Introduction

“One of the Things You Learn as President is that You’re Always Dealing with Probabilities”

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Though uncertainty surrounds virtually all important national security decisions, public officials are often reluctant to assess this uncertainty directly. In 1961, for instance, the U.S. Joint Chiefs of Staff were pessimistic about plans to topple Cuba’s government by landing a rebel army at the Bay of Pigs. When they discussed the matter internally, the Joint Chiefs determined that the odds of this plan working were roughly three-in-ten. When Brigadier General David Gray wrote a report summarizing the group’s views, however, he stated only that the proposal had a “fair chance of success,” which President Kennedy interpreted as indicating optimism. After the Bay of Pigs invasion collapsed, Gray worried that his imprecise language had enabled a strategic blunder, while Kennedy resented the Joint Chiefs for not offering a clearer expression of doubt.¹

Similar reluctance to making clear probability assessments shapes a broad range of national security analysis. For example, Figure 1 displays the U.S. Defense Intelligence Agency’s 2015 guidelines on *Expressing Analytic Certainty*.² The document deliberately assigns ambiguous

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¹ Peter H. Wyden, *Bay of Pigs: The Untold Story* (New York: Simon and Schuster, 1979), pp. 88-90. Wyden writes that “in 1977, General Gray was still severely troubled about his failure to have insisted that figures be used. He felt that one of the key misunderstandings in the entire project was the misinterpretation of the word ‘fair’ as used by the Joint Chiefs. At the time, it never occurred to Gray that lack of figures might lead to a misunderstanding.”

definitions to key terms, prohibits analysts from making explicit probability assessments, and even defines the concept of likelihood itself in a way that precludes analytic precision. U.S. military doctrine encourages planners to identify courses of action that minimize risk and that offer the highest chances of success, but not necessarily to identify what those risks and chances are. The Department of Homeland Security divides terrorist threats into tiers ("elevated," "intermediate," and "imminent") which lack clear definitions. As Chapter 1 describes in more detail, similar aversion to probabilistic reasoning surrounds national security decision making in Britain, Canada, and Israel, to name just a few examples. And any time that scholars and pundits debate national security policy in the public sphere, one can raise similar questions about what standards of clarity and rigor should be required for supporting policies that place lives, resources, and the national interest at risk.

3 See Chapter 1 for more details on these guidelines and similar instructions provided to intelligence analysts across different agencies and countries. This subject presents one of the longest-standing controversies in intelligence studies: the seminal work on the subject is Sherman Kent, "Words of Estimative Probability," *Studies in Intelligence*, Vol. 8, No. 4 (1964), pp. 49-65, which Chapter 1 describes in more detail.

4 Chapter 1 describes relevant doctrine in greater detail.


7 For example, Chaim Kaufmann, "Threat Inflation and the Failure of the Marketplace of Ideas," *International Security*, Vol. 29, No. 1 (Summer 2004), pp. 5-48, argues that the U.S. public would not have supported the Iraq War if the White House had been clearer about the uncertainty surrounding its claims about Saddam Hussein’s presumed weapons of mass destruction programs.
On the surface, these issues appear to reflect a straightforward, practical question about how scholars, practitioners, and other observers of national security issues should express probability. And that question is important in its own right: it influences the way that intelligence analysts articulate any key judgment, the way that military planners present any course of action, the way that decision makers discuss any high-stakes issue, and the way that scholars and pundits discuss the merits of any national security policy. Yet this controversy runs much deeper than semantics. Aristotle wrote that “the educated person seeks exactness in each area to the extent that the nature of the subject allows,” and many skeptics raise serious doubts about the extent to which national


security decision making allows a sound conceptual or empirical basis for assessing probability with meaningful precision.

One version of this skepticism is that, given the complexities of national security decision making, even rough probability estimates represent arbitrary detail instead of relevant insight. But a stronger and more worrying version of this skepticism holds that efforts to clarify probabilistic reasoning could lend illusions of rigor to inherently subjective judgments, expose national security analysts and decision makers to cognitive biases and excessive criticism, or otherwise impede effective national security decision making. Thus while virtually all scholars and practitioners accept that uncertainty plays a defining role in shaping national security decisions, many also believe that leaders cannot, or should not, confront that challenge directly. Moreover, even when national security officials do confront the challenge of probability assessment directly, they often still struggle to determine what those assessments truly mean.

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10 Chapters 4 and 5 discuss these arguments in more detail.

In September 2010, for example, the Central Intelligence Agency informed President Barack Obama of “a strong possibility” that Osama bin Laden was living in Abbottabad, Pakistan. Over the next several months, the CIA took extensive measures to learn whether Al Qaeda’s leader was really living inside the suspected compound. Though some of these measures produced suggestive evidence, none confirmed the identity of the reclusive man who slept on the building’s third floor. By April 2011, it was clear that if the United States were to strike the Abbottabad compound, this decision would have to be based on a probability assessment. President Obama thus asked his advisers to be explicit about what they thought “a strong possibility” entailed.

Answers to the president’s question varied widely. The leader of the CIA’s bin Laden unit said there was a ninety-five percent chance that bin Laden was living in the compound. CIA Deputy Director Michael Morell placed his own estimate at sixty percent. “Red Teams” assigned to make skeptical arguments offered figures as low as forty percent. Other views reportedly clustered around seventy or eighty percent. While accounts of this meeting vary, all of them stress that the participants were uncomfortable making these estimates, and that they were at a loss for knowing how to resolve their disagreement. In a subsequent interview, President Obama said that these judgments “disguised uncertainty as opposed to actually providing you with more useful information.”

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13 Bowden, The Finish, pp. 160-161; Bergen, Manhunt, p. 198; Sanger, Confront and Conceal, p. 93.
I know of no other case where such an important national security decision hinged on disagreements about quantifying probability estimates. But what is unusual about this episode is how directly national security officials acknowledged their confusion in assessing probability, and not the substance of their disagreement itself. Virtually all national security decisions require assessing uncertainty, and any effort to elicit opinions on a controversial subject will reveal different viewpoints. Reconciling this kind of ambiguity is not some academic thought experiment: it is one of the most generalizable challenges of high-stakes decision making. If President Obama and his advisers struggled to manage this issue, even when addressing the subject explicitly in one of the Obama administration’s seminal decisions, this reveals a fundamental problem with a broad potential reach.

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The central tension of probability assessment in national security decision making is that the most important judgments also tend to be the most subjective. In other words, analytic precision often seems hardest to justify in the circumstances where it would also be most valuable. Hence many scholars and practitioners of national security, who would presumably never tolerate a meteorologist predicting “a fair chance” of rain, hesitate to provide any more detail when debating the probability that major policies will succeed.

Yet the subjectivity of these judgments does not diminish their importance. Logically speaking, it is impossible to justify any action without believing that its chances of success are high enough to make expected benefits exceed expected costs. The question is thus not whether to assess
probability when debating national security decisions, but \textit{how} to make these judgments as meaningful as possible. Answering that question requires building conceptual foundations for understanding the principles of probability assessment in a field as complex as national security, and then studying empirical evidence on how well analysts and decision makers can meet this challenge in practice. That is the goal of this book.

From a theoretical standpoint, I show that even if all probability assessments in national security decision making are inherently subjective, they can still be described in clear and structured ways, including through the use of quantitative expressions if analysts wish to use them. I explain how to manage the kinds of ambiguity that President Obama encountered in the Abbottabad debate, and how decision makers can use those probability assessments to structure difficult choices. Furthermore, I demonstrate that national security decision making involves genuine analytic challenges that decision makers cannot logically resolve without detailed probabilistic reasoning. In this sense, my theoretical argument is not just that national security officials have a coherent conceptual basis for assessing subjective probabilities, but that there are cases where it is virtually impossible to make rigorous decisions without confronting this challenge head on.

From an empirical standpoint, I investigate the extent to which real people can implement these ideas. Though skeptics raise plausible arguments about how analytic, psychological, or political constraints prevent national security officials from making sound probability assessments, few international relations scholars have translated this skepticism into falsifiable claims, let alone subjected those claims to direct testing.\footnote{The most relevant existing studies of this subject involve research by Barbara Mellers and Philip Tetlock on why some foreign policy analysts provide more accurate geopolitical forecasts than others. Chapter 3, in particular, discusses and expands upon their work. For more on this research program, see Philip E. Tetlock, \textit{Expert Political Judgment: How Good Is It? How Can}
using a combination of case studies and experimental evidence, including survey experiments administered to national security professionals. This evidence indicates that national security analysts can reliably parse their probability assessments with numeric precision; that this level of detail does not bias decision makers in ways that skeptics fear; and that explicit assessments of uncertainty do not expose national security officials to excessive criticism. Throughout my research, I found little evidence substantiating widespread doubts about the value of probability assessment in national security decision making. By contrast, this book supports the argument that scholars, practitioners, and other observers could improve the quality of national security discourse by debating their probabilistic judgments more directly.

Altogether, this book thus presents an optimistic message: I argue that the conventional wisdom underestimates the capability of analysts, decision makers, and the general public to tackle the challenges of probability assessment in national security. This is not to say that probability assessment in national security decision making is easy. Throughout the following chapters, we will see many examples, as with debates from the Bay of Pigs to Abbottabad, where thoughtful leaders struggled to assess uncertainty in high-stakes scenarios. By the end of this book, I hope that readers will see these examples as being problematic not just because they indicate vagueness or confusion in their own right, but because it is genuinely possible to do better.

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Though I expand upon this book’s contributions to international relations scholarship below, there are two main reasons why the book’s subject should interest a broad audience. First, any informed observer of national security policy must wrestle with the challenge of assessing probability. Disagreements about strategic rebalancing towards East Asia, for instance, reflect differing assumptions about the extent to which bolstering U.S. presence in the region might increase or decrease the chances of armed conflict with China. Debates over nuclear negotiations with Iran require estimating the probability that Tehran will implement its part of the bargain in good faith. Over the past fifteen years, the United States government has spent more than one trillion dollars on domestic homeland security and committed an estimated six trillion dollars to waging wars in Iraq and Afghanistan, in addition to the human costs that soldiers and civilians have borne in those conflicts. The most common argument used to justify these sacrifices is that they have reduced the probability of suffering major terrorist attacks in the future. Yet participants in these debates almost never discuss these kinds of assumptions explicitly.

Thus while most of the examples in this book involve the behavior of government officials, the challenge of probability assessment surrounds a broader public discourse. Nearly every essay, interview, or conversation about national security policy – and certainly every recommendation for how national security policy can be improved – involves probabilistic reasoning in some form or another. And the book’s most generalizable implication is that any time scholars, practitioners, or other observers leave key probability assessments vague, it is usually possible to make those

claims more meaningful. Readers should be especially skeptical of policy advocates who are unable or unwilling to describe the chances that their favored policies will succeed. Though many skeptics doubt the value of making these judgments explicit, this book shows how the main sources of that skepticism do not withstand direct scrutiny.

A second reason why I hope that this book will interest a broad readership is that debates about the nature and limits of probability assessment, including the specific issue of how analysts should articulate degrees of certainty, appear in any area of public policy, and indeed throughout daily life. Medical decisions require assessing uncertainty surrounding contentious diagnoses or treatment options. Yet physicians, like national security analysts, can be reluctant to describe this uncertainty directly when speaking with their patients. By law, some government agencies are required to quantify the degree to which they expect proposed regulations to reduce the probability of unfavorable outcomes. Some critics find this practice to be absurd and potentially counterproductive.

In one of the most salient examples of how vague probability assessments shape civil society, the U.S. criminal justice system reaches verdicts by asking jurors to determine whether the probability of a defendant’s guilt lies “beyond a reasonable doubt.” Judges, juries, and attorneys

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hold widely varying views of what this standard means. Some of the ways that “beyond a reasonable doubt” has been described in court include “60 percent,” “kind of like 75 percent,” “somewhere between the 75 and 90 yard line on a 100-yard-long football field,” and “a 1,000 piece puzzle with sixty pieces missing.”¹⁹ One survey asking federal judges to quantify the “beyond a reasonable doubt” standard produced answers that had a minimum of fifty percent, a maximum of one hundred percent, an average of ninety percent, and a standard deviation of eight percentage points.²⁰ A related survey of jurors found several real juries in which a majority of members believed that a seventy percent probability of guilt lay beyond a reasonable doubt.²¹ These seemingly arbitrary interpretations of probability raise troubling concerns about the application of criminal justice. But as in the domain of national security, many legal scholars and practitioners question whether making probability assessments more explicit would actually improve major decisions.

The analysis in this book focuses on national security, and empirical findings from one domain do not translate directly into others. Yet this book’s theoretical framework and empirical methodology can be extended to nearly any area other discipline. And to the extent that national security is typically understood as being unusually complex, this subject matter should represent a high degree of difficulty for improving the quality and rigor of probabilistic reasoning. This is another sense in which the book offers optimistic findings, suggesting that other disciplines might

also benefit from revisiting their own skepticism about the conceptual and empirical basis for probability assessment in high-stakes decision making.

**Probability assessment and international relations scholarship**

This book makes several contributions to the study of national security decision making. I describe how national security officials are consistently and deliberately vague in how they assess probability, and how this enables leaders to make risky choices without submitting them to careful scrutiny. I merge general insights from decision theory with the specific problems of national security policy making to explain how scholars and practitioners can assess probability in structured ways, and to show how international relations theorists often overlook genuine analytic challenges of evaluating national security policy. And I provide empirical evidence showing that national security professionals and the broader public are more competent at tackling these challenges than what the conventional wisdom assumes. These claims are relevant to the conduct of virtually any debate over national security policy. In addition, the book speaks to two broader areas of contemporary international relations scholarship: the question of what it means to make a rational decision, and controversy over the limits of analytic rigor in mitigating behavioral flaws.

**Probability and rationality in national security decision making**

Rational actors seek to maximize expected value. Estimating expected value requires analyzing how different actions might influence the chances of obtaining positive or negative outcomes. Virtually any theory of rational decision making thus depends on assumptions about how
individuals perceive uncertainty.\textsuperscript{22} Similarly, almost every major theory of international relations advances some conception of how leaders react to uncertainty when making high-stakes decisions.\textsuperscript{23}

But what makes those perceptions of uncertainty meaningful in the first place? If skeptics are correct in arguing that probability assessments are essentially meaningless in a domain as complex as national security, then this raises a potentially serious barrier between theorizing about what rational decision making entails in principle, and determining what that standard means in practice. Indeed, if there is no meaningful way to resolve the ambiguity that surrounds probability assessment in national security decision making, then nearly any action in this domain could be characterized as leaders pursuing what they perceived to be sufficiently-large chances of achieving sufficiently-important objectives. The concept of self-interest, and any theories of international behavior that depend on this concept, would thus be indeterminate.\textsuperscript{24}

Yet resolving this problem ultimately lies outside the boundaries of rational choice theory itself. While rational choice theory can explain how individuals should act in a manner that is consistent with their preferences and beliefs, it cannot say how individuals should form those preferences and beliefs to begin with. Indeed, many scholars might argue that this “bracketing” of probabilistic assumptions is a feature and not a bug of the rationalist enterprise. If the rational choice modeler’s


\textsuperscript{23} Chapter 6 focuses, in particular, on the role of probability assessment in the “bargaining model of war”: a theoretical framework that explains how combatants’ perceived chances of military victory should structure their approach to coercive bargaining. On how every major research tradition in international relations stakes claims about how leaders respond to uncertainty, see Rathbun, “Uncertain about Uncertainty” and Brooks, “Dueling Realisms.”

\textsuperscript{24} See Chapter 2 for more on this point, along with Betts, “Is Strategy an Illusion?”
goal is to create precise, objective inferences, then one must consciously avoid making claims that rely on subjective judgment. And since virtually all important probability assessments in national security decision making rely on subjective judgment, rational choice theorists are essentially obligated to treat the nature of these assumptions as a black box.

Far from being esoteric, these questions about the nature and limits of probability assessment matter for anyone who seeks to evaluate or to explain national security decisions. In order to show that a national security decision was influenced by politics, psychology, organizational behavior, or any other nonrational factor, it is necessary to explain why a rational actor should have behaved differently. Without establishing this claim, there is no behavioral puzzle to analyze, no reason to believe that a decision was guided by anything besides the pursuit of self-interest under uncertainty.\(^\text{25}\) Put differently, scholars have no logical basis for critiquing any national security decision without assuming that they can also distinguish between probability assessments that are reasonable and those that are not.\(^\text{26}\) In this respect, scholars from any major research tradition in international relations should have an interest in opening up the black box of probability


\(^{26}\) Indeed, given how calculations of expected value represent the product of probability assessments and outcome valuations, scholars’ ability to evaluate the quality of a national security decision is directly proportional to their ability to debate probability assessments with meaningful detail.
assessment and understanding the extent to which it is possible to treat this subjective enterprise in structured and meaningful ways.

*Heuristics, biases, and the limits of rigor*

Debates about probability assessment in national security also play an important role in framing contemporary scholarship on the political psychology of foreign policy decision making. Following a broader trend of exploring cognitive influences on behavior throughout the social sciences, international relations scholars have demonstrated that national security officials are subject to a broad range of heuristics and biases. For example, this research indicates that leaders’ perceptions can be distorted by prior assumptions and misleading analogies, that their policy evaluations can be skewed by emotions or overconfidence, and that they display consistent tendencies to neglect key aspects of uncertainty when making high-stakes decisions.

One reason why this scholarship is significant is because it suggests that if analysts and decision makers scrutinized their assumptions more carefully, then it would be possible to improve the

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quality of national security decisions. But in order to do this – especially when dealing with a subject that is as abstract and complex as probability – one must assume that there is value to parsing key judgments in a structured manner. While deliberative reasoning does not necessitate quantification, it does require making some attempt to clarify critical assumptions, which thereby conflicts with the widespread notion probability assessments in national security decision making inherently resist definition.

This tension can be expressed in either of two ways. A relatively benign interpretation of the problem is that if analytic precision is meaningless when assessing probability, then attempts to scrutinize those assumptions would do little to improve decision making. A second, more concerning possibility is that attempts to clarify probabilistic reasoning could end up exchanging one set of biases for another, thereby making national security decisions worse. For this reason, many national security officials believe that they are better off basing major choices on intuitive

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30 The psychologist Daniel Kahneman has famously referred to this distinction as between thinking “fast” (intuitive judgments guided by heuristics), and thinking “slow” (more deliberately, analytically-oriented reasoning). See Daniel Kahneman, *Thinking Fast, and Slow* (New York: Farrar, Straus and Giroux, 2011).

judgments, and that efforts to make this reasoning more transparent would only be counterproductive.32

The stakes involved in this controversy are substantial. Over the past two decades, many of the most serious problems with U.S. foreign policy have revolved around the challenges of assessing uncertainty. Senior leaders underestimated the threat of foreign terrorist attacks prior to 2001, overestimated the chances that Saddam Hussein was pursuing weapons of mass destruction in 2003, and did not foresee the challenges that resulted from pursuing regime change in Afghanistan, Iraq, or Libya. It is possible that these flaws are simply unavoidable in a domain that is as complex as national security decision making. But that hypothesis deserves to be tested. Doing so requires analyzing the conceptual and empirical foundations of probability assessment in national security decision making, and that is the goal of this book.

**Key concepts and scope conditions**

Because probability is an abstract concept, it is important to define some key terms up front. One important distinction is between risk versus uncertainty. Risk involves probabilities that can be estimated objectively, as when rolling dice or playing card games. Uncertainty applies to cases where reasonable people can disagree about what the “correct” probability assessment entails.

As I explain more thoroughly in Chapter 2, virtually all probability assessments in national security involve uncertainty and thus depend on subjective judgment. I stress this point in order to clarify that while I will argue that it is feasible and desirable (and in some cases, logically necessary) to assess probability explicitly, this does not imply that national security analysts should place greater emphasis on the use of mathematics or statistical inference. Many scholars and practitioners are skeptical of making probability assessments more precise because they believe this suggests replacing professional judgment with impersonal, rule-bound analysis. Yet the position I advance in this book is the very opposite. I argue that even when national security analysts form probability assessments using structured analytic techniques, those estimates still represent subjective, personal opinions.

Another important distinction for the purposes of this book is between probability versus confidence. Probability indicates the chances that a statement is true. Confidence then describes the extent to which an analyst believes that she has a sound basis for assessing uncertainty. For example, a coin flip has a fifty percent probability of coming up heads, and most people would have high confidence in making this estimate. While it is important to distinguish probability and

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34 Richard Zeckhauser and I have further parsed the concept of analytic confidence into three attributes of any assessment of uncertainty: the availability of reliable evidence supporting a judgment, the range of reasonable opinion surrounding that judgment, and the extent to which analysts expect their judgment might change in response to new information. For a discussion of these concepts within the context of intelligence analysis and national security decision making,
confidence when assessing uncertainty, we will see in Chapter 3 how it is easy to conflate these terms.

A *probability assessment* is distinct from a *probability belief*. As I use those terms in this book, beliefs are how individuals see the world, and assessments are how they communicate those beliefs to others. Any numerical percentage (for example, “twenty-five percent”), odds ratio (“three-to-one”) or frequency statement (“one-in-four”) represents a probability assessment. So do qualitative expressions such as “a serious possibility” that bin Laden is at Abbottabad or “a fair chance” of success at the Bay of Pigs. Estimative verbs such as “I believe” or “we judge” constitute probability assessments, too, because they communicate the presence of uncertainty.

It is thus important to establish that “probability assessment,” as I use the term, does not require using numeric expression. While writing this book, I encountered many national security professionals who argued that they did not “do” probability assessment, and thus that my research did not apply to their experiences. But this critique is mainly semantic. While many public officials do not make their probability assessments *explicit*, there are few aspects of national security decision making where probabilistic reasoning does not play a meaningful role.

Following a standard distinction in the decision sciences, I refer to individuals who are communicating probability assessments as *analysts* and individuals who are interpreting probability assessments as *decision makers*. These terms thus have relational meanings. For example, the Secretary of Defense is an analyst when reporting to the President and a decision maker when reading intelligence assessments. I also use the term “analyst” in a broad sense,

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referring not just to government officials, but also scholars, pundits, and other observers who participate in national security discourse.

Finally, it is important to note that there is a conceptual distinction between assessing probability versus assessing uncertainty, and that the former is just one component of the latter. Any decision under uncertainty requires assessing probability, but rigorous decision making also requires identifying the range of different outcomes than an action could cause, assigning costs and benefits to each of those outcomes, and judging the potential value of delaying action or gathering additional information.\(^{35}\) Defining costs and benefits may often be more challenging than estimating probabilities, since the national interest involves a broad spectrum of factors that are difficult to measure individually, let alone to weight and combine into some basic index of utility.\(^{36}\) Thus sound probability assessments do not guarantee sound decisions. Of course, one should still seek to understand and to improve probability assessments wherever possible.

**Chapter outline**

The remainder of the book proceeds in seven chapters. Chapter 1 describes how national security officials often avoid debating the probabilistic foundations of major decisions, and presents a typology of problems that this vagueness can cause. I explain that, when national security officials


do not assess the probabilistic foundations of major decisions directly, high-level policy debates can drift away from rational cost-benefit analysis towards weaker standards for justifying costly actions. To demonstrate this problem, I present a case study of how U.S. officials debated escalating the Vietnam War. If any group of officials could be expected to confront difficult analytic challenges explicitly, it would have been Secretary of Defense Robert McNamara and the “Whiz Kids.” Nevertheless, I show how the manner in which these individuals assessed probability when debating military escalation in Vietnam primarily revolved around determining how to maximize their chances of success as opposed to studying whether those chances were actually large enough to justify their strategy. This behavior represents a clear divergence between the theory and practice of national security decision making, even as the Vietnam War decision makers understood the rationalist standard themselves.

Chapter 2 examines the conceptual basis for assessing probability in national security decision making. One reason why many scholars and practitioners are uncomfortable addressing this challenge explicitly is because they believe that probability assessments in national security are simply too subjective to be meaningful. Yet I explain in Chapter 2 how national security analysts can always form and communicate these subjective assessments precisely. The fact that these assessments represent personal beliefs as opposed to objective statements of reality is, in fact, the principal reason why analytic precision is theoretically coherent, as analysts are always in a position to describe their own personal convictions however precisely they like. Thus when scholars, practitioners, and other participants in national security debates leave their probability assessments vague, this should be seen as representing a conscious choice not to provide clearer information.
Chapter 3 explores whether making probability assessments more precise would actually make them more informative. Even if probabilistic precision is theoretically coherent, skeptics might argue that it is still empirically meaningless: that crude distinctions are the best that one can hope for and that extra precision only represents random noise. To provide the first systematic test of this claim, I teamed up with the Good Judgment Project, a research program that collected nearly one million geopolitical forecasts in a four-year study supported by the U.S. Director of National Intelligence. These data demonstrate that a broad range of foreign policy analysts possess a reliable ability to parse their probability assessments more finely than what the conventional wisdom (and official analytic standards) allow. These findings imply that when scholars, practitioners, and other participants in national security debates leave their probability assessments vague, this should be seen not just as a choice, but as a choice that systematically sacrifices meaningful information.

Chapter 4 examines two common arguments about how making clear probability assessments could warp the psychology of national security decision making. The first of these arguments is that probabilistic precision creates harmful illusions of rigor; the second argument is that asking analysts to translate subjective beliefs into quantitative language causes otherwise avoidable errors. To test these claims, I conducted a two-year study supported by the U.S. Department of Homeland Security and the National War College, administering survey experiments to a cross-section of more than six hundred national security professionals. These experiments showed that respondents were in fact more cautious, not more confident, when evaluating risky decisions based on explicit probability assessments. And while I found that some assessors struggled to quantify subjective probabilities, I found that just a few minutes of structured feedback substantially mitigated that problem. These results again refute skeptical claims that national security analysts and decision makers are unequipped to confront the challenge of probability assessment directly.
Chapter 5 addresses the widespread belief that making clear probability assessments would expose national security officials to excessive criticism from their colleagues or from the general public. While many scholars and practitioners assume that blame avoidance constrains assessments of uncertainty, I explain how critics can exploit vague judgments, too, by making ambiguous judgments seem more mistaken than they really were. Reviewing nineteen cases of perceived U.S. intelligence failures, I argue that analysts would almost always have had greater opportunities to defend themselves against subsequent criticism by making their judgments more precise. Then I present the results from a nationally-representative survey experiment showing that the general public does not reward national security analysts for making their assessments strategically cautious or intentionally vague. Indeed, I found that respondents evaluated probability assessments in a manner that was remarkably similar to what decision theorists call a “proper scoring rule,” providing additional evidence that the conventional wisdom underrates individuals’ intuitive abilities to confront the challenges of probability assessment.

Chapter 6 transitions from asking how national security analysts can meaningfully assess uncertainty to explaining what those assessments imply for making high-stakes decisions. In many cases, national security decision makers appear to struggle with understanding how to handle probability assessments. The notion that probabilistic reasoning does not directly support tough decisions is indeed another reason why scholars and practitioners are skeptical of the enterprise to begin with. But I explain in this chapter how national security officials who are willing to make explicit probability assessments can then use this information to structure hard choices. More importantly from a theoretical standpoint, I argue that the cumulative nature of many national security issues, such as evaluating strategic progress in war, presents genuine analytic challenges that decision makers cannot logically solve without scrutinizing probability assessments in detail.
In this sense, I argue that explicit probability assessments are not just feasible and desirable but that they are also sometimes logically necessary in order to rigorously evaluate major national security policies.

Chapter 7 concludes by exploring practical opportunities for improving the quality of probabilistic reasoning in national security debates. In particular, I explain how multiple advocacy can play an important role in pressing proponents of major decisions to justify the probabilistic foundations of their arguments. In this respect, I argue that the goal of improving probability assessment in national security decision making is not just an issue for government officials, but that it is also a matter of how scholars, journalists, and pundits can raise the standards of public discourse. If it is possible to improve the quality of this discourse by even a small amount, then this could bring major aggregate benefits – for as President Obama reflected when the bin Laden raid was over, “One of the things you learn as president is that you’re always dealing with probabilities.”

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