Would U.S. Leaders Push the Button?

Wargames and the Sources of Nuclear Restraint

Reid B.C. Pauly

In April 1965, the U.S. war effort in Southeast Asia was going badly. Struggling with an ineffective partner in Saigon and having suffered more than 2,000 casualties at the hands of a Chinese-backed insurgency, the United States committed more troops. But as Washington escalated, so did Beijing. U.S. aerial reconnaissance revealed a substantial buildup of Chinese conventional air and ground forces on the Vietnamese border. Despite no Soviet backing and no independent nuclear capability, China made plans for an invasion. When senior U.S. national security officials met in Washington, they received an urgent message from CINCPAC, the Pacific theater commander: "Will CINCPAC be authorized to employ tactical nuclear weapons in the event of overwhelming attack?"[1]

Thankfully, these events never came to pass. Rather, this scenario was played out in a 1964 political-military wargame inside the Pentagon.[2] One of dozens of wargames held during the Cold War, the simulation pitted a Blue team against a Red team in a series of decisionmaking rounds, facilitated by a Control team interlocutor. The purpose was multifold: to study strategic interactions, to educate the participants, and to refine U.S. strategy. In many of these wargames, "strategic elite" players—experts with experience in diplo-

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1. U.S. Department of Defense, "Final Report of Politico-Military Game, SIGMA II-64," October 5, 1964, document number: GALE|CK2349220846, U.S. Declassified Documents Online archive, Gale, Farmington Hills, Michigan (henceforth U.S. Declassified Documents Online), p. B2.
2. Ibid.

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matic or military strategy—debated whether or not to use nuclear weapons. In this game, as in many others, players eschewed nuclear use.

The nonuse of nuclear weapons since 1945 is one of the most astonishing legacies of the nuclear age. What explains the seventy-year absence of nuclear employment in international politics? Scholars have put forward five different logics: deterrence, practicality, precedent, reputation, and ethics. Nuclear weapons states fear retaliation from targets with survivable second-strike nuclear arsenals, so they are deterred.[3] But even in cases where a target cannot retaliate, nuclear weapons states still consider either practicality, deciding that conventional weapons are tactically sufficient to accomplish the mission, or precedent, fearing that the use of nuclear weapons today could invite nuclear proliferation and use by others in the future.[4] Scholars further propose a reputation logic that decisionmakers fear censure from allies, peers, or publics that object to the use of such weapons; and a logic of ethics asserts that they object to their use on moral grounds.[5] The available history of elite political-military wargaming in the United States provides new evidence to test these theories of nuclear nonuse.

Declassified and unclassified wargame records show that "strategic elite" players—differentiated from the general public by their exposure to and experience with diplomatic or military strategy—displayed a strong aversion to employing nuclear weapons in simulations against both nuclear-armed and nonnuclear-armed adversaries. Policymakers hesitated to use nuclear weapons because they evinced genuine concern about the gravity of detonating the ultimate weapon. Deterrence logic contributed to these results, but players, in their own words, also explained the non-deterrence logics that led them to eschew nuclear employment. Indeed, the only uses of nuclear weapons in a sample of twenty-six political-military wargames occurred in two games with nuclear-armed adversaries, where deterrence would have been more likely to operate. Nonuse instead often resulted from players prioritizing conventional alternatives to nuclear weapons (practicality) or expressing fears that others

3. Bernard Brodie, *The Absolute Weapon: Atomic Power and World Order* (New York: Harcourt, Brace, 1946); Thomas C. Schelling, *Arms and Influence* (New Haven, Conn.: Yale University Press, 1966); Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, N.Y.: Cornell University Press, 1989); and Kenneth N. Waltz, "More May Be Better," in Scott D. Sagan and Kenneth N. Waltz, eds., *The Spread of Nuclear Weapons: An Enduring Debate*, 3rd ed. (New York: W.W. Norton, 2013), pp. 3–40.

4. Scott D. Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction," in Sohail H. Hashmi and Steven P. Lee, eds., *Ethics and Weapons of Mass Destruction: Religious and Secular Perspectives* (Cambridge: Cambridge University Press, 2004), pp. 73–95.

5. Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945* (New York: Cambridge University Press, 2007).

who disapproved of the use of nuclear weapons would judge them with opprobrium (reputation). Players in the inner sanctums of U.S. foreign policymaking seldom explicitly invoked precedent-setting or strict ethical aversions to nuclear use. Wargame records also reveal one source of nuclear aversion not captured by existing theories: elite players eschewed consideration of dropping the bomb when they perceived presidential opposition. In the national security sphere, top-down aversion signals may increase conformity to nuclear aversion below.

Examining nuclear deliberations among U.S. elites is of more than just academic interest. Nuclear weapons and nuclear strategy have reemerged as central issues of U.S. foreign policy, and the prospect of using nuclear weapons has surfaced in debates about how the United States can best confront rogue nuclear proliferators. At the same time, there have been renewed legislative efforts to restrict presidential nuclear launch authority.[6] Moreover, scholars have found that the American public is more likely to be a goad than a constraint on decisions to employ nuclear weapons.[7]

Scholars have not, however, systematically used data from wargames to inform debates about nuclear strategy, deterrence, and the nonuse of nuclear weapons.[8] Wargames facilitate scholarly observation of elite beliefs and behaviors, which are difficult to access by other means.

This article proceeds in five sections. The first section describes the evolution of wargaming methods and evaluates the utility of wargames data to test international relations theories. The second section presents the archival data. The third section reviews the scholarly debate about the nonuse of nuclear weapons, deriving hypotheses and observable implications. The fourth section tests the hypotheses with political-military wargame records. The fifth section discusses the results and provides some concluding thoughts.

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6. *Restricting First Use of Nuclear Weapons Act of 2017*, H.R. 669, 115th Cong., 1st sess., January 24, 2017.

7. Scott D. Sagan and Benjamin A. Valentino, "Revisiting Hiroshima in Iran: What Americans Really Think about Using Nuclear Weapons and Killing Noncombatants," *International Security*, Vol. 42, No. 1 (Summer 2017), pp. 41–79, doi:10.1162/ISEC_a_00284; and Daryl G. Press, Scott D. Sagan, and Benjamin A. Valentino, "Atomic Aversion: Experimental Evidence on Taboos, Traditions, and the Non-Use of Nuclear Weapons," *American Political Science Review*, Vol. 107, No. 1 (February 2013), pp. 188–206, doi:10.1017/S0003055412000597.

8. Nina Tannenwald references one wargame in a footnote, citing Thomas B. Allen's description of SIGMA II-64. A declassified copy of the original records of this wargame are included in my sample. See Tannenwald, *The Nuclear Taboo*, p. 196; and Allen, *War Games: The Secret World of the Creators, Players, and Policy Makers Rehearsing World War III Today* (New York: McGraw-Hill, 1987), pp. 193–206.

The Value and Limitations of Wargames as Data

I review here the method of wargaming as it pertains to testing international relations theory and, in particular, theories on the nonuse of nuclear weapons.[9] Other scholars have ably covered the history and practice of the method.[10]

WHAT ARE POLITICAL-MILITARY WARGAMES?

Just as troops prepare for combat in training exercises, military strategists hone their campaign plans in wargames. As defined by Garry Brewer and Martin Shubik, wargames are simulations, pitting forces against each other "using rules, data, and procedures designed to depict an actual or hypothetical real-life situation."[11] The U.S. military has long used wargames to inform operational planning.[12] In the nuclear age, military strategists relied on them to simulate the novel problem of fighting a limited war under the shadow of nuclear escalation.[13] The Cold War also brought wargaming from the mili-

9. Political scientists have seldom looked to wargames to test theory. Contemporary exceptions include Jacquelyn Schneider, "Cyber and Crisis Escalation: Insights from War Gaming," U.S. Naval War College, 2017. Scholars who use wargaming computer simulations to test theory include Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, N.J.: Princeton University Press, 2004); and Dominic D.P. Johnson et al., "Overconfidence in Wargames: Experimental Evidence on Expectations, Aggression, Gender, and Testosterone," *Proceedings of the Royal Society B*, Vol. 273, No. 1600 (October 2006), pp. 2513–2520, doi:10.1098/rspb.2006.3606.

10. Martin van Creveld, *Wargames: From Gladiators to Gigabytes* (New York: Cambridge University Press, 2013); Peter P. Perla, *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis: U.S. Naval Institute Press, 1990); Pat Harrigan and Matthew G. Kirschenbaum, eds., *Zones of Control: Perspectives on Wargaming* (Cambridge, Mass.: MIT Press, 2016). On gaming in the nuclear age, see Allen, *Wargames*; Sharon Ghamari-Tabrizi, "Simulating the Unthinkable: Gaming Future War in the 1950s and 1960s," *Social Studies of Science*, Vol. 30, No. 2 (April 2000), pp. 163–223, doi:10.1177/030631200030002001; and Matthew Connelly et al., "'General, I Have Fought Just as Many Nuclear Wars as You Have': Forecasts, Future Scenarios, and the Politics of Armageddon," *American Historical Review*, Vol. 117, No. 5 (December 2012), pp. 1431–1460, doi:10.1093/ahr/117.5.1431. For critiques of wargaming methods, see Garry D. Brewer and Martin Shubik, *The Wargame: A Critique of Military Problem Solving* (Cambridge, Mass.: Harvard University Press, 1979); John Thomas Hanley, "On Wargaming: A Critique of Strategic Operational Gaming," Ph.D. dissertation, Yale University, 1991; and Paul Bracken and Martin Shubik, "War Gaming in the Information Age: Theory and Purpose," *Naval War College Review*, Vol. 54, No. 2 (Spring 2001), pp. 47–60. On pedagogical applications, see Victor Asal, "Playing Games with International Relations," *International Studies Perspectives*, Vol. 6, No. 3 (August 2005), pp. 359–373, doi:10.1111/j.1528-3577.2005.00213.x.

11. Brewer and Shubik, *The Wargame*, p. 8.

12. During the interwar period, operational wargames helped U.S. Navy planners to innovate war plans in peacetime. See John M. Lillard, *Playing War: Wargaming and U.S. Navy Preparations for World War II* (Washington, D.C.: Potomac, 2016); Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan, 1897–1945* (Annapolis: Naval Institute Press, 1991); and Reid B.C. Pauly, "War Plan Orange: Lessons for Joint Planning," paper presented at the annual convention of the International Studies Association, San Francisco, California, April 4–7, 2018.

13. M.G. Weiner, "Wargaming Methodology," research memorandum RM-2413 (Santa Monica, Calif.: RAND Corporation, July 10, 1959), p. 3; Thomas C. Schelling, "The Role of Wargames and

tary and policy analysis communities to the academy, where scholars stripped away some operational and tactical detail in favor of testing political and strategic crisis dynamics—escalating violence, signaling resolve, and making commitments. Wargames were no longer just for the brass. They were "political-military wargames," influential in both the academy and policy-making community.

Inspired by researchers at the RAND Corporation, Lincoln Bloomfield, a professor at the Massachusetts Institute of Technology (MIT), set out in the late 1950s to design a professional wargame in partnership with Thomas Schelling from Harvard University.[14] Bloomfield and Schelling eschewed "role-playing" in favor of giving teams "homogenous responsibility," so that the players were "deeply engaged in the decisionmaking process" and took "full responsibility for their decisions." Schelling, in particular, felt that in most prior wargames "the limits were always decided in advance," leaving no room for an analysis of the dynamics of escalation, "no process of feeling around for what the other side might accept or reject."[15] Their games thus empowered players to explore the political and diplomatic effects of military moves.

In 1961, when the Joint Chiefs of Staff created the Joint War Games Control Group (JWGCG), later renamed the Joint War Games Agency (JWGA) and then the Studies, Analysis, and Gaming Agency, they imported and adapted Schelling and Bloomfield's method.[16] JWGA hosted five or six games per year, each preceded by months of preparation. Teams generally consisted of five to ten players—Red versus Blue (in separate rooms) moderated by Control. Games were played for several hours a day, for three or four days, and consisted of three to six rounds or moves. A typical game proceeded as follows: (1) Red and Blue teams assembled and received the "scenario problem paper"; (2) each team deliberated and decided on "moves," which were written down

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Exercises," in Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket, eds., *Managing Nuclear Operations* (Washington, D.C.: Brookings Institution Press, 1987), p. 436.

14. Brewer and Shubik, *The Wargame*, p. 103; Sidney F. Giffin, *The Crisis Game: Simulating International Conflict* (New York: Doubleday, 1965), p. 68; and Lincoln P. Bloomfield and Norman J. Padelford, "Teaching Note: Three Experiments in Political Gaming," *American Political Science Review*, Vol. 53, No. 4 (December 1959), pp. 1105–1115, doi:10.2307/1952078. For some of the history of wargaming at the Massachusetts Institute of Technology (MIT), see Lincoln P. Bloomfield, "Reflections on Gaming," *Orbis*, Vol. 28, No. 4 (Winter 1984), pp. 784–785; and Donald L.M. Blackmer, *The MIT Center for International Studies: The Founding Years 1951–1969* (Cambridge, Mass.: Center for International Studies, MIT, 2002), p. 157.

15. Thomas Schelling and Alan Ferguson, remarks at the John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts, November 22, 1988, p. 1.

16. Francis J. McHugh, *Fundamentals of War Gaming*, 3rd ed. (Newport, R.I.: U.S. Naval War College, 1966), pp. 2–40, http://www.dtic.mil/dtic/tr/fulltext/u2/686108.pdf.

and given to Control; (3) Control assessed the moves (with an option to reject unrealistic moves), determined the probable outcome of combining each move, and updated the scenario;[17] (4) the game clock advanced, and Red and Blue made another move; (5) play continued until time was up or Control ended the game; and (6) all games concluded with a debrief and player discussion ("critique").[18]

Why are wargames useful for the study of nuclear nonuse?

The use of nuclear weapons is, thankfully, a rare event. Scholars use different methodologies to study it. Some scholars conduct laboratory experiments to measure a subject's willingness to use costly force in a strategic setting.[19] Others rely on public opinion polling to understand how populations think about nuclear weapons and nuclear war.[20] Still others employ randomized survey experiments. Using this method, Daryl Press, Scott Sagan, and Benjamin Valentino find that a majority of Americans would support a decision by the U.S. government to use nuclear weapons if doing so provided a tactical advantage.[21] Their research shows that the general public is only weakly averse to employing nuclear weapons. The public, however, is not empowered to make decisions about the use of nuclear weapons. Norms against their use or other aversions, as Press, Sagan, and Valentino note, may be an "elite phenomenon."[22]

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17. Control teams may also inject additional variables into the scenario at any time, representing "third nations, treaty organizations, fate, nature, and other influencing factors." See U.S. Department of Defense, "Game Requirements for BETA I and II-67, Two Concurrent, Senior-Level, Interagency Politico-Military Games to Be Conducted in the Pentagon 4/20–5/16/67," March 10, 1967, doc. no. GALE|CK2349234981, U.S. Declassified Documents Online.
18. Lincoln P. Bloomfield, "Four Political-Military Exercises," 1963, box 9, Lincoln P. Bloomfield Papers, MC 326, Institute Archives and Special Collections, MIT, Cambridge, Massachusetts (henceforth MIT Archives). See also Brewer and Shubik, *The Wargame*, pp. 106–107. For a RAND overview of traditional gaming, see James P. Kahan, William M. Jones, and Richard E. Darilek, "A Design for War Prevention Games," RAND Note N-2285-RC (Santa Monica, Calif.: RAND Corporation, May 1985), pp. 18–20. For an overview of MIT's game designs, see Lincoln Bloomfield and Barton Whaley, "The Political-Military Exercise: A Progress Report," *Orbis*, Vol. 8 (Winter 1965), pp. 854–869.; and Lincoln P. Bloomfield, *The Foreign Policy Process: A Modern Primer* (Englewood Cliffs, N.J.: Prentice-Hall, 1982), pp. 202–209.
19. Kai Quek finds that increasing the number of nuclear-capable actors in the game increases the likelihood of players using the nuclear option. See Quek, "Nuclear Proliferation and the Use of Nuclear Options: Experimental Tests," *Political Research Quarterly*, Vol. 69, No. 2 (June 2016), pp. 195–206, doi:10.1177/1065912916634894.
20. Bruce Russett and Thomas W. Graham, "Public Opinion and National Security Policy: Relationships and Impacts," in Manus I. Midlarsky, ed., *Handbook of War Studies* (Winchester, Mass.: Unwin Hyman, 1989), pp. 239–258. For more on historical nuclear polling, see Sagan and Valentino, "Revisiting Hiroshima in Iran."
21. Press, Sagan, and Valentino, "Atomic Aversion."
22. Ibid., p. 193. Although they use proxy measures, such as education level, income, age, and interest in politics, the authors cannot draw conclusions from their study about the views of decisionmakers.

One path forward with this research could be to survey elites. They are difficult to reach for questioning, however, especially in large numbers.[23] Moreover, professionals with ambitions to serve or to continue serving in government may not respond openly to questions about the use of nuclear weapons.

Data from elite wargames, on the other hand, give the researcher unparalleled access to elite research subjects privately debating the use of nuclear weapons. Records from a golden age of political-military gaming are now accessible in archives, and this article uses that evidence to assess the strengths and weaknesses of existing theories of nuclear nonuse. This approach employs what is valuable about wargames data while being clear about their limits.

All of the wargames in this article's sample involve the participation of U.S. policymakers, military officials, or civilian strategists. These professionals are "strategic elites," who are plausibly similar to those who could be in a position to recommend whether to use nuclear weapons in a real-world crisis. When conducting its first two political-military wargames in September 1961, the JWGCG recruited a range of high-level government participants. The first game, held at the president's country retreat at Camp David, included Deputy National Security Adviser Carl Kaysen and John McNaughton (later the assistant secretary of defense for international security affairs).[24] The second included National Security Adviser McGeorge Bundy, and Carl Kaysen briefed President John F. Kennedy on the results.[25] These games were no aberration. A declassified 1967 wargame report indicates that senior participants were no lower than the ranks of "Major General/Rear Admiral (or civilian equivalents)." Moreover, invitations considered rank "secondary to expert knowledge."[26] With such "strategic elites," these wargames validly simulated the reality of how leaders and advisers would debate the use of nuclear weapons in a crisis.

Participation extended up to the cabinet level, but no higher. Schelling himself advised against presidential participation: "I think one could get a cabinet secretary successfully engaged; but not the President," he said, ". . . I do

23. Elite surveys conducted by the Pew Research Center and the Chicago Council on Global Affairs have included questions on nuclear weapons. Scholars have also targeted readers of *International Security* for surveys. See Cheryl Koopman, Jack Snyder, and Robert Jervis, "Theory-Driven versus Data-Driven Assessment in a Crisis," *Journal of Conflict Resolution*, Vol. 34, No. 4 (December 1990), pp. 694–722, doi:10.1177/0022002790034004006.
24. Connelly et al., "'General, I Have Fought Just as Many Nuclear Wars as You Have,'" p. 1449.
25. Ghamari-Tabrizi, "Simulating the Unthinkable," p. 178.
26. U.S. Department of Defense, "Game Requirements for BETA I and II-67, Two Concurrent, Senior-Level, Interagency Politico-Military Games to Be Conducted in the Pentagon 4/20–5/16/67."

not think he should ever be put in the position where people watch him and what he would do in a crisis."[27] In other words, because wargames are externally valid, a commander-in-chief participant would be telegraphing his/her decisions in a hypothetical future crisis. The exclusion of presidents from wargames is an indication of the validity of wargaming as a method for testing elite views, albeit at the cost of not capturing those of presidents themselves.

Furthermore, for the purpose of studying decisions about the use and nonuse of nuclear weapons, wargames serve as likely cases to observe a rare phenomenon. If one expects elite decisionmakers to approve of the use of nuclear weapons anywhere, it would be in a wargame, where, according to one wargame report, "if you lose[,] it's not for keeps."[28] Moreover, in a survey of participants in MIT wargames held between 1958 and 1964, 31.6 percent of respondents ($n = 79$) reported that they thought they had acted "more aggressively" in the games (55.7 percent reported no difference; 12.7 percent reported less aggression), and 32.5 percent of respondents ($n = 77$) reported that they had been "more willing to take risks" (55.8 percent reported no difference; 11.7 percent reported less risk-taking).[29] Finally, evidence from wargames reveals how participants thought about using nuclear weapons in a context where they knew their decisions would be anonymized, classified, and otherwise protected for many years. Quotations were not attributed to specific individuals in most wargame reports, so participants spoke freely.

In addition, many wargames fully immerse their players as research subjects. The amount of time and energy that participants invest in wargames far exceeds that with which respondents typically answer survey questions. Moreover, whereas surveys generally ask "What do I support you doing?", wargames ask decisionmakers the more apt question "What would I do?" Participants in high-level wargames care about the outcome. In a reflection on political-military wargames held at MIT, 64.9 percent of participants ($n = 77$) reported an "extreme" or "intense" degree of emotional involvement.[30] Schelling recalled that elite participants "virtually lived" his wargames and that it was difficult to spend so many hours in a simulation "without it's beginning to seem either real or as one that could be real."[31] Although they

27. Schelling and Ferguson, remarks at the John F. Kennedy School of Government, p. 8. I thank an anonymous reviewer for drawing my attention to this quotation.
28. U.S. Department of Defense, "Final Report of NU I and II-66, Two Interagency Politico-Military Games Played by Officials of the Executive Branch during 1/11–2/8/66," February 28, 1966, doc. no. GALE|CK2349234646, U.S. Declassified Documents Online, p. D29.
29. Richard Barringer and Barton Whaley, "The MIT Political-Military Gaming Experience," *Orbis*, Vol. 9, No. 2 (Summer 1965), p. 440.
30. Ibid., p. 439.
31. Schelling and Ferguson, remarks at the John F. Kennedy School of Government, p. 3; and U.S.

are not actual crises, wargames approach crises in terms of the intellectual challenges, time constraints, and emotional burdens that they impose on their participants. They introduce human interaction to the study of crisis decisionmaking—not just human fallibility or miscommunication, but also the emotions, hubris, and pride that color decisionmaking in group settings. Indeed, the scenarios presented in wargames often reflect reality. During the Cuban missile crisis, an aide in the office of Assistant Secretary of Defense for International Security Affairs John McNaughton remarked, "This crisis sure demonstrates how realistic Schelling's games are." Another responded, "No, Schelling's games demonstrate how unrealistic this Cuban crisis is."[32]

With similar accuracy, the SIGMA series of political-military wargames, conducted from 1962 to 1967, infamously captured the reality of the quagmire in Vietnam and correctly forecast the frustrations of the subsequent decade. Elite players confronted challenges such as a dearth of public support for the war effort, an asymmetry of commitment to a prolonged war, the frustrating futility of coercive bombing, and a lack of leverage to negotiate peace.[33] Historians later dubbed the wargames "eerily prophetic" and "a dry run for the actual thing."[34] Overall, as one wargame director summarized in 1962, wargames reflect "merely one path that reality might take. But, because the game is not reality, it is a safer way to explore policies and policy decisions. The moves reflected serious consideration of the implications of political, military,

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Department of Defense, "Final Report of NU I and II-66, Two Interagency Politico-Military Games Played by Officials of the Executive Branch during 1/11–2/8/66," p. D3.

32. Quoted in Ghamari-Tabrizi, "Simulating the Unthinkable," p. 213 n. 55.

33. The 1962 game found that "if US troops are introduced into such a situation they will be there for some time" and that "if we do put US troops into Southeast Asia, we must be supported by US public opinion." The public might support putting troops into South Vietnam, but such support was "questionable for [putting troops into] Laos." A 1964 iteration featured a Blue team attempting to prosecute a conventional coercive bombing campaign but rapidly running out of "profitable targets" and confronting "the people's rage . . . turned against the American murderers. Not against any of their own leaders." A 1965 iteration revealed "a cross section of the best informed and most expert professionals in government" frustrated that they were fighting an adversary with asymmetric commitment, "not looking to 'win a war' this year or next year . . . perfectly willing to see this thing drag on and go back into the bush." The 1966 iteration found experts struggling to negotiate a withdrawal from Southeast Asia on acceptable terms. These wargames reflected reality, even though the U.S. government did not heed their lessons. See U.S. Department of Defense, "Final Report and Documentation of the Politico-Military Game Relating to Southeast Asia [SIGMA I-62]," February 26, 1962, doc. no. GALE|CK2349215564, U.S. Declassified Documents Online, p. 33; U.S. Department of Defense, "Final Report of Politico-Military Game, SIGMA II-64," pp. G1, G17; "Final Report of Politico-Military Game, SIGMA II-65," August 20, 1965, doc. no. GALE|CK2349260286, U.S. Declassified Documents Online, pp. B1, F24; and U.S. Department of Defense, "Final Report on Politico-Military Game, SIGMA I-66," September 1, 1966, doc. no. GALE|CK2349234872, U.S. Declassified Documents Online.

34. H.R. McMaster, *Dereliction of Duty: Lyndon Johnson, Robert McNamara, the Joint Chiefs of Staff, and the Lies That Led to Vietnam* (New York: HarperCollins, 1997), p. 90; and David Halberstam, *The Best and the Brightest*, 20th anniversary ed. (New York: Ballantine, 1992), p. 460.

and psychological affects [*sic*] that such moves might have in real life."[35] The usefulness of wargames must not be overlooked by political scientists.

Wargames do suffer from an internal validity concern. Participants may not be sure to what extent they will be judged for what they say and do. In other words, decisions in wargames may not be about "what I would do"; rather, they could be about "what I ought to do." This is an important bias critique that affects wargames no more than survey or polling methods of measuring elite views. Nonetheless, speech evidence from wargame records can help to parse this concern. Given the richness of the player deliberations data in wargame records, scholars can try to assess whether and why a participant felt pressure to behave a certain way.

The Wargames Data

To test competing theories of nuclear nonuse, I gathered archival documents from an array of U.S. political-military wargames held from 1958 to 1972. The documents come from presidential libraries, the Central Intelligence Agency (CIA) CREST archive, the Gale database of U.S. Declassified Documents Online, and MIT's Institute Archives and Special Collections. The records consist of game reports, scenario documents, move descriptions, player summaries, and transcripts of postgame player critiques.[36]

The sample contains a total of twenty-six strategic elite wargames, thirteen of which include only nuclear-armed teams, wherein deterrence logic should be strongest. The other thirteen include nonnuclear-armed teams, wherein one team has an unmatched nuclear advantage over an opponent. In eight of the games with nonnuclear-armed teams, deterrence logic may still operate as extended nuclear deterrence provided by a third party. In the other five, extended deterrence is absent. Table 1 lists the wargames.[37]

The sample omits operational wargames, as they do not typically grant players a choice over whether or when to start a war; rather, players are already in one and are tasked with winning it. Military exercises are also not a part of this study, as they are conducted to rehearse operational plans, rather than give players discretion.[38] The sample also omits scripted wargames con-

35. U.S. Department of Defense, "Final Report and Documentation of the Politico-Military Game Relating to Southeast Asia [SIGMA I-62]," p. 20.
36. The U.S. government records are typically anonymized, but MIT records are not. For more discussion of these documents, see the online appendix at doi:10.7910/DVN/CXXSTK.
37. See the online appendix for a full list of wargames in the sample and details on other excluded games (including non-elite games).
38. U.S. military exercises did cross the nuclear threshold during the Cold War. Simulating nuclear use during an exercise signaled to the Soviet Union and reassured allies that the United States was

Table 1. Wargames with Strategic Elite Players

Nuclear-Armed Adversaries	Nonnuclear-Armed Adversaries
POLEX I, MIT, September 1958	SIGMA I-62, JWGCG, February 1962
POLEX II, MIT, September 1960	POLEX-DAIS I, MIT, November 1962*
Berlin crisis game I, JWGCG, September 1961	POLEX-DAIS II, MIT, January 1963*
Berlin crisis game II, JWGCG, September–October 1961	POLEX-DAIS III, MIT, February 1963*
EPSILON I-62, JWGCG, September 1962	POLEX-DAIS IV, MIT, March 1963*
DETEX II, MIT, February 1964	DETEX I, MIT, November 1963*
EPSILON I-64, JWGA, April 1964	SIGMA I-64, JWGA, April 1964
DETEX III, MIT, November 1964	SIGMA II-64, JWGA, September 1964
NU I, JWGA, January–February 1966	SIGMA II-65, JWGA, July–August 1965*
NU II, JWGA, January–February 1966	SIGMA I-66, JWGA, September 1966*
BETA I, JWGA, April-May 1967	SIGMA I-67, JWGA, November–December 1967
BETA II, JWGA, April-May 1967	SIGMA II-67, JWGA, November–December 1967
EPSILON 72, SAGA, October 1972	MU I-68, JWGA, April–May 1968*

* Deterrence logic may still operate via nuclear-armed third-party extended deterrence.

NOTE: MIT stands for Massachusetts Institute of Technology; JWGCG stands for Joint War Games Control Group; JWGA stands for Joint War Games Agency; and SAGA stands for Studies, Analysis, and Gaming Agency.

ducted for educational or training purposes.[39] All of the wargames in the sample were conducted after the invention of thermonuclear weapons and in the United States with American participants.[40] The online appendix further addresses the records, sample size, and potential bias. Of course, this research should be updated as further records become available.

Deriving Hypotheses Based on Theories of Nuclear Nonuse

Why since 1945 have nuclear weapons not been used? Political science has provided five complementary and competing reasons—deterrence, practical-

willing to use nuclear weapons in war. Private wargaming settings likely did not carry such signaling dynamics.

39. For education or training purposes, wargames are occasionally scripted to cross the nuclear threshold. No such wargames are included in this sample.

40. There is some uncertainty about when a nuclear taboo or tradition of nonuse began. Nina Tannenwald argues for the beginnings of a taboo as early as 1945 (although she acknowledges that it grew stronger over time). Others, such as John Lewis Gaddis, emphasize the importance of the thermonuclear revolution and the development of ballistic missile delivery systems. See Tannenwald, "Stigmatizing the Bomb: Origins of the Nuclear Taboo," *International Security*, Vol. 29, No. 4 (Spring 2005), pp. 5–49, at p. 6, doi:10.1162/isec.2005.29.4.5; and Gaddis, "Conclusion," in Gaddis et al., eds., *Cold War Statesmen Confront the Bomb: Nuclear Diplomacy since 1945* (Oxford: Oxford University Press, 1999), p. 264.

ity, precedent, reputation, and ethics. Although each logic is distinct, scholars have sometimes combined multiple ones into a single theory. John Lewis Gaddis relied on the logics of practicality and reputation to coin the term "self-deterrence" in a review of early Cold War crises.[41] Sagan and T.V. Paul have both developed theories on the "tradition" of nonuse. In Sagan's case, the "tradition" is rooted in the logic of precedent, whereas Paul includes both precedent and reputation logics in his formulation.[42] Nina Tannenwald relies on the logics of reputation and ethics in her theory of "the nuclear taboo."[43] The difficulty associated with observing these logics at work, as well as their frequent blending together in the existing literature, has prevented them from being tested against one another convincingly.

I explain each of the logics in turn and draw three types of observable implications. First, each logic makes a prediction about the actions of participants in wargames—that is, whether they would employ nuclear weapons or not and under what conditions. Second, they make predictions about the explanations individual players would give to support their decisions about nuclear weapons. Both the behavioral outcomes and the reasoning behind them are useful for adjudicating among the hypotheses. Third, I derive predictions about whether these actions and explanations will differ in wargame scenarios with nuclear-armed adversaries versus scenarios with nonnuclear-armed adversaries.

DETERRENCE

Deterrence theorists put forth one simple answer to the puzzle of nuclear nonuse: states do not use nuclear weapons for fear of retaliation—the possession of survivable arsenals causes stable mutual deterrence among nuclear-armed adversaries.[44] The nonuse of nuclear weapons since 1945, therefore, is the product of rational self-interest. A fearsome balance of terror keeps the nuclear peace.

Deterrence logic predicts that wargame participants will choose not to use nuclear weapons against nuclear-armed adversaries with secure second-strike capabilities. They may, however, elect to use them against nonnuclear-armed adversaries, if the target does not have a nuclear-armed ally to extend deter-

41. John Lewis Gaddis, *The Long Peace: Inquiries into the History of the Cold War* (Oxford: Oxford University Press, 1987), pp. 104–146. Scott Sagan provided a corrective interpretation of the term, arguing that only the logics of reputation and ethics could properly be called "self-deterrence." See Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction," pp. 80–81.
42. Ibid. p. 73; and T.V. Paul, *The Tradition of Non-Use of Nuclear Weapons* (Stanford, Calif.: Stanford University Press, 2009).
43. Tannenwald, *The Nuclear Taboo*; Tannenwald, "Stigmatizing the Bomb"; and Nina Tannenwald, "The Nuclear Taboo: The United States and the Normative Basis of Nuclear Non-Use," *International Organization*, Vol. 53, No. 3 (Summer 1999), pp. 433–468, doi:10.1162/002081899550959.
44. Brodie, *The Absolute Weapon*; Schelling, *Arms and Influence*; Jervis, *The Meaning of the Nuclear Revolution*; and Waltz, "More May Be Better."

rence.[45] In wargame records, one expects to see evidence of the type: "We should not use nuclear weapons against them, because they will retaliate."

H1: In wargames against nuclear-armed adversaries with second-strike capabilities (or their allies over whom they extend deterrence), participants will fear retaliation and be deterred from using nuclear weapons.

Yet, elegant theories of deterrence can explain only the nonuse of nuclear weapons against nuclear weapons states; they cannot explain the repeated reluctance to use nuclear weapons against nonnuclear weapons states—or nonstate actor targets—incapable of retaliation. Realists have addressed this shortcoming of deterrence theory with two additional logics—practicality and precedent.

PRACTICALITY

It is possible that the nonuse of nuclear weapons may be the result of practical military considerations about the utility of nuclear weapons on the battlefield. Perhaps there has been a paucity of targets that actually required nuclear weapons to degrade or destroy. If nuclear-capable belligerents can defeat their adversaries at low cost without resorting to nuclear weapons, their nonuse is less puzzling.[46]

A logic of practicality predicts that wargame participants will decide whether or not to use nuclear weapons according to the military advantage that they provide under the given circumstances. Nonuse is merely the product of a lack of tactical necessity. In wargame records, one expects then to see evidence of the type: "We should not use nuclear weapons, because we can accomplish the same thing with conventional weapons."

H2: In all types of wargames, participants will evaluate the tactical necessity of nuclear options and eschew them because of the military effectiveness of conventional alternatives.

PRECEDENT

Decisionmakers may also refrain from using nuclear weapons against nonnuclear weapons states because leaders do not wish to set a precedent for the use of nuclear weapons. Nuclear use today would trigger both further nu-

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45. I consider whether extended deterrence is operating on a game-by-game basis.
46. No single author has developed this logic into an independent theory of nuclear nonuse. Instead, proponents of other theories take this logic seriously as a complementary explanation. See Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction." The logic of practicality may also capture concerns about efficacy, distinct from necessity. See, for example, Benjamin Valentino, "Moral Character or Character of War? American Public Opinion on the Targeting of Civilians in Times of War," *Daedalus*, Vol. 145, No. 4 (Fall 2016), pp. 127–138, doi:10.1162/DAED_ a_00417.

clear proliferation and, ultimately, additional uses of nuclear weapons by others in the future. Nuclear weapons states foresee a more dangerous and volatile world if nuclear weapons use were more common. Updating ancient wisdom, Sagan thus prescribed: "In the modern world, the strong may not want to do what they can, for excessively aggressive behavior will force the weak to develop their own weapons of mass destruction."[47] Paul agreed that nuclear use could "result in an extremely bad precedent" and "push some hitherto nonnuclear states to attempt to acquire nuclear weapons."[48]

The logic of precedent predicts that wargame participants will consider the long-term effects of their actions. They will fear setting a precedent and will therefore eschew nuclear weapons.[49] In deliberations about the use of nuclear weapons, we expect evidence of the type: "I worry that the world will be more dangerous in the future if we use nuclear weapons here," or "if we use nuclear weapons, more states will want to acquire them."

H3: In all types of wargames, participants will fear setting a precedent for the use of nuclear weapons and eschew nuclear employment.

REPUTATION

A fourth theory is that nuclear weapons states fear the reputational costs that would follow any use of nuclear weapons.[50] Matthew Jones, for example, has shown that after World War II the United States did not use nuclear weapons again in Asia for fear of playing into the hands of critics who decried a racist targeting policy.[51] Multiple reputations may be at stake—the state's reputation, a leader's personal reputation, or advisers' personal reputations. The audiences of concern could also be multifold: domestic public, international public,

47. Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction," p. 73.
48. Paul, *The Tradition of Non-Use of Nuclear Weapons*, p. 12. Paul's complete theory also includes the logic of reputation alongside this precedent argument.
49. Some may observe that believing you can set a precedent is akin to believing you can change a norm. The logic of precedent as originally laid out by Sagan, however, was entirely consequentialist and distinct from logics of appropriateness. See Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction."
50. The nuclear nonuse logic of reputation is a narrow application of the concept of reputation in international relations. Other reputational theories would predict the use of nuclear weapons under certain circumstances. For example, actors who made nuclear threats might feel obliged to carry them out lest they pay a reputational cost for backing down. I do not test this logic. See Scott D. Sagan, "The Commitment Trap: Why the United States Should Not Use Nuclear Threats to Deter Biological and Chemical Weapons Attacks," *International Security*, Vol. 24, No. 4 (Spring 2000), pp. 85–115, doi:10.1162/016228800560318. For a broader review of when and why states care about their reputations, see Jennifer L. Erickson, *Dangerous Trade: Arms Exports, Human Rights, and the Politics of Social Reputation* (New York: Columbia University Press, 2015), chap. 2.
51. Matthew Jones's work highlights reputational logics of nonuse, especially the United States' reputation among Asian countries. See Jones, *After Hiroshima: The United States, Race, and Nuclear Weapons in Asia, 1945–1965* (Cambridge: Cambridge University Press, 2010).

allied governments, or policymaking peers.[52] Indeed, the audience of concern may not always be obvious. Senior U.S. diplomat George Ball, for example, argued that the first country to use nuclear weapons since 1945 "would suffer universal condemnation."[53] Overall, according to this logic, leaders may be willing to forgo the military benefit of using nuclear weapons in exchange for not paying reputational costs. The logic also requires, however, that decision-makers believe that the use of nuclear weapons would have reputational costs—that at least one audience or another would find the use of nuclear weapons worthy of reprimand.

Reputation logic predicts that participants in any wargame will fear the reputational costs of nuclear use, whether paid to allies, domestic or international publics, or peers, and thus eschew nuclear options. One expects evidence of the type: "We will have to answer to our people/the international community/our allies if we decide to use nuclear weapons" or "I do not want to be known as the first one to use nuclear weapons since 1945."

H4: In all types of wargames, participants will eschew using nuclear weapons, because they will fear suffering a blow to their country's or their own reputations.

ETHICS

There may be a moral prohibition against the first use of nuclear weapons that regulates the decisions of policymakers. Ethical aversion is part of Tannenwald's theory of the nuclear "taboo" that "has delegitimize[d] nuclear weapons as weapons of war."[54] Schelling agreed, calling for the preservation of the "taboo" in his 2005 Nobel Prize lecture.[55] Other scholars go further and point to nuclear nonuse as one example of a broader triumph of the acceptance of just war principles, such as noncombatant immunity.[56] Consider, for instance, President Harry Truman's decision to suspend delivery of a third

52. Recent scholarship suggests that the U.S. public is more likely to be a goad than a constraint on the use of nuclear weapons. See Sagan and Valentino, "Revisiting Hiroshima in Iran." Nonetheless, Paul includes the logic of reputation, especially with one's allies, in his formulation of the tradition of nonuse. See Paul, *The Tradition of Non-Use of Nuclear Weapons*, p. 2. This article also points to the potential role of peer reputational concerns among colleagues.
53. George Ball, "The Cosmic Bluff," *New York Review of Books*, July 21, 1983, p. 37.
54. Tannenwald, *The Nuclear Taboo*, p. 3. Reputation—domestic and world opinion—is the other logic associated with the nuclear taboo. Ibid., pp. 47–50.
55. Thomas C. Schelling, "An Astonishing Sixty Years: The Legacy of Hiroshima," Nobel Prize lecture, Royal Swedish Academy of Sciences, Stockholm, Sweden, December 8, 2005, https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2005/schelling-lecture.html.
56. Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined* (New York: Viking, 2011); and Ward Thomas, *The Ethics of Destruction: Norms and Force in International Relations* (Ithaca, N.Y.: Cornell University Press, 2001). On just war principles, see Michael Walzer, *Just and Unjust Wars: A Moral Argument with Historical Illustrations* (New York: Basic Books, 1977).

atomic bomb against Japan because of his stated aversion to killing "all those kids."[57]

An ethical logic uniquely predicts that wargames participants should consider the option of nuclear use within a framework of moral, principled objection. They should refer to its immorality or its incompatibility with their own identity when rejecting it,[58] perhaps even citing the laws of armed conflict or objecting to the killing of noncombatants. At the extreme, they may express horror or disgust. Nuclear weapons will not be used against nuclear weapons states and nonnuclear weapons states alike. One expects evidence of the type: "That nuclear option is abhorrent," or "there would be too much collateral damage," or "this is just not something our country would do."

H5: In all types of wargames, participants will eschew nuclear options by invoking the immorality of nuclear use or referring to their own identities.

Elites versus non-elites

Finally, I seek to determine whether, in the available records of wargames, elites behaved differently from non-elites. "Elites" are individuals with authority in their domains. Thus, for political-military wargaming, elites are "strategic elites," who possess some experience or training in military strategy or statecraft.[59] They may have a deeper understanding of the physical and political effects of nuclear weapons. Such a definition is consistent with existing scholarship on elite roles in foreign policymaking.[60] Indeed, testing hypotheses on the behavior of elites versus non-elites is important, because elite advisers have been shown to exert great influence over foreign policy decisionmaking.[61]

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57. Barton J. Bernstein, "The Perils and Politics of Surrender: Ending the War with Japan and Avoiding the Third Atomic Bomb," *Pacific Historical Review*, Vol. 46, No. 1 (February 1977), p. 10, doi:10.2307/3637400.

58. "Identity" is included here because constructivist theory posits that norms regulate only the behavior of those who share similar identities. A reference to one's own identity when considering nuclear weapons may be evidence of a norm of nonuse. See Peter J. Katzenstein, ed., *The Culture of National Security: Norms and Identity in World Politics* (Ithaca, N.Y.: Cornell University Press, 1996).

59. For other work distinguishing experienced elites from the general public, see Brad L. LeVeck et al., "The Role of Self-Interest in Elite Bargaining," *Proceedings of the National Academy of Sciences*, Vol. 111, No. 52 (December 2014), pp. 18536–18541, doi:10.1073/pnas.1409885111.

60. See Elizabeth N. Saunders, "War and the Inner Circle: Democratic Elites and the Politics of Using Force," *Security Studies*, Vol. 24, No. 3 (2015), p. 468, doi:10.1080/09636412.2015.1070618. See also discussion of "experienced elites" in Emilie M. Hafner-Burton, D. Alex Hughes, and David G. Victor, "The Cognitive Revolution and the Political Psychology of Elite Decision Making," *Perspectives on Politics*, Vol. 11, No. 2 (June 2013), pp. 368–386, doi:10.1017/S1537592713001084. In this article, I am not concerned with the distinction between civilian and military wargame players. The data do not always identify players as civilian or military.

61. Eben J. Christensen and Steven B. Redd, "Bureaucrats versus the Ballot Box in Foreign Policy Decision Making: An Experimental Analysis of the Bureaucratic Politics Model and the Poliheuristic Theory," *Journal of Conflict Resolution*, Vol. 48, No. 1 (February 2004), pp. 69–90, doi:10.1177/0022002703261054; and Jean A. Garrison, "Framing Foreign Policy Alternatives in the

Are strategic elites more or less likely than non-elites to cross the nuclear threshold? If elites are more averse than non-elites to the use of nuclear weapons, elite wargame participants should eschew nuclear use more often than non-elite wargames participants.

H6: Non-elites will use nuclear weapons in wargames more often than elites.

If elites are no more averse to the use of nuclear weapons than non-elites, however, elites and non-elites should be just as likely to employ or eschew nuclear options in wargames.

H7: Non-elites and elites will use nuclear weapons in wargames at the same rate.

Table 2 summarizes all seven hypotheses and how their predictions vary between wargames with and without nuclear-armed adversaries. Wargames involving nuclear weapons states pit multiple nuclear-armed teams against each other; wargames involving nonnuclear weapons states include at least one nonnuclear-armed team. The critical distinction between these two environments is that the logic of nuclear deterrence cannot inhibit nuclear use when only one actor possesses nuclear weapons. Just as in historical cases where deterrence cannot explain the nonuse of nuclear weapons against nonnuclear weapons states, such as in the Korean War, the Vietnam War, or the Persian Gulf War, neither can deterrence explain the reluctance of wargame participants to use nuclear weapons against simulated nonnuclear-armed adversaries without nuclear patrons.

The logics of deterrence, practicality, and precedent consider the consequences of using nuclear weapons. In contrast, the logics of ethics and reputation emphasize the appropriateness of using nuclear weapons.[62] Although the logic of reputation also takes into consideration a desire to avoid reputational costs, it relies heavily on a belief about what other actors consider appropriate and acceptable. Absent a shared standard of behavior, breaking the tradition of nuclear nonuse would not come with significant reputational costs. In other words, if elite wargame participants eschew nuclear options for fear of reputational costs (from any audience), they are acknowledging some normative aversion to the use of nuclear weapons. Norms are "collective expectations for the proper behavior of actors with a given identity."[63] They are not

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Inner Circle: President Carter, His Advisors, and the Struggle for the Arms Control Agenda," *Political Psychology*, Vol. 22, No. 4 (December 2001), pp. 775–807, doi:10.1111/0162-895X.00262.

62. On logics of consequences versus logics of appropriateness, see James G. March and Johan P. Olsen, *Rediscovering Institutions: The Organizational Basis of Politics* (New York: Free Press, 1989).

63. Peter J. Katzenstein, "Introduction: Alternative Perspectives on National Security," in Katzenstein, *The Culture of National Security*, p. 5.

Table 2. Summary of Hypotheses on the Use of Nuclear Weapons in Wargames

	Wargames with Nuclear Weapons States		Wargames with Nonnuclear Weapons States	
	Action	Participant Explanation	Action	Participant Explanation
H1: Deterrence	nonuse	fear of retaliation	use	no fear of retaliation
H2: Practicality	nonuse	no tactical necessity	nonuse	no tactical necessity
H3: Precedent	nonuse	fear of setting a precedent for use	nonuse	fear of setting a precedent for use
H4: Reputation	nonuse	fear of reputational costs (among allies, international public, domestic public, or peers)	nonuse	fear of reputational costs (among allies, international public, domestic public, or peers)
H5: Ethics	nonuse	morality; identity	nonuse	morality; identity
H6: Strategic elite aversion	less use by elites	—	less use by elites	—
H7: Universal aversion	equal use	—	equal use	—

required to be based in morality; rather, they imply an understanding of what "someone like me" ought to do. Constructivist scholarship has recognized the regulatory role that norms play in shaping state behavior and the constitutive role they play in helping international actors form identities,[64] even with respect to the use of force and decisions about nuclear weapons.[65]

None of the logics discussed above is mutually exclusive; rather, each may

64. Martha Finnemore, *National Interests in International Society* (Ithaca, N.Y.: Cornell University Press, 1996); Martha Finnemore and Kathryn Sikkink, "International Norm Dynamics and Political Change," *International Organization*, Vol. 52, No. 4 (Autumn 1998), pp. 887–917, doi:10.1162/002081898550789; and Alexander Wendt, *A Social Theory of International Politics* (Cambridge: Cambridge University Press, 1999). According to Tannenwald, the normative effects of the nuclear taboo are both regulative (of behavior) and constitutive (of roles and identities). See Tannenwald, *The Nuclear Taboo*, pp. 44–47. Tannenwald also defines a third type of normative effects—permissive effects—but calls them a subset of constitutive effects. See ibid., p. 437.

65. On norms and the use of force, see Martha Finnemore, *The Purpose of Intervention: Changing Beliefs about the Use of Force* (Ithaca, N.Y.: Cornell University Press, 2003); Ian Hurd, *After Anarchy: Legitimacy and Power in the United Nations Security Council* (Princeton, N.J.: Princeton University Press, 2007); and Helen M. Kinsella, *The Image before the Weapon: A Critical History of the Distinction between Combatant and Civilian* (Ithaca, N.Y.: Cornell University Press, 2011). On norms and nuclear weapons, see Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security*, Vol. 21, No. 3 (Winter 1996/97), pp. 54–86, doi:10.1162/isec.21.3.54; and Maria Rost Rublee, *Nonproliferation Norms: Why States Choose Nuclear Restraint* (Athens: University of Georgia Press, 2009); and Maria Rost Rublee and Avner Cohen, "Nuclear Norms in Global Governance: A Progressive Research Agenda," *Contemporary Security Policy*, Vol. 39, No. 3 (July 2018), pp. 317–340, doi:10.1080/13523260.2018.1451428.

operate in any given case, independently or in combination. Although proving one theory does not falsify the others, scholars may compare them to test their relative validity.

To observe explanations, I read the documentary records for variables that wargame participants decided were important enough to verbalize and discuss.[66] Especially in anonymized, once-classified records of private conversations, participants expressed their reasoning openly. At the very least, they were not compelled to discuss aversion to the use of nuclear weapons. This approach is inspired by Tannenwald's concept of "taboo talk"—references to normative constraints observed in the historical record of nuclear-use deliberations.[67] This study similarly looks for taboo talk, separating "reputation talk" from "ethics talk," as well as "deterrence talk," "practicality talk," or "precedent talk."[68] My evidence comes mostly from transcripts of postgame "debrief" or "critique" sessions in which players challenged one another to explain their in-game decisions. This speech evidence from wargames should be treated the same as other historical qualitative evidence. Scholars cannot know perfectly what a policymaker was thinking in historical cases, but speech evidence provides clues to make a scholarly judgment. Wargame records have the added benefit of capturing private discussions after the fact, sometimes even moderated by a scholar. Historical case evidence rarely comes with such after-action reports by participants.

The evidence used in this study is by nature biased against finding "taboo talk." As many scholars and practitioners have recognized, national security deliberations in the United States government, particularly within the Pentagon, betray a materialist bias. Sagan calls it the "realist bias in international security discourse."[69] In public, leaders tend to wrap self-interest in the guise of moral imperative—"we are doing it because it is right"—yet in private, especially in matters of national security, leaders turn moral arguments

66. This approach is consistent with cognitive psychology scholarship that sees individuals' language choices as valuable evidence of their true thoughts and beliefs. See Steven Pinker, *The Stuff of Thought: Language as a Window into Human Nature* (New York: Penguin, 2007). For a detailed discussion of this approach in political science, see Marika Landau-Wells, "Old Solutions to New Problems: An Introduction to Threat-Heuristic Theory," MIT, 2018, http://www.marikalandau-wells.com/threat-perception/.

67. Tannenwald, *The Nuclear Taboo*, p. 51.

68. In wargame records, sometimes logics are distinguishable, other times not. I note their separability whenever possible. Often these logics are not sufficiently disentangled when tested in otherwise excellent historical studies. See, for example, William Burr, "The Nuclear Taboo: Presidential Restraint in the Nuclear Age," introduction to Burr, ed., *U.S. Presidents and the Nuclear Taboo*, November 30, 2017, Electronic Briefing Book No. 611, National Security Archive, George Washington University, Washington, D.C., https://nsarchive.gwu.edu/briefing-book/nuclear-vault/2017-11-30/us-presidents-nuclear-taboo#_edn2.

69. Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction," p. 78.

Figure 1a. Logics Invoked in Wargames with Nuclear Adversaries

	Deterrence	Practicality	Precedent	Reputation	Ethics
POLEX I	✓				
POLEX II	✓	✓			
Berlin crisis game I	✓	✓		✓	✓
Berlin crisis game II	✓			✓	✓
EPSILON I-62		✓	✓	✓	
DETEX II	✓	✓			
EPSILON I-64	no nuclear discussion				
DETEX III	ambiguous nuclear discussion				
NU I	✓	✓		✓	
NU II	✓	✓		✓	
BETA I	nuclear use				
BETA II	nuclear use				
EPSILON 72	✓				

into more admissible opinions about the national interest. "Leaders are therefore more likely to argue not that the government should refrain from doing something because it would be wrong," writes Sagan, but "because it won't be effective or others will think it is wrong."[70] Tannenwald refers to the same bias in national security decisionmaking as the "recasting of 'moral talk' whenever possible into the language of interests and cost-benefit analysis."[71] Political-military wargames are thus hard cases to find evidence of logics of appropriateness (reputation or ethics) inhibiting nuclear use. Evidence in their favor should be all the more convincing.

Wargame Results

In twenty-four of the twenty-six wargames I analyzed for this study, elite players chose not to employ nuclear weapons. Players often discussed the option, even threatened nuclear use, but balked at employment. What explains these decisions? The logic of deterrence (H1) was strong, but it was not the only

70. Ibid., pp. 78–79.
71. Tannenwald, *The Nuclear Taboo*, pp. 54–55.

Figure 1b. Logics Invoked in Wargames with Nonnuclear Adversaries

	Deterrence	Practicality	Precedent	Reputation	Ethics
SIGMA I-62	ambiguous nuclear discussion				
POLEX-DAIS I*	ambiguous nuclear discussion				
POLEX-DAIS II*	✓				
POLEX-DAIS III*	✓				
POLEX-DAIS IV*	ambiguous nuclear discussion				
DETEX I*	✓	✓		✓	
SIGMA I-64		✓			
SIGMA II-64				✓	✓
SIGMA II-65*		✓		✓	
SIGMA I-66*	no nuclear discussion				
SIGMA I-67	no nuclear discussion				
SIGMA II-67	no nuclear discussion				
MU I-68*	✓				

* Deterrence logic may still operate via extended deterrence.

cause of aversion. Notably, the only two uses of nuclear weapons occurred in games against adversaries capable of nuclear retaliation. In many other wargames, participants expressed non-deterrence and even normative aversions to the use of nuclear weapons. They specifically invoked the logics of practicality (H2) and reputation (H4). As a first step in parsing the data, I categorize instances when wargame players expressed an aversion to nuclear weapons according to whether they invoked one or more of the five logics (see figures 1a and 1b for the results).[72] The figures demonstrate the high frequency of players citing deterrence, practicality, and reputation as reasons not to use nuclear weapons.

This overview of the evidence offers strong support to H1, H2, and H4, but tells only part of the story. References to nuclear weapons in wargame reports

72. A logic is "invoked" if it appears at least once in wargame documentation. See the online appendix.

cannot be properly interpreted without the full background of the political and military crisis put to players or the back-and-forth of deliberations. I turn to this decisionmaking analysis next—first for wargames against nonnuclear-armed adversaries and then against nuclear-armed adversaries—to explain when and why players chose not to use nuclear weapons. Spotlights on several individual wargames show the logics in action. Then I discuss the BETA wargames that did cross the nuclear threshold, and I address differences between elites and non-elites in wargames.

wargames with nonnuclear adversaries

Elite players used nuclear weapons in none of the thirteen wargames with nonnuclear-armed adversaries. Players explicitly considered the option in ten of the games; in the other three, no one raised the option. The records show players expressing practical and reputational aversions to the use of nuclear weapons, especially when deterrence was not operating via third-party extended deterrence. Detailed discussions of the DETEX I and SIGMA II-64 wargames show the logics in action and how I distinguish between ambiguous and clear logics in context.

In eight of the thirteen wargames with nonnuclear adversaries, players' reluctance to escalate regional conflicts may have stemmed from concern about third-party intervention by a nuclear power—a logic of extended deterrence. A summary of the MU I-68 wargame regarding escalating Arab-Israeli tensions, for example, notes that the "US and USSR [Union of Soviet Socialist Republics] teams both feared confrontation."[73] Similarly, wargames on Southeast Asian contingencies conducted after China's first nuclear test, on October 16, 1964, may include indirect deterrence considerations. For example, there was no mention of nuclear options in the SIGMA I-66 wargame, even though it centered on war termination and sources of negotiating leverage for withdrawal from Vietnam on favorable terms.[74] Without further evidence, this outcome is indistinguishable from extended deterrence.

The nonuse of nuclear weapons in these wargames was not for lack of nuclear considerations. SIGMA II-65, for example, saw a frustrated Blue team stuck in a quagmire in Southeast Asia and executing an ineffective coercive bombing campaign against North Vietnam.[75] Although Blue players did not

73. "Politico-Military Game MU I-68," Memorandum for the Record, May 14, 1968, Central Intelligence Agency Freedom of Information Act Electronic Reading Room (henceforth CIA FOIA ERR), p. 2, https://www.cia.gov/library/readingroom/docs/CIA-RDP80B01676R001600120004-0.pdf.
74. U.S. Department of Defense, "Final Report on Politico-Military Game, SIGMA I-66."
75. Senior officials did not participate as operational players in SIGMA II-65 (July–August 1965), but they did gather together to discuss its outcomes. I rely on this post hoc senior commentary. These senior commenters included McGeorge Bundy, Lt. Gen. Andrew Goodpaster, Averell Harriman, Gen. Harold Johnson, John McNaughton, Adm. Horacio Rivero, Walt Rostow, Lt. Gen.

discuss the use of nuclear weapons in the game, afterward an anonymous senior observer raised the option. "Well, at the risk of being called a horrible war monger and a few other things," he said, ". . . I see a parallel between the situation in North Vietnam . . . and Japan as of the end of the Okinawa campaign. Where we had the initiative to hit any damn thing we wanted to and they needed a persuader to say 'quit.' I would suggest maybe a small size A-bomb on Dien Bien Phu as the place where they won their victory the first time . . . but I don't think that national policy would probably approve."[76] The room laughed while another senior participant interjected, "Well one could take your principle and put some of these younger people on the business of thinking up something other than an A-bomb that would do the same thing," and the conversation quickly moved on.[77] What should one make of this exchange? On the one hand, the participant raising the nuclear option is not averse to the use of a single nuclear weapon to demonstrate resolve. On the other hand, in raising it, he is explicitly aware of the risk of acquiring a reputation as a "warmonger" among peers and that "national policy" would not likely support it. More important, the room responds with laughter and rejects the option. The response paints nuclear use as both old-fashioned and unnecessary ("put some of these younger people on the business of thinking up something other than an A-bomb"). Moreover, later in the postgame discussion, a Control team member invoked the logic of international reputational costs for a hypothetical U.S. "nuclear excursion."[78] If the United States used nuclear weapons against China, he reasoned, Beijing would be empowered to "play the negotiating track for awhile with world opinion and so forth on their side . . . [Thus] this is not the ultimate answer either."[79] He made no mention of the logic of deterrence, but cited instead a fear of global condemnation. Overall, SIGMA II-65 included arguments about both practical and reputational aversions to nuclear use. Players did not use the bomb.

The DETEX I wargame, hosted by MIT in 1963 and concerning nonnuclear-armed Chinese intervention against U.S. forces in another Southeast Asian quagmire scenario, shows how players expressed non-deterrence aversions to the use of nuclear weapons, despite ambiguities about the Soviet team's willingness to extend deterrence to China. To be clear, China did not possess nuclear weapons. Except for the Soviets' dubious attempt to extend deterrence, U.S. team players had no reason to fear retaliation. Organizers remarked that a

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Berton Spivy, Llewelyn Thompson, and Gen. Earle Wheeler. See U.S. Department of Defense "Final Report of Politico-Military Game, SIGMA II-65," pp. A7–A8.
76. Ibid., p. F24.
77. Ibid.
78. Ibid., p. F27.
79. Ibid.

"striking event in several of the [DETEX] exercises has been the tendency for escalation to occur only along a spectrum of conventional arms, with massive commitment of conventional force invariably considered before the use of even a single tactical nuclear weapon."[80] The restraint was most surprising in DETEX I, in which "at no point did the U.S. 'policymakers' see how nuclear bombing could effectively deter further attack, despite the fact that the game had been designed to maximize the attractiveness and minimize the risk of employing small tactical nuclear weapons."[81] As this quotation suggests, U.S. team players made practical calculations about the necessity of nuclear weapons in the scenario. The report notes that "although they did threaten their [nuclear] use to this end, they had little hope that this would be effective." Rather, members of the U.S. team "viewed any detonation of nuclear weapons in North Vietnam or in China itself only as a desperate final means to achieve defeat of Chinese forces already committed to the battle. But even in this sense, they were quite confident that their massive application of conventional arms in Southeast Asia would quickly serve to repel the Chinese."[82] Conventional arms were sufficient, so the extreme step of nuclear use was unnecessary.

The U.S. team also considered the reputation of the current presidential administration among the domestic electorate when they rejected nuclear options. Noting the upcoming 1964 presidential election, players contrasted the Lyndon Johnson administration's policies with those of the Republican Party nominee, Barry Goldwater. In the real world, Johnson's campaign would soon attack Goldwater for advocating the use of tactical nuclear weapons in Vietnam and for his cavalier nuclear threats.[83] In this context, the U.S. team assessed, "We did not see Johnson . . . stealing Goldwater's thunder by doing what Goldwater was proposing." Another player concurred, "We felt Johnson would press for a nonnuclear strong line, that a nonnuclear strong line before the election could not do anything, and that we would resolve the issue by that time."[84]

In addition to practical and reputational nuclear aversions, a perception of extended deterrence may have restrained the U.S. team. Discussion of deterrence in the game remains ambiguous. The Chinese team players "tried to get a Soviet commitment," but "as far as we know, we failed at every attempt."[85]

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80. "The DETEX-EXDET Political-Military Exercises on Naval Weapons Systems during Crises: Final Report," 1965, box 11, Lincoln P. Bloomfield Papers, MC 326, MIT Archives, p. 17.
81. Ibid., p. 18.
82. Ibid.
83. Johnson's famous "Daisy" advertisement aired in September 1964, after the DETEX I wargame.
84. Lincoln Bloomfield, "Political Exercise DETEX I—Plenary Critique Session," November 29, 1963, box 10, Lincoln P. Bloomfield Papers, MC 326, MIT Archives, p. 67.
85. Ibid., p. 30.

Meanwhile, the Soviet team's explicit assessment was that its members were "not going to initiate a nuclear attack."[86] Indeed, "the maximum Soviet objective was to bring about, with or without the use of nuclear weapons on the part of the Americans, a defeat of China by the United States."[87] Another Soviet player protested that he did want the war between China and the United States "to continue, to be protracted, but to be conventional."[88] Other Soviet players concurred that they wished to avoid general thermonuclear war, but to see the government of China defeated.[89] After the game, the Soviet players admitted to the Chinese players, "To force us to support you, there was nothing you could do."[90] American perceptions of this Sino-Soviet division are opaque. No U.S. team player suggested that he was deterred. Only a Soviet team member assessed that "the American team was, if anything, inhibited by fear of some Soviet deterrent, while, in fact it should have been encouraged."[91] The Control team instead ascribed the U.S. players' nuclear restraint to their concern for "the attitude of the Southeast Asian states." "The Americans were so worried about this that they restrained themselves in terms of their nuclear threats to Communist China," recalled Control.[92]

Next, I examine the five wargames in the sample with only nonnuclear adversaries that control for deterrence and serve as a purer test of nuclear nonuse logics. In these non-deterrence cases, why did the elite players eschew nuclear options? When the option was discussed, players rejected it for practical and reputational reasons.[93]

Players in SIGMA I-64, for example, a wargame in which "high level government officials explored questions involved in the application of pressures against North Vietnam," judged that the use of nuclear weapons would provide no meaningful military advantage.[94] Participants sometimes obliquely re-

86. Ibid.
87. Ibid., p. 36.
88. Ibid., p. 38.
89. Ibid., pp. 36–40.
90. Ibid., p. 40.
91. Ibid., p. 67.
92. Ibid., p. 68.
93. Players did not debate the use of nuclear weapons in SIGMA I-67 and SIGMA II-67. Without further evidence, I cannot say why. Joint War Games Agency, "SIGMA-67 Final Report," December 1967, box 79, National Security File, Agency File Addendum, Folder: JCS Sigma-67 final report, Lyndon B. Johnson Archives, Austin, Texas. SIGMA I-62 contains only one ambiguous rejection of nuclear options. Sigma I-62 was hosted by the JWGCG in February 1962, and McGeorge Bundy and Maxwell Taylor participated on the Control team. U.S. Department of Defense, "Final Report and Documentation of the Politico-Military Game Relating to Southeast Asia [SIGMA I-62]," p. 25. See also Allen, *Wargames*, pp. 31–32.
94. U.S. Department of Defense, "Final Report on JCS Politico-Military Game SIGMA I-64," n.d., doc. no. GALE|CK2349234646, U.S. Declassified Documents Online, p. D1. Sigma I-64 was held in April 1964, and participants included McGeorge Bundy, Curtis Lemay, John McCone, and John McNaughton. See Van Creveld, *Wargames*, p. 182.

ferred to the option of "put[ting] North Vietnam into the stone age," but rejected it as ineffective.[95] They concluded, "It's not clear though that if you put him into the stone age as to what degree you've solved your problem in the South."[96]

Players debated and rejected nuclear use much more thoroughly in the SIGMA II-64 wargame, described at the beginning of this article.[97] Set prior to Beijing's acquisition of nuclear weapons, this wargame involved a U.S. team faced with an escalating Southeast Asian conflict and the prospect of a Chinese invasion. The Control team explicitly asked the Blue team whether it would authorize the local commander (CINCPAC) to use tactical nuclear weapons "in the event of overwhelming attack," to "preclude the destruction of major US or friendly forces."[98] Blue denied the authority.[99] In response, CINCPAC (played by Control) emphasized that his "capability to stop them [Chinese forces] effectively prior to deep penetration into Laos, Thailand or Burma lies in the timely use of tactical nuclear weapons."[100] Again, Blue demurred, writing that "CINCPAC should not, in his planning, assume automatic availability of nuclear weapons under the circumstances he describes."[101]

The elite players of the SIGMA II-64 wargame invoked reputational logics in their deliberations about nuclear weapons. According to the postgame report, the Americans playing on the Red team doubted the willingness of U.S. government leaders to employ nuclear weapons. "We had a general estimate of US policy that they would be reluctant to cross the nuclear threshold," they reported.[102] Explaining that estimate, "the Reds felt that there were a number of reasons why the US would refrain from using nuclear weapons against China. These included (hopefully), the protective umbrella of Soviet nuclear forces as well as US domestic and world revulsion toward the use of nuclear weapons."[103] Deterrence was not operating in the game, however. The Soviet Union (played by Control) "avoided reiterating previous real life statements indicating that an attack on Red China would be regarded as an attack on the USSR."[104] Indeed, the Red (Chinese) team itself assessed Soviet protec-

95. U.S. Department of Defense, "Final Report on JCS Politico-Military Game SIGMA I-64," p. G15.
96. Ibid., p. G16.
97. Sigma II-64 was held in September 1964. McGeorge Bundy, William Bundy, Horacio Rivero, and Cyrus Vance participated. See Allen, *Wargames*, p. 197.
98. U.S. Department of Defense, "Final Report of Politico-Military Game, SIGMA II-64," pp. B2, E10-BLUE.
99. Ibid., p. F17-BLUE.
100. Ibid., p. F19-BLUE.
101. Ibid., p. F36-BLUE.
102. Ibid., p. G13.
103. Ibid., p. D13.
104. Ibid., p. D19.

tion as a "weasel-worded" commitment that "fell far short of a pledge to regard a US attack on China as an attack on the USSR."[105] Most important, and in contrast to the records of DETEX I discussed earlier, the Blue team made a similar assessment: "How much would they [the Soviets] really risk," wondered the team, "if they themselves were safe and would continue to be safe, in order to preserve Red China?"[106] Neither was practicality a concern in SIGMA II-64, as participants recognized the possible need for "quick decisions regarding the timely use of tactical nuclear weapons against the mountain passes and principal defiles from China into SEA [Southeast Asia]."[107] Nuclear use would have been tactically helpful; yet, the players still denied launch authority.

Notably, the Red team used the word "revulsion," possibly invoking an ethical logic of nuclear nonuse, working in tandem with a reputational logic concerning both domestic and international audiences.[108] Blue team players concurred by implying that non-deterrence aversions would keep the United States from employing nuclear weapons, as "several players voiced opinions that recent top level US policy statements regarding nuclear restraint indicated that their use for any purpose was extremely unlikely."[109]

Overall, based on the results of SIGMA II-64, the JWGA wargame organizers recommended that "plans should be militarily and logistically feasible based on no use of nuclear weapons, but with alternate plans which assume authority for use."[110]

In wargames with nonnuclear adversaries, U.S. strategic elites displayed a reluctance to approve the use of nuclear weapons. Wargames with nonnuclear-armed adversaries should feature less concern for the logic of deterrence when players debate the use of nuclear weapons, which makes these wargames a good test for non-deterrence theories of nuclear nonuse. Practicality did inhibit nuclear use in the games. Yet, even in cases where nuclear options were tactically advantageous and nuclear deterrence was not operating, elites eschewed nuclear weapons because of reputational concerns. Players seldom used strict ethical arguments, however; and the records show no evidence of a precedent aversion to nuclear use. I turn next to wargames with nuclear-capable adver-

105. Ibid., p. F28-RED.
106. Ibid., p. G18.
107. Ibid., p. D16.
108. Nearly identical language on a "widespread and fundamental revulsion" to nuclear use appears in a 1966 CIA assessment on the potential consequences of using nuclear weapons in Vietnam. See Board of National Estimates, Central Intelligence Agency, "Use of Nuclear Weapons in the Vietnam War," March 18, 1966, cited in Burr, "The Nuclear Taboo."
109. U.S. Department of Defense, "Final Report of Politico-Military Game, SIGMA II-64," p. D21. The policy statements to which this quotation refers are unspecified.
110. Ibid.

saries, which provide a less clean test of non-deterrence logics, but still confirm these findings.

WARGAMES WITH NUCLEAR ADVERSARIES

As expected, in wargames with simulated nuclear-armed adversaries, elite players were reluctant to use nuclear weapons for fear of nuclear retaliation or uncontrollable escalation (deterrence). They employed nuclear weapons in only two of the thirteen wargames in my sample. Notably, players were willing to suffer major conventional defeats before considering nuclear weapons and admitted in some postgame discussions that their in-game threats to use nuclear weapons were bluffs. Such behavior is not necessarily distinguishable from the logic of deterrence. Nonetheless, players also invoked clear practical and reputational aversions to nuclear use. They expressed only rare concern for ethics, and there were uncommon but notable references to the logic of precedent.

The records first bear out the logic of deterrence. For example, deterrence kept Thomas Schelling's 1961 Berlin crisis wargames from escalating. When Schelling and Alan Ferguson came together for an oral history project at the John F. Kennedy School of Government at Harvard University to reflect on these exercises, Ferguson recalled that "the whole game was pervaded by the fear that if we do something too tough, we will start a rapid escalation and we have no idea where it will end."[111] Schelling called it "nuclear phobia," noting, "it took extreme ingenuity on the part of the control team to make people misread each other and overreact or to make 'accidents' happen, to push the other side into some kind of aggressive move. We had to arrange misunderstandings and miscommunications. Otherwise, we would have had to send everyone home at noon on Saturday thinking that they had not had much of a weekend."[112] One participant in the games, Robert Komer (later an adviser to President Johnson), concluded that players' nuclear reticence suggested that U.S. threats to use nuclear weapons in Europe may not be credible. The United States would either have to "consider new ways of enhancing the credibility of our contention that if hostilities occur on the ground, we may have to resort to nuclear weapons," he suggested, or "seriously consider broadening the range of our political options."[113]

Fears of escalation abounded in other games. In the EPSILON 72 wargame, which postulated U.S.-Soviet skirmishes on the inner-German border as well

111. Schelling and Ferguson, remarks at the John F. Kennedy School of Government, p. 7.
112. Ibid., p. 3.
113. Quoted in Connelly et al., "'General, I Have Fought Just as Many Nuclear Wars as You Have,'" p. 1450.

as a Soviet invasion of Finland and Norway, a Blue team player commented on his team's decision not to use nuclear weapons by observing that "nobody had been able, certainly in this game and so far as I know in real life, to ever guarantee that there will not be an escalation if tactical nuclear weapons are employed."[114] Fears of conventional escalation served a similar deterrent function in the game. The Blue team called the option of tactical nuclear use "too dangerous" and perceived the risk of "inviting the full intervention of Soviet units mobilizing on the Czech border."[115]

Other decisions not to use nuclear weapons in wargames are less explicitly explained by deterrence, yet are indistinguishable from deterrence logic without further evidence. For example, in POLEX II, a wargame hosted by MIT and centered on a superpower crisis precipitated by the collapse of Iran's pro-Western regime, the U.S. team came to a "general agreement that no nuclear weapons would be used."[116] This statement is ambiguous and does not conform to any particular logic of nonuse.

Players also sometimes admitted in postgame discussions that their threats to use nuclear weapons in games were bluffs. These invocations are similarly indistinguishable from deterrence. They nevertheless reveal a sensitivity to the gravity of using such weapons. For example, in a wargame centered on a Cold War crisis in Iran, Schelling (the game director) reflected that the Blue and Red teams had come closer to nuclear war than they appreciated, because the Red team had privately laid out some criteria for responding to Blue team aggression with nuclear weapons, and Blue had discussed, although ultimately dismissed, some of the very same moves. Schelling asked the participants, "Doesn't that mean we were at least close to using nuclears?" To which the deputy head of the CIA and Red team member, Richard Bissel, responded, "Tom, I'm not sure we really meant it."[117]

Players were also willing to lose a great deal in wargames without resorting to the use of nuclear weapons. In the 1961 International Security Affairs Conference game, which simulated a U.S.-Soviet crisis over Berlin and escalated to a conventional war, a participant observed that "[Blue team players] lost a major conventional engagement and have demonstrated, properly, I think, that we will not resort to a nuclear first strike, even of a limited character."[118] The following year, the EPSILON I-62 wargame postulated a Soviet

114. Studies, Analysis, and Gaming Agency, "Politico-Military Simulation Epsilon 72: Simulation Documentation," October 30, 1972, CIA FOIA ERR, p. L6, http://www.foia.cia.gov/sites/default/files/document_conversions/5829/CIA-RDP80R01731R002400130002-4.pdf.
115. Ibid., p. L3.
116. "Political Exercise II," box 9, Lincoln P. Bloomfield Papers, MC 326, MIT Archives.
117. Thomas C. Schelling, "Red vs. Blue," in Harrigan and Kirschenbaum, *Zones of Control*, p. 237.
118. Abram Chayes, "Memorandum for the Secretary," October 2, 1961, folder "Germany, Berlin,

blockade of West Berlin, with Blue (the U.S. team) struggling to forcibly restore ground access. Under such circumstances in the real world, U.S. nuclear strategy threatened the use of nuclear weapons. Yet, Blue team players "were very constrained to avoid any possibility of general war." Meanwhile, Control observed, "We'll accept quite a bit of salami slicing."[119]

Players also tolerated the loss of some of their own nuclear weapons in the second round of EPSILON 72, when Control informed the Blue team that Soviet forces had overrun some of Blue's nuclear storage sites.[120] In this "use it or lose it" scenario, Blue team players still did not employ nuclear weapons. They reported,

> None of our members, military and civilian alike, projected any real role for nuclear weapons in the limited action with which we were confronted. We certainly didn't consider initially employing them; in fact, we did just the opposite. We moved our nuclear forces out of the area of Soviet advance so that they would not get mixed up in the action. Beyond that, the discussion demonstrated some grave uncertainty about the willingness of political leadership to use nuclear weapons even in a larger military engagement, giving question, first, about escalation and, secondly, about the ultimate utility. We waltzed around this question . . . We could not get anybody to stand up and tell us if you apply nuclear weapons: (1) the conflict will not escalate; and, (2) if it did escalate to higher levels that we would end up with any political objectives which were worth a damn.[121]

Again, while indicative of great caution about nuclear war, these statements are indistinguishable from deterrence.

The records of the NU wargame series are particularly useful for testing nuclear nonuse logics.[122] Held in February 1966 but set in October 1970, the NU wargame postulated an emerging Chinese nuclear capability ("thirty-two MRBMs [medium-range ballistic missiles] with a range of about 1000 miles and some nuclear carrying Badgers"), along with hostilities in Kashmir and across the Sino-Indian border; NU I included Pakistani conventional escalation, whereas NU II saw Soviet intervention.[123] Echoing his conclusions from prior games, Schelling (identified only as "Game Director") reflected during

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Subjects, Berlin Game," box 90, National Security Files, Presidential Papers, John F. Kennedy Archives, Boston, Massachusetts (henceforth JFK Archives).

119. Joint War Games Control Group, "Epsilon I-62 Final Report," folder "Germany, Berlin, Subjects, Berlin Game I-62 Report," box 90, National Security Files, Presidential Papers, JFK Archives, p. 70. EPSILON I-62 came close to nuclear use and is further discussed later in this article.

120. Studies, Analysis, and Gaming Agency, "Politico-Military Simulation Epsilon 72," p. H6.

121. Ibid., p. L4.

122. The title of this wargame series is pronounced "nu," like the Greek letter.

123. Badgers are Soviet-made strategic heavy bombers. U.S. Department of Defense, "Final Report of NU I and II-66, Two Interagency Politico-Military Games Played by Officials of the Executive Branch during 1/11–2/8/66," p. C1.

the postgame debrief that "if any generalization comes out of these games—and it may not apply to the world, I think it does—is that it is very, very hard to get a war started. It was hoped in this game that we might push things to the point where at least some kind of nuclear intervention would be seriously considered."[124]

The NU records show how players can evince multiple nonuse logics in one game, especially if some explicitly rule out deterrence logic, but invoke other aversions. According to the wargame report, the limited Chinese nuclear capability was irrelevant to most Blue team players' deliberations, and "the fact that the United States was not itself vulnerable to attack by major Chinese weapons systems in NU-66 did not go unnoticed by the U.S. team."[125] Rather, Blue team players explained the nonuse of nuclear weapons with practicality arguments. A NU I Blue team player said, "There was no occasion for it."[126] A NU II Blue team player concurred, but with reference to the Chinese arsenal, arguing that, "in an offensive sense," a Chinese MRBM "doesn't have very much practical application."[127] A third Blue team participant (identified as being from the U.S. Agency for International Development) invoked a de facto American policy of no first use. "Insofar as I'm concerned," he said, "I went on the assumption that the U.S. wouldn't ever use the bomb first. It's a paper bomb from that standpoint [. . .] It seems to me that nuclear bombs for this kind of an exercise might just as well be shut up in the cupboard somewhere. They don't really enter into the picture at all."[128]

Some statements from the NU wargames are ambiguously non-deterrent. For example, in NU II the U.S. and Indian teams (both made up of Americans) debated a strategy of stoking a direct Sino-Soviet military conflict, along the lines of "let's hold their coats and see how far they'll go."[129] Both teams ultimately rejected the strategy, as "there were a number of participants who felt that this was a rather cavalier attitude toward the possibility of nuclear war between Red China and the Soviet Union."[130] As the United States and India would not have been directly involved in such a war, the logic is not deterrence but some other unspecified aversion.

On NU's Chinese teams, deterrence was partly responsible for preventing nuclear use. A self-identified "dove" participant reported, "All the way through my thinking was, let us not shake those nuclear weapons because we

124. Ibid., p. D2.
125. Ibid., pp. C1, C3.
126. Ibid., p. D19.
127. Ibid., p. E5.
128. Ibid., p. D21.
129. Ibid., p. E15.
130. Ibid., p. C7.

have far, far too much to lose."[131] He is clearly concerned about escalation and retaliation. Another Chinese team member (identified only as a player from the Office of the Secretary of Defense) remarked: "I was the nuclear hawk on our team, and I did in fact try and get our team interested in a small nuclear explosion, ambiguous to its nature, so that we might even get the Russians and the U.S. confronting one another over who may have been responsible." Although he reported getting "no enthusiasm out of the Chinese for that gamble," his statement remains indistinguishable from deterrence.[132] Yet one NU I player on the Chinese team rejected the nuclear option with clear reputational aversion. "Any consideration of the use of tactical weapons or any use of them by our side," he argued, "would have thoroughly damaged and strained [relations with] such friendly Africans and the other people who hadn't any such capabilities."[133]

Reputational aversions to the use of nuclear weapons are evident in other wargames with nuclear-armed adversaries. Schelling, for example, recalled that the participants in his early Berlin crisis wargames "felt if we [the participants] became engaged in a major war or used nuclear weapons, somebody had dreadfully mismanaged, probably themselves." That is, the players "felt their pride, their self-esteem, and sometimes even their local reputations were very much wrapped up in whether or not they brought off . . . this crisis satisfactorily."[134] And in EPSILON I-62, as Red team players balked at the prospects of tactical nuclear use, one noted that world opinion would turn against a nuclear aggressor, arguing, "We prefer having the West in the position of being [*redaction*] aggressors."[135]

Finally, players rarely invoked the logics of precedent and ethics in wargames against nuclear-armed adversaries. In one instance, again in EPSILON I-62, a Red team player feared that tactical nuclear use "would open the Pandora's box of using these things in future conflict situations"[136]—a clear parallel to the aversion expressed by Chairman of the Joint Chiefs Colin Powell to even drawing up plans for tactical nuclear use in the Persian Gulf War: "We're not going to let that genie loose."[137] Another Red team participant in the same game remarked that he did not think that Blue team players would use nuclear weapons, because "once you started out, the whole world situation changes from thence forwards. One of our objectives, which you

131. Ibid., p. D6.
132. Ibid., p. D6. Also quoted in Allen, *Wargames*, p. 46.
133. Ibid., p. D7. I interpret "Africans" as a reference to African nations or governments.
134. Schelling and Ferguson, remarks at the John F. Kennedy School of Government, p. 3.
135. Joint War Games Control Group, "Epsilon I-62 Final Report," pp. 85–86.
136. Ibid.
137. Paul, *Tradition of Non-Use of Nuclear Weapons*, p. 153.

people never addressed, was to try to make you look aggressive and unreasonable while we looked reasonable."[138] The player is invoking both precedent ("the whole world situation changes from thence forwards") and reputational ("make you look aggressive and unreasonable") logics of nonuse. Pure ethical concerns are harder to come by. The only reference is in the Berlin crisis games series, as directors recalled that "there was no one who had a yen to destroy tens of millions of Russians. There was a real sense of human responsibility within these people."[139] This is a clear appeal to morality.

Overall, players in my sample of wargames with nuclear-armed adversaries used the bomb in only two out of thirteen games. Their aversion is best explained by a logic of deterrence (H1). Nevertheless, elite players invoked clear practical (H2) and reputational (H4) aversions as well, and to a far lesser extent precedent (H3) and ethical (H5) aversions to nuclear use.

EXPLAINING THE USE OF NUCLEAR WEAPONS IN WARGAMES

I am aware of three elite wargames in which the players used nuclear weapons: BETA I and BETA II (1967) and Olympiad I-79 (1979).[140] Unfortunately, the BETA series was the only one with accessible records.[141]

In 1967, ninety-six people from various government agencies participated in BETA I and BETA II, along with outside experts such as Lincoln Bloomfield, Henry Kissinger, Thomas Schelling, and Albert Wohlstetter.[142] The BETA I sce-

138. Joint War Games Control Group, "Epsilon I-62 Final Report," p. 90.
139. Schelling and Ferguson, remarks at the John F. Kennedy School of Government, p. 7.
140. Other wargames involved nuclear weapons use, but were purposely designed to do so as a means of testing nuclear escalation or war termination dynamics. For example, SCYLLA III (1973) involved multiple uses of tactical nuclear weapons in a simulated U.S.-Soviet war over Iran, but the wargame was "designed to create and evaluate nuclear options" for limited nuclear war. Memorandum for the Secretary of Defense, "SCYLLA III-73 Quick Look," January 2, 1974, National Security Archive, https://nsarchive.files.wordpress.com/2015/12/pages-from-19740102-scylla-report-1.pdf, p. 1. DELTA-84-M also involved the use of nuclear weapons, but was specifically designed for "examining problems of termination of a tactical nuclear conflict in Europe." See Edward Atkeson, "Memorandum on JCS Simulation DELTA-84-M," National Intelligence Council, March 15, 1984, CIA FOIA ERR, https://www.cia.gov/library/readingroom/docs/CIA-RDP86M00886R001800060045-1.pdf. Finally, more records are needed to make a judgment about whether the Proud Prophet 83 wargame belongs in this sample. Secretary of Defense Casper Weinberger secretly participated in Proud Prophet and used it as a testbed to "faithfully execute" existing war plans. The wargame escalated to strategic nuclear exchange, leading Weinberger to call U.S. strategy "bankrupt." See Paul Bracken, *The Second Nuclear Age: Strategy, Danger, and the New Power Politics* (New York: Times Books, 2012), pp. 84–90; and Andrew Krepinevich and Barry Watts, *The Last Warrior: Andrew Marshall and the Shaping of Modern American Defense Strategy* (New York: Basic Books, 2015), pp. 163–165. Future scholarship should leverage the records of these kinds of wargames to evaluate theories of nuclear escalation and war termination.
141. Declassified memos confirm the Olympiad I-79 result without details. See "Memorandum from William E. Odom to Zbigniew Brzezinski, Evening Report," July 13, 1979, CIA FOIA ERR; and "National Security Council Memorandum from Strategic Planning Cluster to Zbigniew Brzezinski, Evening Report," July 16, 1979, CIA FOIA ERR. I thank Matt Fay and Matthew Connelly for sharing these documents.
142. U.S. Department of Defense, "Game Requirements for BETA I and II-67, Two Concurrent,

nario envisioned a European theater where U.S. forces had been reduced to only three divisions and Soviet missile defenses were operational, placing the United States in a position of strategic inferiority. In this context, escalating tensions led to the East German seizure of West Berlin and a U.S. rescue mission, which stalled and was pinned down. To aid its beleaguered divisions, the U.S. (Blue) team used theater nuclear weapons on the battlefield in East Germany. The Soviet (Red) team retaliated correspondingly.[143] When the Blue team subsequently redoubled its efforts to force its way to Berlin, the Red team used tactical nuclear weapons (the third use in the game) to destroy six allied divisions. After a U.S. nuclear counterstrike that involved air assets from outside the German theater, the Soviet team perceived that the United States was committed to escalation and launched a "preemptive, combined counterforce-urban attack against the continental United States."[144] The United States responded in kind.

In the postgame critique, the U.S. team explained its nuclear decision-making. One Blue team member revealed that the team had had little time for discussion and that the suggestion to use nuclear weapons emerged late in its deliberation. "So far as the first use was concerned," he asserted, "the United States preferred not to use nuclear weapons. In what may be a horrifying simulacrum of reality, at the last minute when we couldn't think of anything else to do, someone said: [*redaction*]."[145] Although the exact phrasing is redacted, the suggestion to use nuclear weapons is clear. A second player concurred: "If the US team had had more time to talk, it probably would have decided not to use nuclear weapons after all."[146] A member of the Control team also reflected on the "crisis experience" of participants in the room, arguing that "the greater experience an individual has with a given interaction environment, the less likely he is to escalate conflict."[147] His assertion is consistent with a premise of this article that strategic elites may exhibit distinct behavior as a group.

Because retaliating with nuclear force to a nuclear strike is still consistent with logics of nonuse that constrain the first use of nuclear weapons, the Soviet

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Senior-Level, Interagency Politico-Military Games to Be Conducted in the Pentagon 4/20–5/16/67"; and U.S. Department of Defense, "Beta I and II—67: Final Report," May 16, 1967, doc. no. GALE|CK2349555758, U.S. Declassified Documents Online, pp. D1–D6.

143. U.S. uses of nuclear weapons are redacted from the wargame report, but Soviet uses are not redacted. Nonetheless, it is clear that the U.S. team was first to use nuclear weapons. See U.S. Department of Defense, "Beta I and II—67," pp. A6–A7.

144. Ibid., p. A7.

145. Ibid., p. C30.

146. Ibid., p. B5.

147. Ibid.

team behavior in BETA I that is most puzzling is its decision to massively escalate to strategic nuclear use. Here the game records show that Soviet willingness to preempt at the strategic level was submitted to Control earlier as a contingency plan: to use strategic nuclear weapons if the U.S. team used nuclear weapons from outside the theater of war. When this contingency arose, Control carried out general nuclear war plans for the Soviet team, without further deliberation. The Red team never gave the order to launch. In the postgame debrief, participants questioned whether the Soviet team would have made the same decision had it been given a chance to reconsider.[148] In formulating its original contingency plan for strategic preemption, however, the Soviet team did conclude that it was not deterred from use. It possessed a significant damage limitation capability and expected casualties in a nuclear exchange to be within historical bounds. One participant called them "roughly famine or purge or WWII [World War II] casualties."[149]

In BETA II, another series of escalating crises in Europe led to a Soviet blockade of West Berlin. This time, however, the Blue team was less cavalier. As U.S. leaders met to consider their options, Soviet planes bombed West German nuclear facilities. The Blue team chose not to escalate. When Control suddenly introduced a second front—a Chinese–North Korean invasion of South Korea, the U.S. team appears to have authorized tactical nuclear use to aid its outmatched defenders. A member of Control remarked, "To the best of my knowledge, these are the first two games which ever crossed the nuclear threshold."[150]

The records of the BETA I and II wargames provide some evidence against all of the logics of nonuse. Deterrence (H1) failed to keep the nuclear peace. Neither did practicality (H2), precedent (H3), reputational (H4), or ethical (H5) concerns impede nuclear use. The teams that used nuclear weapons were placed in deep conflicts against conventionally superior adversaries. According to Control, "The initial use of nuclear weapons in both games came at a time when US troops were threatened with serious defeat."[151] But even here, participants regretted what happened. They wished in hindsight that they had hesitated. In a moment of postgame remorse, one participant somberly reflected, "It is sobering and disturbing to realize that a handful of men, in the United States and the Soviet Union, can decide the fate of hundreds of millions, including many not in either country."[152]

148. Ibid., p. C28.
149. Ibid., p. B27.
150. Ibid., p. B16.
151. Ibid., p. B16.
152. Ibid., p. B22.

Although the BETA series constitutes the only two games to use nuclear weapons in this sample, others came close. As discussed throughout, some games featured players who suggested nuclear options. These games did not necessarily give players confidence in the possibility of nuclear restraint. Upon reflection of the NATO Planning Conference game, a Control team member commented that the avoidance of nuclear war may have been "partly a matter of accident" that a dire contingency did not arise.[153] Another Red team player in DETEX II, to the surprise of his colleagues, suggested that he was prepared to suffer the consequences of a "sanitized localized nuclear attack" against Western Europe.[154] Indeed, the nonuse of nuclear weapons in elite wargames was not for lack of consideration. The outcome of greatest note, however, is that in all but two cases such debate did not culminate in use.

Elites versus non-elites in wargames

Evidence also suggests that elites are less willing to use nuclear weapons in wargames than non-elites, supporting H6 and disconfirming H7. This behavior suggests stronger nuclear aversions among strategic elites compared with the general public or even educated professionals without statecraft expertise.

In EPSILON I-62, for example, a wargame simulating a Soviet blockade of West Berlin and a U.S. attempt to restore ground access through East Germany, a divide emerged in the postgame critique between senior policy players and more junior operational players. To maximize the participation of senior policymakers, the game had been designed to have them give policy direction and make strategic decisions, leaving more junior Action teams to work out the details of operationalization. Blue Seniors returned at the end of the game to find a "disconcerting breakdown of communications between policy level and operators." The junior operators had "in effect sent directives to NATO" that if an aggressive conventional ground surge toward Berlin were stymied, Blue would be willing to employ nuclear weapons. "Such an action was never passed by the policy people," lamented the Seniors, ". . . it would be unfortunate if anyone down the line in the state or military chain of command got the idea that we are going to take a rapid escalation without highest government official approvals."[155] Although the Action team was committed to escalation, Control observed that the Seniors were constrained. He concluded, "I have not

153. A.R. Ferguson, "Summary History of NATO Planning Exercise," September 9–12, 1961, folder "Germany, Berlin, Subjects, Berlin Game," box 90, National Security Files, Presidential Papers, JFK Archives, p. 19.
154. Lincoln P. Bloomfield, "Political Exercise DETEX II—Plenary Critique Session," February 8, 1964, box 10, Lincoln P. Bloomfield Papers, MC 326, MIT Archives, pp. 37, 45–47.
155. Joint War Games Control Group, "Epsilon I-62 Final Report," p. 45.

seen a game yet in which any senior was willing to face the problem of possibility of general war."[156]

On other occasions, the JWGA invited non-strategic elites to participate in wargames. Invitees included business executives, labor leaders, and representatives from the entertainment industry. In these games, Matthew Connelly and his coauthors report that "Pentagon officials were surprised by how ready their guests were to go nuclear."[157] For example, in Olympiad I-62, a wargame with non-elite participants, the Blue team chose to detonate a nuclear weapon in the Arctic, 100 miles from the Soviet coastline. Intended "as a demonstration of intent," the wargame report notes that the move "caused no visible consternation on the Red Team."[158]

Evidence from the progression of the Global Wargames of the U.S. Navy throughout the 1980s also suggests that elites behaved differently than non-elites. As the number of strategic elite participants in the wargame series increased over time, the hosts noted an associated decrease in the use of nuclear weapons. As the official histories of the games report: "Members of the intelligence and diplomatic communities were brought into the game to replicate Red thought processes and world outlook more accurately . . . As a result, Red play became less dogmatic . . . the scope of Red military objectives diminished . . . and the tendency to escalate across the nuclear threshold diminished."[159]

Researchers observed a similar result when playing wargames with undergraduate student subjects (non-elites). In a series of student simulations conducted in 1960 at Stanford University by Harold Guetzkow, one-third of the seventeen total wargames ended in thermonuclear war.[160] Such an outcome is also consistent with the experience of MIT wargaming pioneers, who remarked during the postgame critique of DETEX I in 1963: "If you want thermonuclear war to break out in a game, you just get some high-school students in and you get a thermonuclear war. But with responsible people you get ambiguous, gray, shadowy situations where you do not look at your weapons as closely as you want to."[161]

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156. Ibid., p. 70.
157. Connelly et al., "'General, I Have Fought Just as Many Nuclear Wars as You Have,'" p. 1450.
158. U.S. Department of Defense, "Politico-Military Game: Olympiad I-62: Final Report," 1962, Office of the Assistant Secretary of Defense, International Security Affairs, doc. no. GALE|CK2349262322, U.S. Declassified Documents Online, pp. v, 124.
159. Bud Hay and Robert Gile, *Global War Game: The First Five Years* (Newport, R.I.: Naval War College Press, 1993), p. 15; and Robert Gile, *Global War Game: Second Series, 1984–1988* (Newport, R.I.: Naval War College Press, 2004), p. xxx.
160. Richard A. Brody, *Some Systemic Effects of the Spread of Nuclear Weapons Technology: A Study through Simulation of a Multi-Nuclear Future* (Northwestern University, 1963); and Robert Levine, Thomas Schelling, and William Jones, "Crisis Games 27 Years Later: Plus C'est Déjà Vu" (Santa Monica, Calif.: RAND Corporation, 1991), pp. 16–17.
161. Lincoln P. Bloomfield, "Political Exercise DETEX I—Plenary Critique Session," November 29, 1963, p. 72.

Conclusion

To assess the willingness of policymakers to use nuclear weapons, this article explored the declassified records of wargames played by foreign policy elites during the Cold War. The approach offers new evidence to test theories of nuclear nonuse, which typically confront a dearth of data. The analysis shows that strategic elites were reluctant to use nuclear weapons in wargames. This finding holds for wargames against both nuclear-armed and nonnuclear-armed adversaries, as well as in cases when nuclear use would have been tactically advantageous. Only two out of twenty-six games in my sample crossed the nuclear threshold. Player aversions to nuclear use, in their own words, comport most strongly with the logics of deterrence, practicality, and reputation. Deterrence logic abounds in wargames, but when it was not operating, practicality and reputation still kept players from using nuclear weapons. Strict ethics arguments and precedent concerns for the long-term benefits of the tradition of nonuse are uncommon. Moreover, elite players were more reluctant to cross the nuclear threshold than were non-elites.[162]

Deterrence alone cannot account for the nonuse of nuclear weapons since 1945. U.S. leaders have balked at myriad opportunities to use nuclear weapons without fear of retaliation—in Korea, Vietnam, Iraq, Afghanistan, and elsewhere. Yet, scholars have struggled to specify the distinct logics of nuclear nonuse and test them against a slim empirical record. By clearly disentangling testable aversions to nuclear use and leveraging political-military wargames as a novel source of data on elite behavior, this research has shown that logics of both consequences and appropriateness are potent in elite nuclear deliberations.

Is there an elite nuclear taboo? Elite wargame players are indeed sensitive to the appropriateness of nuclear use and feel a common responsibility to avoid nuclear war. The purest form of the nuclear taboo might predict that ethically based opposition to the use of nuclear weapons would inhibit use on its own. I find instead that elite wargame players rarely made explicit arguments about the immorality of nuclear weapons; they did, however, express apprehension about global, domestic, allied, or peer reputational costs.[163] Thus, to the extent

162. Strategic elites in wargames also did not invoke notions of legitimate punishment or revenge to justify nuclear use, suggesting that notions of "retroactive culpability" do not apply as strongly to elites as they do to the general public. See Sagan and Valentino, "Revisiting Hiroshima in Iran."

163. Evidence in favor of the reputation logic of nonuse should be all the more convincing, given that this research has been a hard test for logics of appropriateness. Players reported that they were more likely to take risks or act aggressively in wargames, and Pentagon deliberations usually reflect a realist bias. See Barringer and Whaley, "The MIT Political-Military Gaming Experience," p. 440; Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction," pp. 78–

that nuclear nonuse is driven by a taboo, it may function more by a mechanism of conformity than morality.[164] Scholars have not previously noted the influence of reputational costs among peers as a driver of nuclear nonuse. Future scholarship should examine other ways in which peer reputational concerns shape elite policy preferences.

Deterrence and non-deterrence logics are not mutually exclusive. Just as Nina Tannenwald acknowledges that the nuclear taboo may reinforce the practice of deterrence, I find evidence of logics of consequences and appropriateness operating in conjunction, even in wargames with nuclear-armed adversaries.[165] Future scholarship should examine whether and how broader nuclear aversions support stable deterrence relationships.[166] One possibility is that logics of appropriateness increase the credibility of threats to use nuclear weapons in certain "legitimate" circumstances—for example, in retaliation for the first use of nuclear weapons. Nuclear norms may also bolster the credibility of implicit or explicit assurances not to use nuclear weapons under "illegitimate" circumstances, such as a "bolt from the blue" surprise attack.[167] Confidence in such restraint would be stabilizing.

Wargame records also suggest an additional logic of nonuse that is not captured by current theory: conformity to top-down signals. There were many instances of foreign and defense policy professionals within the U.S. government conforming in wargames to what they thought leaders expected of them. They include the DETEX I players who unanimously rejected the option of using

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79; and Tannenwald, *The Nuclear Taboo*, pp. 54–55. Although it is possible that the simulated settings of wargames enhance the reputational concerns of participants, which would otherwise be overridden by realist logics in actual crises, these findings are consistent with the record of real-world nuclear weapons deliberations. Tannenwald details how U.S. policymakers feared public perceptions of hypothetical nuclear use in the Korean, Vietnam, and Persian Gulf Wars. Paul emphasizes policymaker concern for the perceptions of allies. Consistency with these historical studies suggests that "reputation talk" is not merely an artifact of wargaming methods. See Tannenwald, *The Nuclear Taboo*; and Paul, *The Tradition of Non-Use of Nuclear Weapons*.

164. Finnemore and Sikkink, "International Norm Dynamics and Political Change." Alastair Iain Johnston discusses a similar blending of logics of appropriateness and consequences in Johnston, *Social States: China in International Institutions, 1980–2000*, (Princeton, N.J.: Princeton University Press, 2008).

165. For further discussion of norms reinforcing deterrence, see Tannenwald, *The Nuclear Taboo*, pp. 51–56, 71.

166. On elite U.S. perspectives on the effects of a norm of nonuse on nuclear deterrence, see Reid B.C. Pauly, "Bedeviled by a Paradox: Nitze, Bundy, and an Incipient Nuclear Norm," *Nonproliferation Review*, Vol. 22, Nos. 3–4 (October 2016), pp. 441–455, doi:10.1080/10736700.2016.1153182. This article does not test theories on the causes of threat credibility; nonetheless, some games contain interesting player discussions about signals and credibility. For example, some players in EPSILON I-62 expressed skepticism that a nuclear demonstration strike would communicate resolve and instead might signal an unwillingness to use nuclear weapons for battlefield effect.

167. Effective coercion requires that credible threats are supported by corresponding coercive assurances that targets can avoid punishment by complying. See Schelling, *Arms and Influence*, p. 74; and Reid B.C. Pauly, "The Dilemma of Coercive Assurance," Ph.D. dissertation (forthcoming), MIT.

nuclear weapons against nonnuclear Chinese forces in Southeast Asia, invoked the Johnson administration's criticism of presidential candidate Barry Goldwater's loose nuclear rhetoric, and felt that the United States would not have used nuclear weapons had the crisis been real.[168] The World War II veteran in SIGMA II-65, who wanted to hit Dien Bien Phu but thought "national policy" would not approve, concurred.[169] So, too, did the NU series player who "went on the assumption that the U.S. would never use the nuclear bomb first,"[170] and the EPSILON 72 player whose gaming experience had "demonstrated some grave uncertainty about the willingness of political leadership to use nuclear weapons."[171] All hint that a president's public or private signals about nuclear restraint have a reinforcing effect within the bureaucracy. Cavalier rhetoric about nuclear weapons could send opposite signals.

Concern for precedent proved rare in elite wargames. The only game featuring this logic was one with nuclear-armed teams, despite scholarly emphasis on the theory to explain restraint against nonnuclear weapons states.[172] Do elites not appreciate the long-term strategic benefits of nuclear nonuse? This research is insufficient to prove such a negative. It is possible that the virtual absence of concern for precedent is an artifact of wargames themselves. Perhaps simulated scenarios strip out much of the shadow of the future. Or perhaps concern for nuclear proliferation coalesced in the minds of U.S. elites only in the 1970s, after the Nuclear Nonproliferation Treaty entered into force. Nevertheless, evidence of precedent logic in wargames is consistently thin. This conclusion is corroborated in the "The Day After . . ." series of wargames held by the RAND Corporation in the early 1990s, which found participants reluctant to intervene in foreign conflicts that involved the use of nuclear weapons but did not directly threaten the United States or its allies. "Many participants challenged the notion that the United States has an immediate stake in forcefully diminishing the military and political utility of any next-use of nuclear weapons," notes the report.[173] Decisionmakers, not to mention the public, may need to be reminded of the strategic value of a tradition of

168. In a postgame survey, only 13.3 percent of all other DETEX players responded that they thought Washington would have used nuclear weapons in this scenario. Barringer and Whaley, "The MIT Political-Military Gaming Experience," p. 453.
169. U.S. Department of Defense, "Final Report of Politico-Military Game, SIGMA II-65," p. F24.
170. U.S. Department of Defense, "Final Report of NU I and II-66, Two Interagency Politico-Military Games Played by Officials of the Executive Branch during 1/11–2/8/66," p. D21.
171. Studies, Analysis, and Gaming Agency, "Politico-Military Simulation Epsilon 72," p. L4.
172. Sagan, "Realist Perspectives on Ethical Norms and Weapons of Mass Destruction," p. 73. Sagan scoped the logic of precedent to the nonuse of nuclear weapons against nonnuclear weapons states. I tested the logic in all types of wargames.
173. Marc Dean Millot, Roger Molander, and Peter A. Wilson, "'The Day After . . .' Study: Nuclear Proliferation in the Post–Cold War World, Vol. 1: Summary Report" (Santa Monica, Calif.: RAND Corporation, 1993), pp. xi, 5.

nonuse of nuclear weapons. The world would be more dangerous if nuclear weapons use was more common.

Finally, I have been necessarily imprecise about what constitutes a "strategic elite." Although it is possible to identify elites by experience within their domains, and reasonable to assume that players in these wargames are differentiated from the public by their foreign policy experience, it remains unclear what kind of experience or expertise is associated with nuclear restraint. The true independent variables could be a better understanding of the effects of nuclear weapons, exposure to nuclear strategy, exposure to nuclear nonuse arguments themselves, historical knowledge or sensitivity, an awareness or experience of the costs of war, or exposure to the law or ethics of war, to name a few. Given that considerations of the use of nuclear weapons in wargames included many discussions of specific capabilities, the results may stem at least in part from a sensitivity to the effects of nuclear weapons. Some scholars comparably invoke combat experience as a cause of leaders' reluctance to use force.[174] Nevertheless, this research adjudicates only the effect of the general status of being a strategic elite. Neither does the "strategic elite" label distinguish between subgroups—for example civilian versus military, or State versus Defense versus Intelligence. Declassified wargames data do not allow for such fine-grained parsing of speech evidence, but future research should examine such variation. Regardless, if strategic elite status is as significant as this research indicates, it suggests that scholarly attempts to proxy foreign policy elite opinion with simple "elite-like" opinion (e.g., with education measures) are imperfect.[175]

As more wargame records become available, scholars will have more work to do. For example, this research has assessed only the record of U.S. wargames, with American players.[176] This context privileges extended deterrence scenarios over homeland defense. Future research should assess whether and which nonuse logics travel abroad. Moreover, as the U.S. Department of Defense invests to "revitalize" wargaming, scholars should familiarize themselves with the method and then leverage wargames data for both hypothesis generation and testing.[177] To this end, political scientists should further con-

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174. Michael C. Horowitz, Allan C. Stam, and Cali M. Ellis, *Why Leaders Fight* (New York: Cambridge University Press, 2015).

175. See Press, Sagan, and Valentino, "Atomic Aversion." See also the debate about elite versus mass opinion on foreign policy in Michael R. Tomz and Jessica L.P. Weeks, "Public Opinion and the Democratic Peace," *American Political Science Review*, Vol. 107, No. 4 (November 2013), pp. 849–865, doi:10.1017/S0003055413000488.

176. Regardless of which country a team was assigned to play, participants should all be considered Americans. A "Soviet" team that used nuclear weapons still counts as a use of nuclear weapons by U.S. elites. Moreover, the best speech evidence comes from postgame critique transcripts, wherein players "reverted" to being Americans for the discussion.

177. In a 2015 directive, Deputy Secretary of Defense Robert O. Work called on the Pentagon to

duct wargames to generate data.[178] Wargames are particularly well-suited for testing hypotheses about the participant subjects themselves, their beliefs, and their behaviors. Wargames can help political scientists adjudicate some of our most basic theoretical debates.

As collective memory of the Cold War fades, some scholars fear that any regime of nuclear nonuse is weakening, buckling under new technological and political pressures.[179] The first use of nuclear weapons may appear to a rookie policymaker to be a tempting brute force solution to a thorny foreign policy problem[180]—and the American public may be more of a goad than a constraint.[181] Yet, some will be heartened by the results of this study. A seasoned strategic elite adviser, attuned to logics of nuclear nonuse, would be slower to embrace such a tool.

"reinvigorate, institutionalize, and systematize wargaming" to support technological and doctrinal innovation. See Work, "Wargaming and Innovation," memorandum, February 9, 2015, *PAXsims* blog, https://paxsims.wordpress.com/2015/04/02/wargaming-and-innovation/. See also Work and Paul Selva, "Revitalizing Wargaming Is Necessary to Be Prepared for Future Wars," *War on the Rocks* blog, December 8, 2015, http://warontherocks.com/2015/12/revitalizing-wargaming-is-necessary-to-be-prepared-for-future-wars/. A new repository tracks and stores the outcomes of wargames held across the Pentagon. Although the repository is currently classified, its existence is confirmed in William T. Eliason, "An Interview with Robert O. Work," *Joint Force Quarterly*, Vol. 84, No. 1 (January 2017), pp. 6–11.

178. See Jacquelyn Schneider, "The Information Revolution and International Stability: A Multi-article Exploration of Computing, Cyber, and Incentives for Conflict," Ph.D. dissertation, George Washington University, 2017; and Johnson et al., "Overconfidence in Wargames." On improving the rigor of wargaming methods, see Elizabeth Bartels, "Adding Shots on Target: Wargaming beyond the Game," *War on the Rocks* blog, October 9, 2017, https://warontherocks.com/2017/10/adding-shots-on-target-wargaming-beyond-the-game/.

179. Nina Tannenwald, "Renewing a Regime of Nuclear Restraint," ISSF Policy Roundtable 1-4 on U.S. Nuclear Policy, *H-Diplo*, December 22, 2016, https://issforum.org/roundtables/policy/1-4-nuclear.

180. Nuclear nonuse logics may be part of the steep learning-curve of inexperienced U.S. presidents. It remains an open question how quickly an outsider can become socialized. There are many stories of leaders chastened by their newfound responsibility for nuclear weapons. On President Kennedy's Single Integrated Operational Plan (SIOP) briefing, see Marc Trachtenberg, David Rosenberg, and Stephen Van Evera, "An Interview with Carl Kaysen" (Cambridge, Mass.: Security Studies Program, MIT, n.d.), p. 11, http://web.mit.edu/SSP/publications/working_papers/Kaysen%20working%20paper.pdf. On President Ronald Reagan's reaction to the SIOP briefing, see Thomas C. Reed, *At the Abyss: An Insider's History of the Cold War* (New York: Presidio, 2005), p. 243. For a senior military officer's perspective, see Gen. William E. Odom's reactions to the SIOP briefing in Eric Schlosser, *Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety* (New York: Penguin, 2013), p. 361. On Soviet leaders' discomfort with nuclear simulations, see Gordon S. Barrass, *The Great Cold War: A Journey through the Hall of Mirrors* (Stanford, Calif.: Stanford University Press, 2009), p. 179.

181. Press, Sagan, and Valentino, "Atomic Aversion"; and Sagan and Valentino, "Revisiting Hiroshima in Iran."