately what level

of deterrence, if any, may be required to prevent the act. Revenge also may motivate terrorists,<sup>41</sup> and terror used by extremist organizations with a messianic focus can be understood as a sort of worship in which extremist acts have intrinsic value.<sup>42</sup> The latter motivations are especially problematic. Martyrdom, at least, achieves a payoff by leveraging terrorism to achieve a higher goal. Revenge and extremism exercised for their own sakes not only fail to relate terror with higher objectives,<sup>43</sup> they also combine the means of achieving a payoff with the payoff itself. If strategy can be considered a linkage among ends, ways, and means, then the overlap of those elements exposes little strategic surface area that a counter-strategy of deterrence can affect.

Finally, terrorists often prove unpredictable. Many factors can contribute to the unpredictability of their behavior. Failure of the deterring actor to understand the terrorists' ethos can create false assumptions and lead to inappropriate mirror-imaging that decrease the ability to predict terrorist behavior. Language differences can pose barriers to understanding and prediction. Terrorists also can choose to act irrationally or irresponsibly.<sup>44</sup> Thomas Schelling, a founder of deterrence theory, articulated this propensity when he noted, "...madmen, like small children, often can not be controlled by threats."<sup>45</sup> The logic is simple. A rational actor selects a course of action calculated to achieve an optimal outcome based on what he believes the other actor will do. Without rationality, accurate prediction becomes impossible. Deterrence then devolves into a game of chance rather than strategy. Because terrorists often select courses of action that do not seem rational, from a psychological perspective they may be nearly impervious to deterrence.<sup>46</sup>

## Conflation with Preemption Weakens Deterrence

After the terrorist attacks of 11 September 2001, President Bush declared the first priority of the United States was to disrupt and destroy terrorist organizations.<sup>47</sup> This policy, enabled by preemptive action, sends conflicting messages to terrorists who might otherwise be deterred. Deterrence and eradication are mutually exclusive.<sup>48</sup> Terrorists cannot be both deterred and destroyed. Deterrence requires the acceptance of a certain status quo between two actors. However, a goal of destruction eliminates any trade space in which deterrence can occur. Eradication does not leave an escape route, or “tolerable recourse,” through which an enemy can save face.<sup>49</sup> Theorist Robert Powell explains that “...an adversary needs an honorable path of retreat if we are to achieve our main policy goals through the reputation of power rather than through the actual use of force. A cornered adversary may lash out...”<sup>50</sup>

As a result of the President’s policy, terrorist activity may increase. Striking at terrorists before they commit terrorist acts inflames the passions that spawned terrorism in the first place. Simply announcing a policy of preemption in the 2002 National Security Strategy ill served deterrence.<sup>51</sup> It could drive some who were terrorist sympathizers to become terror practitioners. Further, preemption encourages terrorism by making the consequences of not committing terrorist acts as bad as the consequences of committing them. For any group subject to immediate eradication, there is every reason to attack.<sup>52</sup> In theory, striking first as soon as war is perceived as inevitable best serves the interest of any actor.<sup>53</sup> Even if one side is considerably weaker than another, it is in the weaker side’s interest to strike first, no matter how slim the chance of victory, if defeat is unacceptable and waiting only further weakens their position.

The evidence in this matter should not be misinterpreted to suggest that the elimination of terrorist organizations or preemptive action is not desirable. If terrorists are not deterrable, preemption and eradication may offer a viable solution. However, if policy makers want to deter, they should realize pursuing both goals might drive some who would have otherwise been deterred to join the active terrorist ranks.

### Recommendations

After the Soviet Union dissolved, the United States began shifting its threat-based military structure toward a capabilities-based construct. The new means of deterrence would be geared to counter myriad potential threats in the uncertain future. As part of that movement, the 2002 Nuclear Posture Review introduced a “New Triad” intended to deter a wider array of adversaries.<sup>54</sup> These enhanced capabilities might have bolstered deterrence against state threats; however, they have not dealt with terrorist organizations effectively. On the contrary, the capabilities-based approach has missed its mark because deterrence is inherently a culturally specific phenomenon that requires a highly tailored threat-based mindset. Deterrence is an effect, not an instrumentality. No thing is inherently deterring.<sup>55</sup> The value of any capability rests solely in its ability to influence the mind of a particularly unique enemy.<sup>56</sup> Deterrent capabilities acquired without advance knowledge of their target will be increasingly less effective as the uniqueness of an unforeseen adversary evolves. Policy makers must tailor strategies precisely if deterrence is to be relevant in the Long War. Capturing every element of those strategies is beyond the scope of this paper. However, three ideas focused on restraint seem a reasonable place to start. Further research is needed to refine these concepts into detailed courses of action.

## Unlink Preemption from Deterrence

By its very nature, deterrence is a defensive phenomenon.<sup>57</sup> So whatever else it may be, deterrence is not preemptive.<sup>58</sup> This paper has explained that preemption weakens deterrence, so it makes no sense to associate the two concepts. Moreover, the risk that deterrence might fail should not necessarily drive a strategy of preemption. Preemptive action incurs other costs that may not be weighed carefully enough in a rush to action. Policy makers may have to pay for preemption with military and civilian lives, large financial outlays, and the reconstruction of damaged infrastructure. These costs could be worse than a failure of deterrence itself.<sup>59</sup> Moreover, a policy of preemption exacts a toll in terms of perceived legitimacy. The 2002 National Security Strategy theme of “forward deterrence” caused domestic disruption and international condemnation even before it was used to justify an invasion of Iraq,<sup>60</sup> and it has continued to draw criticism. At a time when the United States is seeking alliances to advance its security agenda, the unpopular policy of preemption, whose legality has been questioned by many traditional allies of the United States, may be limiting long-term success. Classical, reactive deterrence, on the other hand, “...is quite properly a concept with a high approval rating.”<sup>61</sup> It falls well within the norms of international law and consequently generates popular support. So even in cases where deterrence may have limited utility, modest gains at least can be preserved by avoiding the potentially negative consequences of preemption. Deterrence, then, if it is untangled from preemption through the use of precise language and restrained engagement, will remain a viable policy option even if preemption loses its palatability.

## Tailor Deterrence for Terrorist Threats

The United States should not abandon traditional deterrence. States armed with nuclear weapons still pose a serious threat, and there is every reason to believe that traditional deterrence will continue to mitigate the risk of a devastating attack on the homeland, American citizens, and its allies. The terrorist threat, however, requires a rethinking of deterrence with respect to both application and expectations.

Deterrence will not be applicable to the terrorist fight until viewed as a “unified, coherent, long-term, and culturally-oriented policy and strategy that integrates all the civil and military elements of US national power synergistically to influence the behavior of diverse possible adversaries.”<sup>62</sup> This is a tall order to fill. Its scope helps frame an understanding, though, of why deterrence has not yet been effective and how far policy makers have to go in order to make it so. Coercive military power, especially when applied preemptively, does not play a leading role in this concept of deterrence. The most significant contribution of military forces might be information systems rather than lethal hardware. Enhanced human intelligence gathering and psychological modeling, for example, might provide access to terrorist networks and afford insight into terrorist decision making that is not available today.

In its fullest application, this new concept probably would begin to lose its identity as deterrence. That may be desirable. A joint study conducted by RAND and the Institute for Defense Analyses concluded that for long term success, “it is essential to understand that a strategy of *deterrence* is the wrong concept—it is both too limiting and too naïve. It is far better to conceive of a strategy with an *influence* component, which has a broader range of coercive elements and a range of plausible positives, some of which we know from history are essential for success.”<sup>63</sup> Michael Howard points out one

of these examples by noting that for the use of military force to be decisive, honor must be satisfied “unless the defeated peoples are to be massacred or reduced to perpetual slavery.”<sup>64</sup> So in order to produce a lasting peace, U.S. policy makers should emphasize activities that seek honorable reconciliation and reintegration of its adversaries into the international community. A strategy that contains the terrorist threat while addressing the underlying causes of terrorism could provide a model for success.<sup>65</sup> Robert Art’s recommended grand strategy of “selective engagement” also contains elements of influence tempered by restraint that could be useful.<sup>66</sup> Finally, strategies calculated to influence external vulnerabilities of terrorists groups—their external support, constituencies, and inter-group conflict—may eventually weaken their ability to operate and prevent similar groups from achieving meaningful operational capability.

#### Set Realistic Expectations

Deterrence is “inherently unreliable” over the long term.<sup>67</sup> It never can be guaranteed because of the non-linear nature of the cognitive processes used to make decisions.<sup>68</sup> It cannot be perfect, nor should policy makers try to make it so. At its best, deterrence is low-cost insurance that protects against some but not all contingencies.<sup>69</sup> Efforts to create infallible deterrence will bankrupt any treasury as diminishing returns render incremental improvements unaffordable. The United States simply can not afford to protect everyone, every time, everywhere. Secretary of Homeland Security Michael Chertoff has identified the challenge: to analyze the threat, vulnerability, and consequences to determine the most cost effective way of gaining security.<sup>70</sup>

Policy makers, then, must design and execute realistic strategies that ensure the costs are bearable when that failure occurs.<sup>71</sup> This course of action is easier to

recommend than implement. Elected officials and their staffs are not keen to discuss the tradeoff between dollars and lives, but these tradeoffs are made every day. Herman Kahn described these kinds of choices as “awkward” in his 1962 book *Thinking about the Unthinkable*.<sup>72</sup> Kahn might be credited with a gift for understatement considering he was discussing scenarios where decisions could mean the difference between ten million and 100 million deaths. Nevertheless, the thrust of his argument remains relevant today: No matter how painful an outcome might be, if the outcome can happen, it is better to vet the issue than to bury it. Because neither preemption nor deterrence has eliminated the terrorist threat, defensive capabilities should receive at least as much attention as offensive might. These defenses should be conceived to reduce sharply the risk of worst-case catastrophes while mitigating to an extent that is affordable the risk of relatively minor losses. Fielding a ballistic missile defense system is a positive step along two axes. First, effective missile defenses confers hardness against a previously undefeatable means of attack. A boost in hardness will increase the ability of the United States to resist its adversaries. Second, ballistic missile defenses protect against threats that possess the capacity to inflict the most grievous losses. So even if terrorists are unlikely to launch ballistic missiles in the near future without the aid of a state sponsor, the investment in missile defenses is wise. The terrorist missile threat may develop someday, but other actors, such as China, already possess the ability to launch an attack that the envisioned missile defenses can counter. In the immediate future terrorists probably will attempt less ambitious operations that may be harder to detect and counter than a missile attack. Therefore, hardening infrastructure most vital to the American way of life should be a focus, too. Lines of communication, power generation

and distribution, food and water networks, and other key systems must be secured. Anti-access technologies that prevent terrorists and their weapons from entering the United States should be pursued. Consequence management, too, should continue to receive ample attention because an attack could occur at any time. Finally, planning for punitive action must continue. The capability and intent to follow through on threats of retaliation will remain necessary as long as the United States pursues deterrence.

### Conclusion

Current deterrence strategy cannot deal effectively with the threat of terrorism. Even though the intent to use military force is great, the capability to harm terrorist organizations is lacking, and U.S. credibility shrinks each time the use of force fails to achieve decisive results. Further, terrorists are highly resistant to deterrence. The physical elements of their networks are hard to target and easy to regenerate. Irrational calculation coupled with payoffs for which any price might be acceptable render terrorists' will to act difficult to affect. Additionally, preemption weakens deterrence by destabilizing the status quo arrangement necessary for mutual coexistence.

Fusing preemption with deterrence may have provided a convenient springboard from which to strike at terrorists in the aftermath of the 11 September 2001 attacks. Over time, though, this policy has begun to generate unintended adverse consequences. Instead of strengthening deterrence, preemption has weakened what effect deterrence may have had on terrorists. At the same time, an aggressive "forward deterrence" policy has weakened the perceived legitimacy of the United States. Recasting deterrence as preemption only sidestepped the true nature of the problem—that the threat has shifted, and security policy has not kept pace.

Policy makers have a choice to make. Holding the present course may seem expedient. In the short run it may prevent some attacks by exterminating terrorists before they can act; however, the nation risks perpetually hemorrhaging blood and treasure around a potentially endless cycle of violence. On the other hand, unlinking deterrence from preemption, tailoring deterrence to the terrorist threat, and setting realistic expectations can leverage the most relevant aspects of deterrence to secure a better, longer-lasting peace. Resistance may come, though, over the risk of near-term terrorist attacks that could have been preempted. So the issue devolves to a question of risk management. The easy way ahead would be to defer risk as long as possible. The better course, retooling deterrence, will demand courage from policy makers as they shoulder risk today in order to secure success in the Long War tomorrow.

### Endnotes

<sup>1</sup> Charles W. Kegley, Jr. and Gregory A. Raymond, "Global Terrorism and Military Preemption: Policy Problems and Normative Perils," *International Politics* 41 (March 2004): 41; [database online]; available from ProQuest; accessed 2 November 2007.

<sup>2</sup> George W. Bush, *The National Security Strategy of the United States of America* (Washington, D.C.: The White House, September 2002), 15; available at <http://www.whitehouse.gov/nsc/nss/2002/nss.pdf>; Internet; accessed 28 October 2007.

<sup>3</sup> The 2006 National Security Strategy does not insist all terrorists are deterrable. The "hard core," it states, must be killed or captured. However, other individuals and institutions that form the terrorist network may be "...deterred, disrupted, and disabled..." See George W. Bush, *The National Security Strategy of the United States of America* (Washington, D.C.: The White House, March 2006), 12; available at <http://www.whitehouse.gov/nsc/nss/2006/nss2006.pdf>; Internet; accessed 9 November 2007.

<sup>4</sup> David A. Rosenberg, "U.S. Nuclear Stockpile, 1945 to 1950," *Bulletin of the Atomic Scientists* 38 (May 1982): 26.

<sup>5</sup> Within this paper, the terms "atomic" and "nuclear" are interchangeable when used in the context of weapon types. Generally speaking, though, early and relatively unsophisticated weapons that created their effects from the fission of uranium or plutonium were referred to as "atomic bombs." After the first test of a thermonuclear device in 1952, weapons that generated energy from the fusion of lighter elements were called "nuclear" weapons or "hydrogen bombs."

The term “atomic bomb” has fallen from regular usage, and the term “nuclear weapon” now typically refers to any fission or fusion weapon regardless of size.

<sup>6</sup> James V. Forrestal, *The Forrestal Diaries*, ed. Walter Millis (New York: Viking Press, 1951), excerpted in “The Forrestal Diaries: The Story of a Nation’s Deepening Crisis,” *Bulletin of the Atomic Scientists* 7 (November 1951): 327.

<sup>7</sup> *Ibid.*, 329.

<sup>8</sup> *Ibid.*

<sup>9</sup> National Security Council Document 68, “United States Objectives and Programs for National Security” (14 April 1950), available from <http://www.fas.org/irp/offdocs/nsc-hst/nsc-68.htm>; Internet; accessed 1 January 2008.

<sup>10</sup> National Security Council Document 162/2, “Basic National Security Policy” (30 October 1953), 4; available from <http://www.jan.vandercrabben.name/nsc/index.php>; Internet; accessed 1 January 2008.

<sup>11</sup> “Massive retaliation” is the commonly used term for what Secretary Dulles described as “massive retaliatory power.” See John F. Dulles, “The Evolution of Foreign Policy,” speech made before the Council on Foreign Relations, New York, NY, 12 January 1954, printed in *Department of State Bulletin* 30 (25 January 1954), 108. The credibility of massive retaliation was in doubt as soon as it was announced. The Soviet Union tested its first hydrogen bomb on 12 August 1953 and followed with a truly modern megaton-range thermonuclear device on 22 November 1955. As the risk of thermonuclear reprisal increased, the policy of responding with an all-out nuclear attack to conventional aggression in Europe by the Soviet Union began to lose its appeal. President John F. Kennedy replaced massive retaliation with a policy of “flexible response” when the dangers of brinkmanship became apparent during the Cuban Missile Crisis.

<sup>12</sup> In 1951, a year after NSC-68 had made deterrence a hot topic, not a single article on deterrence could be found in *The Bulletin of the Atomic Scientists*, a respected publication dedicated to a dialogue on nuclear issues. Quite the opposite: The year’s twelve issues focused on the use of atomic weapons rather than their non-use. See, for example, James M. Gavin, “The Tactical Use of the Atomic Bomb,” *Bulletin of the Atomic Scientists* 7 (February 1951): 46. Military thinkers understandably would emphasize atomic war fighting because they presumably would be charged to retaliate with nuclear weapons if deterrence failed. However, the lack of interest outside the military is difficult to fathom and was decried by the deterrence theorists who began to publish in the early 1960s. Herman Kahn’s 1961 book *On Thermonuclear War*, for example, attempted to generate academic interest in deterrence in much the same way that Brigadier General William “Billy” Mitchell’s work *Winged Defense* tried to foster popular support for air power in 1925. See Herman Kahn, *On Thermonuclear War*, 2nd ed. (Princeton: Princeton University Press, 1961) and William Mitchell, *Winged Defense: The Development and Possibilities of Modern Air Power—Economic and Military* (New York: G. P. Putnam’s Sons, Press, 1925).

<sup>13</sup> Thomas C. Schelling, “The Retarded Science of International Strategy,” *Bulletin of the Atomic Scientists* 16 (March 1960), 103.

<sup>14</sup> Richard M. Rosenberg and Carl H. Builder, "The Implications of Nonnuclear Strategic Weapons: Concepts of Deterrence," (Santa Monica, CA: RAND, July 1985), 29.

<sup>15</sup> *The Oxford English Dictionary*, 2nd ed. (Oxford: Clarendon Press, 1989), 4:552.

<sup>16</sup> Anthony J. P. Kenny, *The Logic of Deterrence* (Chicago: University of Chicago Press, 1985), ix.

<sup>17</sup> Colin S. Gray, "Deterrence and the Nature of Strategy," in *Deterrence in the 21st Century*, ed. Max G. Manwaring (London: Frank Cass, 2001), 21.

<sup>18</sup> The practice of deterrence could be tremendously nuanced in the Cold War. The ultra-precise management of extreme risk, or brinksmanship, elevated the practice of deterrence almost to a fine art. The definition of deterrence, as well as its concept and rule set, though, was relatively straightforward.

<sup>19</sup> Bush, *The National Security Strategy of the United States of America* (2006), 20.

<sup>20</sup> U.S. Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associated Terms*, Joint Publication 1-02 (Washington, D.C.: U.S. Joint Chiefs of Staff, 12 April 2001), 125. This definition remains current in the version of JP 1-02 updated through 14 September 2007. See U.S. Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associated Terms*, Joint Publication 1-02 (Washington, D.C.: U.S. Joint Chiefs of Staff, 12 April 2001 as amended through 14 September 2007), 160; available at [http://www.dtic.mil/doctrine/jel/new\\_pubs/jp1\\_02.pdf](http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf); Internet; accessed 22 October 2007.

<sup>21</sup> Peter Pace, *National Military Strategic Plan for the War on Terrorism* (Washington, D.C.: U.S. Joint Chiefs of Staff, February 2006), 34; available at <http://www.defenselink.mil/pubs/pdfs/2006-01-25-strategic-plan.pdf>; Internet; accessed 21 October 2007. This document and JP 1-02 (see endnote 20 above) are not equivalent documents. National strategies and plans are not bound to follow joint doctrine; in fact, they sometimes advocate new approaches that can contribute to a change in doctrine. However, these two documents, both produced by the Joint Staff, do serve to highlight a difference between two understandings of deterrence: one that has proved useful enough over time to be integrated into Department of Defense best practices and one that is new, untested, and in several important ways a drastic departure from what came before. It is interesting to note that the definition of deterrence did not change in the 2007 update to JP 1-02 even though the *National Military Strategic Plan for the War on Terrorism* definition was published in 2006.

<sup>22</sup> Alexander L. George and Richard Smoke, *Deterrence in American Foreign Policy: Theory and Practice* (New York: Columbia University Press, 1974), 46.

<sup>23</sup> As noted by Donald G. Brennan, an expert on arms control and deterrence, the lowest level of provocation Herman Kahn discusses in 900 pages of 1960's deterrence theory included actions such as cutting off access to Berlin or "limited" aggressions such as the Korean War. See Donald G. Brennan, ed. *Arms Control, Disarmament, and National Security* (New York: George Braziller, 1961), 24-25.

<sup>24</sup> John J. Mearsheimer, *Conventional Deterrence* (Ithaca, NY: Cornell University Press, 1983), 15.

<sup>25</sup> George and Smoke, 46.

<sup>26</sup> Ohms Law in electrical theory provided the inspiration for this model.

<sup>27</sup> Capability is not necessarily a measure of absolute military capacity. It is based instead on the level of force that is under consideration for use. Policy and/or strategy normally will set an upper limit on the level of force available in wars pursued using limited means.

<sup>28</sup> It could be argued that capability and intent are not requisite variables as long as credibility, or the appearance of capability and intent, exists. In practice, though, the argument ignores the likelihood that capability and intent existed to create credibility in the first place. Further, in a case where a deterring actor had but then lost capability or intent, it seems unlikely that a bluff leveraging residual credibility could establish a long-term equilibrium among actors. Transparent capability and intent are essential to stable deterrence.

<sup>29</sup> Milton Leitenberg, "Keeping Mum about 'No First Use'," *New York Review of Books* 54 (31 May 2007); available at <http://www.nybooks.com/articles/20245>; Internet; accessed 4 March 2008. The author dispels a common misperception about Cold War nuclear policy. The United States has never established a "no first strike" or "no first use" nuclear weapons policy. The Soviet Union established a "no first use" policy in 1982 but retracted it in the mid-1990s. The only nation with a current "no first use" policy is China. Both Soviet and U.S. war plans contained provisions to employ nuclear weapons even if the other side had not used nuclear weapons first. However, neither side publicly announced discrete and definite triggers that would prompt nuclear retaliation.

<sup>30</sup> The Soviet Union may have enjoyed more credibility than it deserved during the early Cold War when exaggerated U.S. estimates of Soviet capability created a nonexistent "bomber gap" and later a similarly misidentified "missile gap." However, in absolute terms the Soviet Union possessed the capability to inflict immense damage during both "gap" periods, and aircraft and satellite reconnaissance eventually clarified the true capabilities of both sides.

<sup>31</sup> The "win-ability" of a nuclear war has been hotly debated. Herman Kahn estimated the time required to recover from a nuclear attack at approximately one year for every two million people killed. See Herman Kahn, *On Thermonuclear War*, 2nd ed. (Princeton: Princeton University Press, 1961), 20.

<sup>32</sup> George and Smoke, 12.

<sup>33</sup> Richard B. Myers, *The National Military Strategy of the United States of America* (Washington, D.C.: U.S. Joint Chiefs of Staff, 2004), 10; available at <http://www.defenselink.mil/news/mar2005/d20050318nms.pdf>; Internet; accessed 21 October 2007.

<sup>34</sup> Brennan, 23.

<sup>35</sup> Gray, 20.

<sup>36</sup> Robert Powell, *Nuclear Deterrence Theory* (Cambridge: Cambridge University Press, 1990), 32.

<sup>37</sup> Kurt Guthe, *The Nuclear Posture Review: How Is the 'New Triad' New?* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2002), 31; available at [http://www.cbsaonline.org/4publications/publibrary/r.20020729.nuclear\\_posture\\_review/r.20020729.nuclear\\_posture\\_review.pdf](http://www.cbsaonline.org/4publications/publibrary/r.20020729.nuclear_posture_review/r.20020729.nuclear_posture_review.pdf); Internet; accessed 28 October 2007.

<sup>38</sup> Kenny, 53.

<sup>39</sup> Robert J. Art, *A Grand Strategy for America* (Ithaca, NY: Cornell University Press, 2003), 48. There is no consensus in this vigorous debate. An opposite school of thought maintains that deterrence can be useful in dealing with terrorists. Robert Pape, a recognized authority on suicide terrorism, believes terrorist leaders can be deterred because ultimately they seek political objectives. See Robert A. Pape, *Dying To Win: The Strategic Logic of Suicide Terrorism* (New York: Random House, 2005), 20. Randy Borum concurs with Pape by writing "terrorist violence most often is deliberate (not impulsive), strategic, and instrumental; it is linked to and justified by ideological (e.g., political, religious) objectives...." See Randy Borum, *Psychology of Terrorism* (Tampa, FL: University of South Florida, 2004), 17. Steven Simon advocates a preemptive deterrence as a potentially effective means of dealing with religious extremists. See Steven Simon, "The New Terrorism: Securing the Nation Against a Messianic Foe," *The Brookings Review* 21 (Winter 2003): 21; [database online]; available from ProQuest; accessed 2 November 2007. Paul Davis and Brian Jenkins argue that Al Qaeda operatives eschew operational risk and may be deterred by creating uncertainty with respect to the tactical success of a given attack. See Paul K. Davis and Brian Michael Jenkins, *Deterrence & Influence in Counterterrorism: A Component in the War on al Qaeda* (Santa Monica, CA: RAND, 2002), xii.

<sup>40</sup> Daniel S. Gressang, IV, "Terrorism in the 21st Century: Reassessing the Emerging Threat," in *Deterrence in the 21st Century*, ed. Max G. Manwaring (London: Frank Cass, 2001), 91.

<sup>41</sup> Art, 19.

<sup>42</sup> U.S. Department of the Air Force, *Irregular Warfare*, Air Force Doctrine Document 2-3 (Washington, D.C.: U.S. Department of the Air Force, 1 August 2007), 81; available at [http://www.dtic.mil/doctrine/jel/service\\_pubs/afdd2\\_3.pdf](http://www.dtic.mil/doctrine/jel/service_pubs/afdd2_3.pdf); Internet; accessed 22 October 2007. See also Simon, 18.

<sup>43</sup> J. M. Post, "Terrorist Psycho-logic: Terrorist Behavior As a Product of Psychological Forces," in W. Reich, ed., *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind* (New York: Cambridge University Press, 1990), 35, in Randy Borum, *Psychology of Terrorism* (Tampa, FL: University of South Florida, 2004), 24.

<sup>44</sup> An irrational choice is made when a decision maker inadvertently selects a non-outcome optimizing course of action because of an error in logic. An irresponsible choice is made when a decision maker gambles, or intentionally selects a non-outcome optimizing course of action. Either method of arriving at a decision is considered not rational in the Rational Actor Model. This model often has been used to analyze decision making with respect to deterrence. The model's assumptions may not apply to terrorist organizations. For example, one assumption is that both actors are national governments. The Rational Actor Model is relevant to this paper because it describes decisions that are selected because they are calculated consciously to achieve an advantage. It is possible that another model may explain the basis of terrorist decision making with greater fidelity. However, it remains to be seen whether such a model can

confer enough insight to make irrational behavior predictable. See Graham Allison and Philip Zelikow, *Essence of Decision* (New York: Longman, 1999) for a thorough and readable examination of the Rational Actor Model.

<sup>45</sup> Schelling, 103.

<sup>46</sup> David B. Rivkin, Jr., "The Virtues of Preventative Deterrence," *Harvard Journal of Law and Public Policy* 29 (Fall 2005): 91; [database online]; available from ProQuest; accessed 2 November 2007.

<sup>47</sup> Bush, *The National Security Strategy of the United States of America* (2002), 5.

<sup>48</sup> Davis and Jenkins, 5.

<sup>49</sup> Schelling, 103.

<sup>50</sup> Powell, 66.

<sup>51</sup> Kegley and Raymond, 41.

<sup>52</sup> Jeffrey W. Knopf, "Deterrence or Preemption?" *Current History* 105 (November 2006): 396; [database online]; available from ProQuest; 2 November 2007.

<sup>53</sup> Kahn, *On Thermonuclear War*, 36.

<sup>54</sup> Bush, *The National Security Strategy of the United States of America* (2006), 22.

<sup>55</sup> Gray, 18.

<sup>56</sup> Kahn, *On Thermonuclear War*, 126.

<sup>57</sup> Brennan, 23.

<sup>58</sup> Richard Danzig, "Countering Traumatic Attacks," in *Deterrence in the 21st Century*, ed. Max G. Manwaring (London: Frank Cass, 2001), 103.

<sup>59</sup> Knopf, 397-399.

<sup>60</sup> Kegley and Raymond, 41.

<sup>61</sup> Gray, 20.

<sup>62</sup> Michael C. P. Carns, "Reopening the Deterrence Debate: Thinking About a Peaceful and Prosperous Tomorrow," in *Deterrence in the 21st Century*, ed. Max G. Manwaring (London: Frank Cass, 2001), 9.

<sup>63</sup> Davis and Jenkins, 61. The source text emphasized the terms "deterrence" and "influence."

<sup>64</sup> Michael Howard, "When Are Wars Decisive?" *Survival* 4 (Spring 1999): 132.

<sup>65</sup> Simon, 18.

<sup>66</sup> Art, 223.

<sup>67</sup> Gray, 20.

<sup>68</sup> Ibid.

<sup>69</sup> Kahn, On Thermonuclear War, 558.

<sup>70</sup> “The State of U.S. Homeland Security,” panel discussion with a keynote address by Michael Chertoff, Secretary, Department of Homeland Security, Washington, D.C., The Brookings Institution, 1 June 2006; available at <http://www.brookings.edu/~media/files/events/2006/0601homeland%20security/20060601chertoff.pdf>; Internet; accessed 23 October 2007.

<sup>71</sup> Wendy L. Lichtenstein, *Conventional Military Deterrence: Its Rise to Dominance and Its Future*, Strategy Research Project (Carlisle Barracks: U.S. Army War College, 20 June 2002), 20.

<sup>72</sup> Herman Kahn, *Thinking about the Unthinkable* (New York: Horizon Press, 1962), 102. Kahn identifies an important aspect of decision making with respect to balancing the probability of loss with the amount of loss: “Most decision makers would not choose a course of action certain to result in 1,000 deaths over a course of action which might in one chance in ten result in 10,000 deaths. Most decision makers would greatly prefer to kill no one, and are therefore likely to prefer the *possibility* of a greater number of deaths over the *certainty* of a lesser number. Actual decisions will of course depend not only on the range of numbers and probabilities involved in real circumstances, but upon the judgment of the decision maker as to the actual probabilities. However, there is likely to be a great tendency to wishful thinking when faced with the prospect of many certain deaths. Consider the following hypothetical table:

<i>Some Awkward Choices</i>				
<i>Policy</i>	<i>Probability of Loss</i>	<i>Amount of Loss</i>	<i>Expected Loss</i>	<i>Probability of no loss</i>
A	1.0	\$3,000	\$3,000	0
B	.1	\$300,000	\$30,000	.9
C	.01	\$30,000,000	\$300,000	.99
D	.001	\$300,000,000	\$3,000,000	.999

If a decision maker were to choose between the four policies indicated above, he is very likely to have the preferences A,B,C,D. If, however, lives are at stake rather than dollars, and if the decision maker is going to have to acknowledge responsibility for any deaths which might result from his choice (and the operation of chance), then his preferences are likely to be reversed; for example, most decision makers would choose C over A, because under policy C there a ninety-nine chances out of a hundred of the policy being successful and only one chance out of a hundred of a failure, while A is guaranteed to fail. The expected loss under policy C is greater but it is a risk, not a certainty, and in most cases some judicious wishful thinking will partially conceal both the degree and consequences of the risk.”