War and Chance
Assessing Probability in International Politics

Jeffrey A. Friedman
Assistant Professor of Government
Dartmouth College

jeffrey.a.friedman@dartmouth.edu
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Over the past two decades, the most serious problems in U.S. foreign policy have revolved around the challenge of assessing uncertainty. Leaders underestimated the threat of foreign terrorist attacks before 2001, overestimated the chances that Saddam Hussein was pursuing weapons of mass destruction in 2003, and did not fully appreciate the risks of pursuing regime change in Iraq, Afghanistan, or Libya. Many of this generation’s most consequential events, such as the 2008 financial crisis, the Arab Spring, the rise of ISIS, and Brexit, were outcomes that experts either confidently predicted would not take place or failed to anticipate entirely. These experiences offer harsh reminders that scholars and practitioners of international politics are much less clairvoyant than we would like them to be.

The central problem with assessing uncertainty in international politics is that the most important judgments also tend to be the most subjective. No known methodology can reliably predict the outbreak of wars, forecast economic recessions, project the results of military operations, anticipate terrorist attacks, or estimate the countless other probabilities that shape foreign policy decisions.¹ Many scholars and practitioners therefore argue that it is better to keep

¹ On how irreducible uncertainty surrounds most major foreign policy decisions, see Robert Jervis, System Effects: Complexity in Political and Social Life (Princeton, N.J.: Princeton
foreign policy debates focused on the facts – that it is, at best, a waste of time to debate assessments of uncertainty that will often prove to be wrong. A stronger and more worrying version of this skepticism holds that attempting to assess uncertainty in international politics can backfire, surrounding subjective judgments with illusions of rigor, exposing analysts to excessive criticism, or making policy choices unnecessarily confusing.

These arguments raise basic questions about the conduct of foreign policy analysis. How is it possible to draw coherent conclusions – let alone precise judgments – about something as complicated as the probability that a military operation will succeed? If these judgments are inherently subjective, then how can they be useful? To what extent can fallible people handle this challenge, particularly given the psychological constraints and political pressures that surround foreign policy decision making? These are not just policy questions: they are social science questions, and they are the focus of this book.

From a theoretical standpoint, this book explains how foreign policy analysts can assess subjective probabilities in clear and structured ways; how foreign policy decision makers can use these judgments to evaluate high-stakes choices; and how there are some cases where it is nearly impossible to make sound foreign policy decisions without assessing subjective probabilities in

detail. The book’s empirical chapters then demonstrate that real people are remarkably capable of putting these concepts into practice. We will see that subtle distinctions in subjective probabilities convey meaningful information about international politics; that presenting this information explicitly encourages decision makers to be more cautious when placing lives and resources at risk; and that, even if criticism directed towards foreign policy analysts is often exaggerated and unfair, this does not necessarily distort those analysts’ incentives to provide clear and honest judgments.

Altogether, the book thus explains how foreign policy analysts can assess uncertainty in a manner that is theoretically coherent, empirically meaningful, politically defensible, practically useful, and sometimes logically necessary for making sound choices. Each of these claims contradicts widespread skepticism about the value of probabilistic reasoning in international politics. The book substantiates this argument by examining critical episodes in the history of U.S. national security policy and by drawing upon a diverse range of quantitative evidence, including a database containing nearly one million geopolitical forecasts and experimental studies involving hundreds of national security professionals.

The clearest benefit of placing greater emphasis on assessing uncertainty in international politics is that this can help to prevent policymakers from taking risks that they do not fully

2 Here and throughout the book, I use the term “foreign policy analysts” to describe anyone who seeks to inform foreign policy debates. This includes Cabinet officers making recommendations to the president in the White House Situation Room, intelligence officers writing reports, scholars publishing op-eds in the New York Times, and pundits debating current events on television, to give just a few examples.
understand. Prior to authorizing the Bay of Pigs invasion in April 1961, for example, President Kennedy asked his Joint Chiefs of Staff to evaluate the plan’s feasibility. The Joint Chiefs submitted a report that detailed the operation’s strengths and weaknesses, and summed up by stating that “this plan has a fair chance of ultimate success.” In the weeks that followed, high-ranking officials repeatedly referenced the Joint Chiefs’ judgment when debating whether or not to set the Bay of Pigs invasion in motion. The problem was that no one seemed to have a clear idea of what that judgment actually meant.

The officer who wrote the Joint Chiefs’ report on the Bay of Pigs invasion later said that the “fair chance” phrase was supposed to be a warning, much like a letter grade of C indicates “fair performance” on a test. That is also how Secretary of Defense Robert McNamara recalled interpreting the Joint Chiefs’ views. But other leaders read the report differently. When Marine

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4 When the historian Peter Wyden interviewed this officer fifteen years later, he found that “[then-Brigadier General David] Gray was still severely troubled about his failure to have insisted that figures [i.e. numeric percentages] be used. He felt that one of the key misunderstandings in the entire project was the misinterpretation of the word ‘fair.’” Gray told Wyden that the Joint Chiefs believed that the odds of the invasion succeeding were roughly three-in-ten. Peter Wyden, *Bay of Pigs: The Untold Story* (New York: Simon and Schuster, 1979), pp. 88-90.

5 In an after-action review conducted shortly after the Bay of Pigs invasion collapsed, McNamara said that he knew the Joint Chiefs thought the plan was unlikely to work, but that he had still
Corps Commandant David Shoup was later asked to say how he had interpreted the “fair chance” phrase, he replied that “the plan they had should have accomplished the mission.”6 Proponents of the invasion repeatedly cited the “fair chance” assessment in briefing materials.7 President Kennedy also came to believe that his military advisers had endorsed the plan, and after the invasion collapsed, he wondered why no one had offered him a clearer warning about the chances that this mission might fail.8

believed this was the best opportunity the United States would get to overthrow the Castro regime. “Memorandum for the Record,” FRUS 1961-1963, Vol. X, doc 199 (3 May 1961).


8 President Kennedy later complained to an aide that the Joint Chiefs “had just sat there nodding, saying it would work.” In a subsequent interview, Kennedy recalled that, “five minutes after it began to fall in, we all looked at each other and asked, ‘How could we have been so stupid?’ When we saw the wide range of the failures we asked ourselves why it had not been apparent to somebody from the start.” Richard Reeves, President Kennedy: Profile of Power (New York: Simon and Schuster, 1993), p. 103; Hugh Sidey, “The Lesson John Kennedy Learned from the Bay of Pigs,” Time, Vol. 157, No. 15 (2001).
Regardless of the insight that the Joint Chiefs provided about the strengths and weaknesses of the Bay of Pigs invasion, their advice thus amounted to a Rorschach test: it allowed readers to adopt nearly any position they wanted, and to believe that those positions enjoyed the backing of the military’s top brass. This is just one of many cases we will see throughout the book of how failing to assess uncertainty in clear and structured ways can undermine foreign policy decision making. Yet, as the next example shows, the challenge of assessing uncertainty in international politics runs much deeper than semantics, and it cannot be solved through clearer language alone.

In April 2011 – almost exactly 50 years after the Bay of Pigs invasion – President Barack Obama convened his senior national security team to discuss reports that Osama bin Laden might be living in Abbottabad, Pakistan. Intelligence analysts had studied a suspicious compound in Abbottabad for months. They had clear evidence connecting this site to al Qaeda, and they knew that the compound housed a tall, reclusive man who never left the premises. Yet it was impossible to be certain about who that person really was. If President Obama was going to act on this information, he knew that he would have to base that choice on assessments of probability. In an effort to make this judgment as rigorous as possible, President Obama asked his advisers to estimate the chances that bin Laden was living in the Abbottabad compound.⁹

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⁹ The following account is based on Michael Morell, *The Great War of Our Time: the CIA’s Fight Against Terrorism from Al Qa’ida to ISIS* (New York: Twelve, 2014), ch. 7, along with David Sanger, *Confront and Conceal: Obama’s Secret Wars and Surprising Use of American Power* (New York: Crown 2012); Peter Bergen, *Manhunt: The Ten-Year Search for Bin Laden*
Answers to the president’s question ranged widely. The leader of the Central Intelligence Agency’s (CIA) bin Laden unit said there was a ninety-five percent chance that they had found their man. CIA Deputy Director Michael Morell thought that those chances were more like sixty percent. “Red Teams” assigned to make skeptical arguments offered figures as low as thirty or forty percent. Other views reportedly clustered around seventy or eighty percent. While accounts of this meeting vary, all of them stress that participants did not know how to resolve their disagreement and that they did not find this discussion to be helpful. President Obama reportedly said at the time that this debate had provided “not more certainty but more confusion.” In a subsequent interview, he told a reporter that his advisers’ probability estimates had “disguised uncertainty as opposed to actually providing you with more useful information.”

Of course, President Obama’s decision to raid the Abbottabad compound turned out more successfully than President Kennedy’s decision to invade the Bay of Pigs. Yet the confusion that President Obama and his advisers encountered when assessing uncertainty was, in many ways, more worrisome. The problem with the Joint Chiefs’ assessment of the Bay of Pigs invasion was


10 Reflecting later on this debate, then-Director of National Intelligence James Clapper said, “we put a lot of discussion [into] percentages of confidence, which to me is not particularly meaningful. In the end it’s all subjective judgment anyway.” CNN, “The Axe Files,” Podcast Ep. 247 (31 May 2018).

11 Bowden, The Finish, pp. 160-161; Bergen, Manhunt, p. 198; Sanger, Confront and Conceal, p. 93.
a simple matter of semantic confusion. By contrast, the Obama administration’s efforts to estimate the chances that bin Laden was living in Abbottabad revealed a more fundamental conceptual confusion. Even when foreign policy officials attempted to debate the uncertainty that surrounded one of their seminal decisions, they still struggled to understand what these judgments meant and how they could be useful.

This book seeks to dispel that confusion. The following chapters describe the conceptual basis for assessing probability in international politics; explain how those judgments provide crucial insight for evaluating foreign policy decisions; and show that the conventional wisdom underestimates the extent to which these insights can improve foreign policy discourse. To be clear, nothing in this book implies that assessing uncertainty in international politics should be easy or uncontroversial. The book’s main goal is, instead, to show that scholars and practitioners handle this challenge best when they confront it head-on, and that there is no reason why these debates should seem baffling or intractable. Even small advances in understanding this subject matter could provide substantial benefit – 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.”

Subjective probability and its skeptics

The military theorist Carl von Clausewitz wrote that “war is a matter of assessing probabilities” and that “no other human activity is so continuously or universally bound up with chance.”\(^\text{13}\) Clausewitz believed that assessing this uncertainty required considerable intellect, as “many of the decisions faced by the commander-in-chief resemble mathematical problems worthy of the gifts of a Newton or an Euler.” Yet Clausewitz argued elsewhere that “logical reasoning often plays no part at all” in military decision making and that “so-called mathematical, factors never find a firm basis in military calculations.”\(^\text{14}\)

Though Clausewitz is famous for offering inscrutable insights about many aspects of military strategy, his views of probability do not contradict each other, and they help to frame the contents of this book. From a logical standpoint, it is impossible to support any foreign policy decision without believing that its chances of success are large enough to make expected benefits outweigh expected costs. And that logic has rules. Probability and expected value are both quantifiable concepts that obey mathematical axioms. Yet those axioms can only instruct decision makers about how to behave in a manner that is consistent with their personal beliefs.


Rationalist logic cannot explain how people should form those beliefs in the first place, particularly not when dealing with subject matter that involves as much complexity, secrecy, and deception as international politics. The fundamental basis for any foreign policy decision thus rests with individual, subjective judgment.

Many scholars and practitioners see little value in debating these subjective judgments, and we will encounter a range of arguments to that effect throughout the book. Broadly speaking, we can divide those arguments into three camps. I will refer to these camps as the agnostics, the rejectionists, and the cynics.

The agnostics argue that assessments of uncertainty in international politics are too unreliable to be useful. Taken to its logical extreme, this argument suggests that foreign policy analysts can never make rigorous judgments about a policy’s likely outcomes. As stated by the current U.S. Secretary of Defense, James Mattis, “it is not scientifically possible to accurately predict the

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outcome of [a military] action. To suggest otherwise runs contrary to historical experience and the nature of war.”

This view carries sobering implications for foreign policy discourse. If it is impossible to predict the results of foreign policy decisions, then it is also impossible to say that one choice has a higher chance of succeeding than another. This stance would render most policy debates meaningless, while undermining a vast range of international relations scholarship. If there is no rigorous way to evaluate foreign policy decisions on their merits, then there can also be no way to define rational behavior, as all choices could plausibly be characterized as leaders pursuing what they perceived to be sufficiently large chances of achieving sufficiently important objectives. Since this would make it impossible to prove that any decision did not promote the

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national interest, there would also be no purpose in arguing that any high-stakes decisions were driven by nonrational impulses.¹⁸

A weaker and more plausible version of the agnostic viewpoint accepts that assessments of subjective probability provide some value, but only at broad levels of generality. As Aristotle put it, “the educated person seeks exactness in each area to the extent that the nature of the subject allows.”¹⁹ And perhaps that threshold of “allowable exactness” is extremely low when it comes to assessing uncertainty in international politics. Leaving these judgments vague could thus be seen as displaying appropriate humility rather than avoiding controversial issues.²⁰ Chapters 2 and 3 explore the theoretical and empirical foundations of this argument in detail.

The rejectionist viewpoint claims that transparent probabilistic reasoning is not just misguided, but that it is also actively counterproductive in foreign policy discourse. This


¹⁹ Aristotle, Nicomachean Ethics tr. Terence Irwin (Indianapolis, Ind.: Hackett, 1985), 1094b.

²⁰ For arguments exhorting foreign policy analysts to adopt such humility, see Stanley Hoffmann, Gulliver’s Troubles: Or, the Setting of American Foreign Policy (New York: McGraw-Hill, 1968), pp. 87-175; David Halberstam, The Best and the Brightest (New York: Random House, 1972).
argument is rooted in the fact that foreign policy is not made by rational automata, but rather by human beings who are susceptible to political pressures and cognitive biases.\textsuperscript{21} Chapter 4, for example, describes how scholars and practitioners often worry that clear probability assessments could surround arbitrary opinions with illusions of rigor.\textsuperscript{22} Chapter 5 then examines common claims about how transparent probabilistic reasoning exposes foreign policy analysts to unjustified criticism, thereby undermining their credibility and creating incentives to warp key judgments.\textsuperscript{23}

The rejectionist viewpoint is important because it implies that there is a major gap between what rigorous decision making entails in principle, and what fallible individuals can achieve in

\begin{itemize}
\item \textsuperscript{23} Chapter 5 explains how this impulse is not purely self-serving. If national security analysts lose the trust of their colleagues or the general public as a result of unjustified criticism, then this can undermine their effectiveness regardless of whether that loss of standing is deserved. If analysts seek to avoid probability assessment in order to escape \textit{justified} criticism, then this would reflect the “cynical” viewpoint described below.
\end{itemize}
practice when confronting high-stakes issues. That claim alone is unremarkable in light of the growing volume of scholarship that documents how heuristics and biases can undermine foreign policy decisions.\textsuperscript{24} Yet, in most cases, scholars believe that the best way to mitigate these cognitive flaws is to employ clear and structured reasoning.\textsuperscript{25} By contrast, the rejectionists suggest that attempts to impose clarity and structure on assessments of uncertainty can backfire, exchanging one set of biases for another in a manner that would only make decisions worse. This viewpoint raises fundamental questions about the extent to which traditional conceptions of analytic rigor provide a viable basis for foreign policy discourse.\textsuperscript{26}


\textsuperscript{25} Daniel Kahneman famously captures this insight with the distinction between “thinking fast” and “thinking slow,” where the latter is less prone to heuristics and biases. Daniel Kahneman, \textit{Thinking, Fast and Slow} (New York: FSG, 2011). In national security specifically, see Richards Heuer, Jr., \textit{Psychology of Intelligence Analysis} (Washington, D.C.: Center for the Study of Intelligence, 1999).

\textsuperscript{26} Wendt, “Driving with the Rearview Mirror”; Stanley A. Renshon and Deborah Welch Larson eds., \textit{Good Judgment in Foreign Policy} (Lanham, Md.: Rowman and Littlefield, 2003); Peter
The cynics claim that foreign policy analysts and decision makers have self-interested motives to avoid assessing uncertainty. Political leaders who advocate on behalf of a preferred policy may deliberately conceal relevant doubts in order to make tough choices seem “clearer than truth.” Marginalizing assessments of uncertainty in these ways may also allow foreign policy analysts to escape reasonable accountability for mistaken judgments.

Having spoken with hundreds of practitioners while researching this book, I do not believe that this cynical behavior is widespread. My impression is instead that this behavior is


27 Dean Acheson, Present at the Creation: My Years at the State Department (New York: Norton, 1969), p. 375; John M. Schuessler, Deceit on the Road to War (Ithaca, N.Y.: Cornell University Press, 2015); Uri Bar-Joseph and Rose McDermott, Intelligence Success and Failure: The Human Factor (New York: Oxford University Press, 2017). In other cases, decision makers may prefer to leave assessments of uncertainty vague, so as to maintain freedom of action.


concentrated at the highest levels of government and punditry, whereas most foreign policy analysts and decision makers are committed to doing their jobs as rigorously as possible. Yet the prospect of cynical behavior, whatever its prevalence, only makes it more important to scrutinize the agnostic and rejectionist arguments. As Chapter 7 explains, the best way to prevent leaders from marginalizing or manipulating assessments of uncertainty is to establish a norm that favors placing those judgments front and center in high-stakes policy debates. It is impossible to establish this kind of norm – or to say whether that norm would even make sense to begin with – without dispelling other, plausible sources of skepticism about the value of assessing probability in international politics.

Though I will argue that this skepticism is overblown, it is easy to understand how that skepticism emerged. As noted at the top of this chapter, the history of international politics is full of cases in which scholars and practitioners misperceived or failed to recognize important elements of uncertainty. Yet there is an important difference between asking how good we are at assessing uncertainty on the whole, and determining how to address this subject as effectively

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as possible. Indeed, the worse our performance in this area becomes, the more priority we should place on preserving and exploiting whatever insight we actually possess. This book documents how a series of harmful practices and mistaken assumptions interfere with that goal. In that respect, the following chapters offer readers a critique of conventional wisdom along with an optimistic message: the reason to be concerned with existing approaches to assessing uncertainty in international politics is not just because the current state of affairs is surrounded by vagueness and confusion, but because it is genuinely possible to do better.

**Chapter outline**

The book contains seven chapters. Chapter 1 describes how foreign policy analysts often avoid assessing uncertainty in a manner that supports sound decisions. Concerns about this issue date back to a famous 1964 essay by Sherman Kent, which remains one of the seminal works in intelligence studies. But Chapter 1 explains how aversion to assessing uncertainty is not just a problem for intelligence analysts, and how this issue runs much deeper than semantics. Instead, we will see how scholars, practitioners, and pundits often debate international politics without assessing the most important probabilities at all, particularly by analyzing which policies offer the best prospects of success or by debating whether actions are necessary to achieve their objectives, without assessing the chances that high-stakes decisions will actually work. Chapter 1 shows how this behavior is ingrained throughout a broad range of foreign policy discourse, and

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then describes how these problematic practices shaped the highest levels of U.S. decision making during the Vietnam War.

Chapter 2 explores the theoretical foundations of assessing uncertainty in international politics. This chapter explains that, even though the most important assessments of uncertainty in international politics are inherently subjective, foreign policy analysts always possess a coherent conceptual basis for debating these issues in clear and structured ways. Chapter 3 then examines the empirical value of assessing uncertainty in international politics. By analyzing a database containing nearly one million geopolitical forecasts, this chapter shows that foreign policy analysts can reliably estimate subjective probabilities with numeric precision. Together, Chapters 2 and 3 refute the idea that there is some threshold of “allowable exactness” that constrains assessments of uncertainty in international politics. Avoiding these judgments or leaving them vague should not be seen as displaying appropriate analytic humility, but rather as a practice that sells analysts’ capabilities short and unnecessarily diminishes the quality of foreign policy discourse.

Chapter 4 examines the psychology of assessing uncertainty in international politics, focusing on concerns about how clear probabilistic reasoning could confuse decision makers or create harmful “illusions of rigor.” By presenting a series of survey experiments that involve more than six hundred national security professionals, this chapter shows that foreign decision makers’ choices are sensitive to subtle variations in probabilistic reasoning, and that making this reasoning more transparent encourages decision makers to be more cautious when placing lives
and resources at risk. Chapter 5 then explores the argument that assessing uncertainty in clear and structured ways would expose foreign policy analysts to excessive criticism. By combining experimental evidence with a historical review of perceived intelligence failures, this chapter suggests that the conventional wisdom about the “politics of uncertainty and blame” may actually have the matter exactly backwards: by leaving assessments of uncertainty vague, foreign policy analysts end up providing their critics with an opportunity to make key judgments seem worse than they really were.

Chapter 6 provides a closer look at how foreign policy decision makers can use subjective probability estimates to evaluate high-stakes choices. This chapter explains why transparent probabilistic reasoning is especially important in situations where leaders struggle to assess strategic progress. In some cases, it can actually be impossible to make rigorous judgments about the extent to which foreign policies are making acceptable progress without assessing subjective probabilities in detail. Chapter 7 concludes by exploring practical opportunities for improving

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32 One irony of these findings is that the national security officials who participated in these experiments often insisted that fine-grained probabilistic distinctions would not shape their decisions, even as the experimental data unambiguously demonstrated that this information influenced their views. The notion that decision makers may not always be aware of how they arrive at their own beliefs is one of the central motivations for conducting experimental research in political psychology. Yet unlike many areas of political psychology which show how decision makers’ views are susceptible to unconscious biases, the empirical analysis presented in this book suggests that national security officials are more sophisticated than they give themselves credit for when handling subjective probabilities.
assessments of uncertainty in foreign policy debates. This chapter focuses on the importance of creating norms that place assessments of uncertainty front and center in foreign policy debates, and explains how multiple advocacy can help to generate this norm by pressing opposing camps to describe the uncertainty that surrounds controversial policy proposals. This argument further highlights how the goal of improving assessments of uncertainty in international politics 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.

Methods and approach

If presidents are always dealing with probabilities, then how can there be so much confusion in addressing that subject? And if this topic is so important, then why have other scholars not written a book like this one already?

One answer to these questions is that the study of probabilistic reasoning requires combining disciplinary approaches that scholars tend to pursue separately. Understanding what subjective probability assessments mean and how they shape foreign policy decisions (Chapters 2 and 6) requires adapting general principles from decision theory to specific problems of international politics. Understanding the extent to which real people can employ these concepts (Chapter 3 and 4) requires studying the psychological dimensions of foreign policy analysis and decision making. Understanding how the prospect of criticism shapes foreign policy analysts’ incentives (Chapter 5) requires merging insights from intelligence studies and organizational management. In this sense, no one academic discipline is well-suited to addressing the full range of claims that skeptics direct towards assessing uncertainty in foreign policy discourse. And though the book’s interdisciplinary approach involves an inevitable tradeoff of depth for breadth, it is crucial to
examine these topics together and not in isolation. As the rejectionists point out, well-intentioned efforts to mitigate one set of flaws with analysis and decision making could plausibly backfire by amplifying others. Addressing these concerns requires taking a comprehensive view of the logic, psychology, and politics of assessing probability in international politics. To my knowledge, this book is the first attempt to do so.

A second reason why scholars and practitioners lack consensus about the value of probabilistic reasoning is that it is notoriously difficult to study this subject empirically. Probability is an abstract concept that no one can directly observe. Since analysts and decision makers tend to be vague when assessing uncertainty, it is usually hard to say what their judgments actually mean. And even when analysts make those judgments explicit, they can still be difficult to evaluate. For instance, if you say that an event has a thirty percent chance of taking place and then it happens, how can we tell the difference between getting it wrong and being unlucky? Chapters 3 through 5 will show how testing the agnostic and rejectionist viewpoints thus requires gathering large volumes of well-structured data. Most areas of foreign policy do not lend themselves to this kind of data collection. Scholars have thus tended to treat probability assessment as a topic better-suited to philosophical debate than to empirical analysis.33

In recent years, however, social scientists have developed new methods to study probabilistic reasoning, and governmental organizations have become increasingly receptive to supporting empirical research on this subject. Chapter 3’s analysis of the value of precision in probability assessment would not have been possible without the U.S. Intelligence Community’s decision to

sponsor the collection of nearly one million geopolitical forecasts.\textsuperscript{34} Similarly, Chapter 4’s analysis of how decision makers respond to probability assessments depended on the support of the National War College and the willingness of more than six hundred national security professionals to participate in experimental research. Thus, even if none of the following chapters represents the final word on its subject, one of the book’s main contributions is simply to demonstrate that it is possible to conduct rigorous empirical analysis of issues that many scholars and practitioners have previously considered intractable.

This book also differs from previous scholarship in how it treats the relationship between prescriptive and explanatory goals. Academic studies of international politics typically prioritize the explanatory function of social science, in which scholars focus on building a descriptive model of the world that helps readers to understand why states and leaders act in puzzling ways. To serve this objective, scholars generally orient their analysis towards theoretical and empirical questions that are important for explaining behavior. Though these studies can generate policy-relevant insights, those insights are often secondary to scholars’ descriptive aims. Indeed, some of the most salient insights that emerge from these studies is that there is relatively little we can do to improve problematic behavior, either because foreign policy officials have strong incentives to act in harmful ways, or because their choices are shaped by structural forces outside their control.\textsuperscript{35}


\textsuperscript{35} For a critique of how international relations scholars often privilege descriptive aims over prescriptive insights, see Alexander George, \textit{Bridging the Gap: Theory and Practice in Foreign
This book, by contrast, prioritizes the prescriptive function of social science. The following chapters aim to understand what sound decision making entails in principle, and how close we can get to that standard in practice. To serve this objective, the book focuses on theoretical and empirical questions that are important for understanding how to improve foreign policy analysis and decision making, not just to explain current behavior in these fields. As with most studies of international politics, however, these prescriptive and descriptive aims overlap. By showing how scholars and practitioners often exaggerate the obstacles to assessing uncertainty in international politics, the following chapters reveal how many key aspects of this subject remain understudied and misunderstood.

Key concepts and scope conditions

Since assessing uncertainty is an abstract endeavor, it is important to define some key terms up front.

The following chapters use the term probability to describe any assessment of the chances that a statement is true. This does not simply refer to the kinds of numeric estimates that President Obama’s advisers made when discussing the chances that Osama bin Laden was living in Abbottabad. Any description of uncertainty, no matter how vague, falls under the scope of the book’s analysis.

Assessments of probability are distinct from assessments of confidence. Analytic confidence describes the extent to which analysts believe that they possess a sound basis for making probabilistic judgments. For example, a coin flip has a fifty percent probability of coming up heads, and most people would have high confidence when making that estimate. But when you discuss the outcome of an election that you have not been following closely, you might say that a candidate’s chances of success are fifty-fifty simply because you have no idea. In that case you would still offer a probability estimate of fifty percent, but you would assign low confidence to your judgment. The importance of disentangling probability and confidence appears in several places throughout the book, and we will see several examples of how scholars and practitioners regularly conflate these concepts.

There is also an important conceptual distinction to draw between probability and uncertainty, as the former is just one component of the latter. Any decision under uncertainty requires

36 Elsewhere, I have argued that “analytic confidence” comprises three distinct attributes: 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 to change in response to new information. See Jeffrey A. Friedman and Richard Zeckhauser, “Analytic Confidence and Political Decision Making: Theoretical Principles and Experimental Evidence from National Security Professionals,” Political Psychology, forthcoming.

37 See, for example, James Clapper’s description of “percentages of confidence” in note 9, above. For further discussion of scholars and practitioners conflate probability and confidence, see Jeffrey A. Friedman and Richard Zeckhauser, “Assessing Uncertainty in Intelligence,” Intelligence and National Security, Vol. 27, No. 6 (2012), pp. 834-841.
assessing probability – without some key element of a decision being probabilistic, there would be no uncertainty to deal with. But rigorous decision making under uncertainty requires tackling many challenges besides probability assessment, such as identifying the range of different outcomes than an action could influence, assigning costs and benefits to each of those outcomes, and judging the potential value of delaying action or gathering additional information.38

Assessing probability is thus not sufficient to ensure sound foreign policy decisions. But assessing probability is at least a necessary component of making sound foreign policy decisions, and it is a topic that generates unusual controversy. I am unaware, for example, of any serious scholar or practitioner who argues that foreign policy officials should deliberately avoid assessing their interests, or that it would be counterproductive to analyze the details of how much a policy might cost. The fact that many prominent authors do level those arguments against assessing probability in international politics reveals how that subject raises special skepticism.

38 Robert Winkler, An Introduction to Bayesian Inference and Decision, 2nd ed. (Sugar Land, Tex.: Probabilistic Publishing, 2003). Decision scientists further distinguish between situations of “risk,” where all probabilities relevant to decision making are known; situations of “uncertainty,” where decision makers know all relevant outcomes but those outcomes have ambiguous probabilities of occurrence; and situations of “ignorance” where decision makers do not even know all of the relevant outcomes that their choices would affect. See Richard Zeckhauser, “Investing in the Unknown and Unknowable” in Francis Diebold, Neil Doherty, and Richard Herring eds., The Known, the Unknown, and the Unknowable in Financial Risk Management (Princeton, N.J.: Princeton University Press, 2010).
Finally, while this book focuses on assessing probability in international politics – and while most of its examples are drawn from U.S. national security policy, in particular – the book’s basic themes are relevant to any area of high-stakes decision making. Debates about the value of probability assessment appear in most domains of public policy, and indeed throughout daily life. Medical decisions, for example, require assessing uncertainty surrounding contentious diagnoses or treatment options. Yet physicians, like foreign policy analysts, can be reluctant to describe this uncertainty when speaking with their patients.\(^{39}\) 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.\(^{40}\) For more than a decade now, climate scientists have engaged in a vigorous

\(^{39}\) One study of more than three thousand doctor-patient interactions found that physicians described uncertainty about treatment outcomes in just seventeen percent of complex procedures (and in four percent of procedures overall): Clarence H. Braddock et al., “Informed Decision Making in Outpatient Practice,” *Journal of the American Medical Association*, Vol. 282, No. 24 (December 1999), pp. 2313-2320.

\(^{40}\) For competing views on this subject, see Cass R. Sunstein, *Valuing Life: Humanizing the Regulatory State* (Chicago, Ill.: University of Chicago Press, 2014) and Frank Ackerman and Lisa Heinzerling, *Priceless: On Knowing the Price of Everything and the Value of Nothing* (New York: W. W. Norton, 2004).
debate about proper methods for communicating uncertainty to the public regarding projections of global warming, sea level rises, and other environmental issues.41

In one of the most salient examples of how probabilistic reasoning shapes 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 hold strikingly divergent views of what that standard entails. 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.”42 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.43 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. These seemingly arbitrary interpretations of probability raise troubling questions about the application of criminal justice. Yet, as in international politics, many scholars and practitioners of the law oppose addressing this subject in more transparent ways.

Empirical findings from one domain do not always translate into others. Yet this book’s conceptual framework and empirical methodology can be extended to nearly any other area of decision making under uncertainty. And to the extent that international politics are typically understood to be particularly complex and subjective, this should represent a high degree of difficulty for improving the quality and rigor of probabilistic reasoning. This is another sense in which the book presents an optimistic message. To the extent that the following chapters push back against entrenched skepticism about the nature and limits of assessing uncertainty in international politics, the book suggests that other disciplines might also benefit from revisiting their own views of this subject.

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