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First Things First

The Pressing Danger of Crisis Instability in U.S.-China Relations

Avery Goldstein

Two concerns have driven much of the debate about international security in the post–Cold War era. The first is the potentially deadly mix of nuclear proliferation, rogue states, and international terrorists, a worry that became dominant after the terrorist attacks against the United States on September 11, 2001.[1] The second concern, one whose prominence has waxed and waned since the mid-1990s, is the potentially disruptive impact that China will have if it emerges as a peer competitor of the United States, challenging an international order established during the era of U.S. preponderance.[2] Reflecting this second concern, some analysts have expressed reservations about the dominant post–September 11 security agenda, arguing that China could challenge U.S. global interests in ways that terrorists and rogue states cannot. In this article, I raise a more pressing issue, one to which not enough attention has been paid. For at least the next decade, while China remains relatively weak, the gravest danger in Sino-

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1. For critiques of this newly dominant agenda, see Francis J. Gavin, "Same As It Ever Was: Nuclear Alarmism, Proliferation, and the Cold War," *International Security,* Vol. 34, No. 3 (Winter 2009/10), pp. 7–37; John Mueller, "Is There Still a Terrorist Threat? The Myth of the Omnipresent Enemy," *Foreign Affairs,* Vol. 85, No. 5 (September/October 2006), pp. 2–8; and Ian S. Lustick, *Trapped in the War on Terror* (Philadelphia: University of Pennsylvania Press, 2006).
2. See Aaron L. Friedberg, "The Future of U.S.-China Relations: Is Conflict Inevitable?" *International Security,* Vol. 30, No. 2 (Fall 2005), pp. 7–45; Aaron L. Friedberg, *A Contest for Supremacy: China, America, and the Struggle for Mastery in Asia* (New York: W.W. Norton, 2011); Richard K. Betts, "Wealth, Power, and Instability: East Asia and the United States after the Cold War," *International Security,* Vol. 18, No. 3 (Winter 1993/94), pp. 34–77; John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: W.W. Norton, 2001); Avery Goldstein, *Rising to the Challenge: China's Grand Strategy and International Security* (Stanford, Calif.: Stanford University Press, 2005); and Thomas J. Christensen, "Fostering Stability or Creating a Monster? The Rise of China and U.S. Policy toward East Asia," *International Security,* Vol. 31, No. 1 (Summer 2006), pp. 81–126.

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American relations is the possibility the two countries will find themselves in a crisis that could escalate to open military conflict.

In contrast to the long-term prospect of a new great power rivalry between the United States and China, which ultimately rests on debatable claims about the intentions of the two countries and uncertain forecasts about big shifts in their national capabilities, the danger of instability in a crisis involving these two nuclear-armed states is a tangible, near-term concern.[3] Even if the probability of such a war-threatening crisis and its escalation to the use of significant military force is low, the potentially catastrophic consequences of this scenario provide good reason for analysts to better understand its dynamics and for policymakers to fully consider its implications. Moreover, events since 2010—especially those relevant to disputes in the East and South China Seas—suggest that the danger of a military confrontation in the Western Pacific that could lead to a U.S.-China standoff may be on the rise.

In what follows, I identify not just pressures to use force preemptively that pose the most serious risk should a Sino-American confrontation unfold, but also related, if slightly less dramatic, incentives to initiate the limited use of force to gain bargaining leverage—a second trigger for potentially devastating instability during a crisis.[4] My discussion proceeds in three sections. The first section explains why, during the next decade or two, a serious U.S.-China crisis may be more likely than is currently recognized. The second section examines the features of plausible Sino-American crises that may make them so dangerous. The third section considers general features of crisis stability in asymmetric dyads such as the one in which a U.S. superpower would confront an increasingly capable but still thoroughly overmatched China—the asymmetry that will prevail for at least the next decade. This more stylized discussion clarifies the inadequacy of focusing one-sidedly on conventional forces, as has much of the current commentary about the modernization of China's military and the implications this has for potential conflicts with the United States in

3. On the still large and possibly growing gap separating China's lagging military capabilities from those of the United States, see M. Taylor Fravel, "China's Military Rise: Assessing Military Capabilities and Political Influence," Massachusetts Institute of Technology, 2011, especially pp. 6–10; Michael Beckley, "China's Century? Why America's Edge Will Endure," *International Security,* Vol. 36, No. 3 (Winter 2011/12), pp. 41–78; Sheena Chestnut and Alastair Iain Johnston, "Is China Rising?" in Eva Paus, Penelope B. Prime, and Jon Western, eds., *Global Giant: Is China Changing the Rules of the Game?* (New York: Palgrave Macmillan, 2009), pp. 237–260; Dennis J. Blasko, "An Analysis of China's 2011 Defense Budget and Total Military Spending—The Great Unknown," *China Brief,* Vol. 11, No. 4 (March 2011), pp. 4–6; and Andrew S. Erickson and Adam P. Liff, "Understanding China's Defense Budget: What It Means, and Why It Matters," *PacNet,* No. 16 (March 2011), http://csis.org/files/publication/pac1116.pdf.

4. See Richard K. Betts, *Nuclear Blackmail and Nuclear Balance* (Washington, D.C.: Brookings Institution Press, 1987), p. 161.

the Western Pacific,[5] or of focusing one-sidedly on China's nuclear forces, as a smaller slice of the commentary has.[6] An assessment considering the interaction of conventional and nuclear forces indicates why escalation resulting from crisis instability remains a devastating possibility.

Before proceeding, however, I would like to clarify my use of the terms "crisis" and "instability." For the purposes of this article, I define a crisis as a confrontation between states involving a serious threat to vital national interests for both sides, in which there is the expectation of a short time for resolution, and in which there is understood to be a sharply increased risk of war.[7] This definition distinguishes crises from many situations to which the label is sometimes applied, such as more protracted confrontations; sharp disagreements over important matters that are not vital interests and in which military force seems irrelevant; and political disputes involving vital interests, even those with military components, that present little immediate risk of war.[8] I define instability as the temptation to resort to force in a crisis.[9] Crisis

5. See the debate between Aaron L. Friedberg and Robert S. Ross, "Here Be Dragons," *National Interest,* No. 103 (September/October 2009), pp. 19–34; and James Dobbins, "War with China," *Survival,* Vol. 54, No. 4 (August/September 2012), pp. 7–24.

6. See Keir A. Lieber and Daryl G. Press, "The Nukes We Need: Preserving the American Deterrent," *Foreign Affairs,* Vol. 88, No. 6 (November/December 2009), pp. 39–51; and Michael S. Chase, Andrew S. Erickson, and Christopher Yeaw, "Chinese Theater and Strategic Missile Force Modernization and Its Implications for the United States," *Journal of Strategic Studies,* Vol. 32, No. 1 (February 2009), pp. 67–114.

7. There are many less restrictive definitions of a crisis, though most at least overlap with the first two criteria listed here. See Charles Hermann, "International Crisis as a Situational Variable," in James N. Rosenau, ed., *International Politics and Foreign Policy* (New York: Free Press, 1969); Charles Hermann, *International Crises: Insights from Behavioral Research* (New York: Free Press, 1972); Glenn H. Snyder and Paul Diesing, *Conflict among Nations: Bargaining, Decision Making, and System Structure in International Crises* (Princeton, N.J.: Princeton University Press, 1977), pp. 6–8; and Zhang Tuosheng, "Zhongguo guoji junshi anquan weiji xingwei yanjiu" [Research on China's behavior in international military security crises], *Shijie jingji yu zhengzhi* [World economics and politics], No. 4 (April 2011), pp. 103–121. On the importance of significant underlying conflicts of political-military interests as the backdrop for the emergence of a war-threatening crisis, see Joseph F. Bouchard, *Command in Crisis: Four Case Studies* (New York: Columbia University Press, 1991), p. xi; and Guo Xuetang, "Guoji weiji guanli yu juece moshi fenxi" [An analysis of international crisis management and decisionmaking methods], *Xiandai guoji guanxi* [Contemporary international relations], No. 8 (August 2003), p. 31.

8. By this definition, then, tensions increased, but no crisis was triggered during the 1995–96 missile tests in the Taiwan Strait; after the United States accidentally bombed the Chinese embassy in Belgrade in May 1999; or after the collision of the U.S. EP-3 and a Chinese fighter jet in April 2001. On the limits to the tensions even during 1995–96, see Robert L. Suettinger, "U.S. 'Management' of Three Taiwan Strait 'Crises,'" in Michael D. Swaine and Zhang Tuosheng, with Danielle F.S. Cohen, eds., *Managing Sino-American Crises: Case Studies and Analysis* (Washington, D.C.: Carnegie Endowment for International Peace, 2006), pp. 251–292. See also Nie Jun, "Chinese Decision Making in Three Military Actions across the Taiwan Strait," in ibid., pp. 293–326.

9. This definition of stability differs from those that were often used in analyses of the U.S.-Soviet nuclear balance, which typically defined stability narrowly as a lack of incentives to undertake a preemptive first strike. See especially Charles L. Glaser, *Analyzing Strategic Nuclear Policy* (Princeton, N.J.: Princeton University Press, 1990), pp. 45–46. See also Robert Powell, "Crisis Stability in

stability is greatest when both sides strongly prefer to continue bargaining; instability is greatest when they are strongly tempted to resort to the use of military force. Stability, then, describes a spectrum—from one extreme in which neither side sees much advantage to using force, through a range of situations in which the balance of costs and benefits of using force varies for each side, to the other extreme in which the benefits of using force so greatly exceed the costs that striking first looks nearly irresistible to both sides. Although the incentives to initiate the use of force may not reach this extreme level in a U.S.-China crisis, the capabilities that the two countries possess raise concerns that escalation pressures will exist and that they may be highest early in a crisis, compressing the time frame for diplomacy to avert military conflict.

U.S.-China Crises: More Likely Than War; More Than Just Taiwan

The running debate about the long-term implications of China's rise is not just an unfortunate diversion from the more urgent danger facing the United States and China today—the risk of a war-threatening crisis—it is also a surprising diversion given that near-term concerns about the dangers of conflict while China remains relatively weak were raised more than a decade ago in a widely cited article by Thomas Christensen.[10] To be sure, Christensen's arguments about asymmetric conflict did result in analysts paying more attention to the weapons and strategies that Beijing was developing to cope with continued U.S. superiority should fighting occur, particularly in the Taiwan Strait. Yet, the article did not result in a close focus on broader questions about the prospects for the initial resort to force during a Sino-American crisis. For three reasons, a focus on potential instability in U.S.-China crises, rather than on scenarios for warfighting, as well as on the potential for such crises emerging in contingencies other than Taiwan, is warranted.

First, a crisis would not only be likely to precede significant military action; it would also be accompanied by the risk of grave consequences from the use of force, even if war were ultimately avoided. A now voluminous literature comparing Chinese and U.S. military options has discussed escalation risks (usually when invoking concerns about limiting conflict once military force has been used), but it has given short shrift to the prior question of the initial escalation to the use of force. The literature that does discuss crises in U.S.-China relations has provided close assessments of historical cases and has of-

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the Nuclear Age," *American Political Science Review,* Vol. 83, No. 1 (March 1989), pp. 61–76; and Jean-Pierre P. Langlois, "Rational Deterrence and Crisis Stability," *American Journal of Political Science,* Vol. 35, No. 4 (November 1991), pp. 801–832.

10. Thomas J. Christensen, "Posing Problems without Catching Up: China's Rise and Challenges for U.S. Security Policy," *International Security,* Vol. 25, No. 4 (Spring 2001), pp. 5–40.

fered suggestions for crisis prevention and crisis management. This literature has not, however, integrated its Sino-American empirical focus with the theoretical ideas developed by international relations scholars to illuminate the problem of crisis instability.[11]

Second, although scholars and policymakers have long speculated about and planned for a wide variety of ways in which wars between nuclear-armed great powers might be conducted, there have (fortunately) been no such wars from which to draw lessons. By contrast, the literature on crisis instability is at least partly informed by the actual experience of crises between two nuclear-armed great powers that occurred during the Cold War. This literature can serve as a starting point for thinking about the crises that could ensnare the United States and China.[12]

Third, East Asian theaters other than the Taiwan Strait now present clear risks for crises and conflicts that could involve the United States and China over the next decade or two. Indeed, some analysts might argue that the probability of a Sino-American crisis elsewhere has risen, whereas the probability of a military confrontation over Taiwan's fate has diminished.[13] Cross-strait re-

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11. A notable, and notably recent, partial exception to this pattern is David C. Gompert and Phillip C. Saunders, *Paradox of Power: Sino-American Strategic Restraint in an Era of Vulnerability* (Washington, D.C.: National Defense University Press, 2011). Prior to the publication of this book, the most comprehensive effort to explore U.S.-China crises to date, albeit one that adopts a broader definition of crisis than the one used here, was Swaine and Zhang, with Cohen, *Managing Sino-American Crises*. On the substantive challenges of U.S.-China crisis prevention and management, see Andrew Scobell and Larry M. Wortzel, eds., *Chinese National Security Decisionmaking under Stress* (Carlisle, Pa.: Strategic Studies Institute, U.S. Army War College, 2005); Forrest E. Morgan, Karl P. Mueller, Evan S. Medeiros, Kevin L. Pollpeter, and Roger Cliff, *Dangerous Thresholds: Managing Escalation in the 21st Century* (Santa Monica, Calif.: RAND Project Air Force, 2008), chap. 3; Lonnie D. Henley, "Evolving Chinese Concepts of War Control and Escalation Management," in Michael D. Swaine, Andrew N.D. Yang, and Evan S. Medeiros, eds., *Assessing the Threat: The Chinese Military and Taiwan's Security* (Washington, D.C.: Carnegie Endowment for International Peace, 2007), pp. 85–110; and Christopher P. Twomey, *The Military Lens: Doctrinal Difference and Deterrence Failure in Sino-American Relations* (Ithaca, N.Y.: Cornell University Press, 2010). For related literature in Chinese, see Xia Liping, "Meiguo guanyu weiji guanli de lilun yu shijian: Yi Zhongmei guanxi weili" [Theory and practice of U.S. crisis management: A case study of Sino-American relations], *Meiguo yanjiu* [American studies], No. 2 (2003), pp. 73–86; Guo, "Guoji weiji guanli yu juece moshi fenxi"; Gao Xintao, "Weiji guanli shijiao xiade Taihai weiji tanxi" [An analysis of the Taiwan Straits crisis from the perspective of crisis management], *Taiwan yanjiu jikan* [Taiwan research quarterly], No. 3 (2007), pp. 10–18; Xu Haifeng, "Lengzhanhou Zhongmei weiji chuli jizhi de guanli yu goujian" [The management and construction of a mechanism for handling post–Cold War Sino-American crises], *Qianyan* [Frontline], No. 2 (2008), pp. 154–158; and Cheng Xiaoyong, "Guoji heweiji de kongzhi yu guanli: Nanya heweiji anli yanjiu" [The control and management of international nuclear crises: A case study of the nuclear crisis in South Asia], *Nanya yanjiu* [South Asian studies], No. 3 (2010), pp. 17–29.

12. The 1999 Kargil episode between India and Pakistan also provides evidence of escalation pressures and the interaction between conventional and nuclear considerations, though in the context of a limited military conflict rather than a crisis prior to the use of force. See note 79.

13. On the changing situation in the Taiwan Strait, see Michael A. Glosny, "Getting beyond Taiwan? Chinese Foreign Policy and PLA Modernization," Strategic Forum, No. 261 (Washington, D.C.: Institute for National Strategic Studies, National Defense University, January 2011); and Lyle

lations have improved significantly in recent years, and since 2003, the United States has more definitively stated that it does not support a Taiwanese push for independence—the most likely trigger, as Christensen explained, for China to resort to force in the face of superior U.S. capabilities.[14] Yet the potential for a dangerous confrontation over Taiwan endures, and therefore continues to warrant close attention.

In contrast with the diminished prospect for a showdown over Taiwan, the possibility that the United States and China could find themselves in a crisis triggered by sovereignty disputes in the South China Sea or the East China Sea has increased. Since 2005, a period of relatively low tension over claims to maritime territories and seas in East Asia has given way to growing concern about the willingness and ability of China and its neighbors to settle their differences peacefully.[15] Beijing has long refused to rule out the use of military force as the ultimate means for ensuring claims to what it views as sovereign territory and

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Goldstein, "Chinese Naval Strategy in the South China Sea: An Abundance of Noise and Smoke, but Little Fire," *Contemporary Southeast Asia,* Vol. 33, No. 3 (December 2011), p. 340. On other, mostly maritime, flashpoints, see Mark J. Valencia, "Foreign Military Activities in Asian EEZs: Conflict Ahead?" in NBR Special Report, No. 27 (Seattle, Wash.: National Bureau of Asian Research, 2011); Michael McDevitt, "The PLA Navy's Antiaccess Role in a Taiwan Contingency," in Phillip C. Saunders, Christopher D. Yung, Michael Swaine, and Andrew Nien-Dzu Yang, eds., *The Chinese Navy: Expanding Capabilities, Evolving Roles* (Washington, D.C.: National Defense University Press, 2011), pp. 198–199; and Wang Lidong, *Guojia haishang liyilun* [On maritime national interests] (Beijing: Guofang Daxue Chubanshe, 2007). The increasing U.S. attention to maritime scenarios in East Asia is reflected in the discussion of the AirSea Battle concept. See Michael McDevitt, "The Evolving Maritime Security Environment in East Asia: Implications for the US-Japan Alliance," *PacNet,* No. 33 (May 2012), http://csis.org/files/publication/Pac1233.pdf; Jan van Tol, with Mark Gunzinger, Andrew F. Krepinevich, and Jim Thomas, *AirSea Battle: A Point-of-Departure Operational Concept* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2010), http://www.csbaonline.org/wp-content/uploads/2010/05/2010.05.18-AirSea-Battle.pdf; and Eric Sayers and Fan Gaoyue, "AirSea Battle: An Exchange," *PacNet,* No. 17 (March 2011), http://csis.org/files/publication/pac1117.pdf.

14. Christensen, "Posing Problems without Catching Up." See also Thomas J. Christensen, "The Contemporary Security Dilemma: Deterring a Taiwan Conflict," *Washington Quarterly,* Vol. 25, No. 4 (Autumn 2002), pp. 7–21.

15. Attention centers mainly on China's disputes with Japan in the East China Sea and with Vietnam and the Philippines in the South China Sea. See Michael D. Swaine and M. Taylor Fravel, "China's Assertive Behavior, Part Two: The Maritime Periphery," *China Leadership Monitor,* No. 35 (Summer 2011); Goldstein, "Chinese Naval Strategy in the South China Sea"; and M. Taylor Fravel, "China's Strategy in the South China Sea," *Contemporary Southeast Asia,* Vol. 33, No. 3 (December 2011), pp. 292–319. For a view that emphasizes the need for China to better explain its position, see Zhu Chenghu, "Nanhai zhengduan, Zhongguo keyi zuode gengduo" [South China Sea disputes, China could do more], *Huanqiu shibao* [Global times], July 1, 2011, http://opinion .huanqiu.com/roll/2011-07/1792964.html. The perception that China's behavior has been more assertive recently contrasts with perceptions that Beijing pursued cooperation from 1996 through 2005. See Goldstein, *Rising to the Challenge.* For an overview of China's approach to managing territorial disputes, see M. Taylor Fravel, "Regime Insecurity and International Cooperation: Explaining China's Compromises in Territorial Disputes," *International Security,* Vol. 30, No. 2 (Fall 2005), pp. 46–83; and Fravel, *Strong Borders, Secure Nation: Cooperation and Conflict in China's Territorial Disputes* (Princeton, N.J.: Princeton University Press, 2008).

adjacent waters. Although the United States is not a claimant in any of these vexing regional disputes, the U.S. government has clearly stated its principled opposition to the use of force to resolve such matters and, more to the point, has treaty commitments to two of the countries (Japan and the Philippines) that are contesting China's claims, and increasingly close ties with a third (Vietnam).[16] Perhaps as important, since the early months of President Barack Obama's administration, the United States has devoted more attention to East Asia and to Pacific maritime issues that could trigger clashes between China and its neighbors. Most notably, in 2011 the United States clearly articulated its intention to rebalance its strategic priorities to emphasize the Asia-Pacific region. For China and for American allies with which China has maritime disputes, this diplomatic turn has reinforced the perception that U.S. involvement in the event of a regional crisis or conflict is a real possibility.[17]

China and the United States also have a sharp disagreement about U.S. military forces operating in the international seas and airspace near China. The

16. Troubling recent events involving these countries include a spike in Sino-Japanese tensions after the September 2010 arrest of a Chinese fishing boat captain whose boat collided with a Japanese coast guard vessel after the fishing boat had been ordered out of disputed waters in the East China Sea, followed by renewed tensions in September 2012 when the Japanese government announced its purchase of the privately owned islands in these waters; periodic incidents stemming from rival Chinese and Vietnamese claims to fishing rights in the South China Sea; a protracted standoff that began in April 2010 between China and the Philippines about fishing rights and sovereignty claims to Scarborough Shoal and its surrounding waters; and potentially provocative plans by China, Vietnam, and the Philippines to accept bids for oil and gas exploration in disputed South China Sea waters. See Sun-won Park, "The East China Sea Dispute: Short-Term Victory and Long-Term Loss for China?" (Washington, D.C.: Brookings Institution, November 2010), http://www.brookings.edu/papers/2010/1101_east_china_sea_park.aspx; Bonnie S. Glaser, "Armed Clash in the South China Sea," Contingency Planning Memorandum, No. 14 (New York: Council on Foreign Relations, April 2012), http://www.cfr.org/east-asia/armed-clash-south-china-sea/p27883; International Crisis Group, "Stirring up the South China Sea (I)," Asia Report, No. 223 (Brussels: International Crisis Group, April 23, 2012), http://www.crisisgroup.org/~/media/Files/asia/north-east-asia/223-stirring-up-the-south-china-sea-i.pdf; and International Crisis Group, "Stirring up the South China Sea (II): Regional Responses," Asia Report, No. 229 (Brussels: International Crisis Group, July 24, 2012), http://www.crisisgroup.org/~/media/Files/asia/north-east-asia/229-stirring-up-the-south-china-sea-ii-regional-responses. The United States has explicitly indicated that its military commitment under the U.S.-Japan security treaty extends to all territories administered by the Japanese government, including the key disputed islands (usually referred to as the Senkaku Islands by Japan, and the Diaoyu Islands by China). See Jean-Marc F. Blanchard, "The U.S. Role in the Sino-Japanese Dispute over the Diaoyu (Senkaku) Islands, 1945–1971," *China Quarterly*, No. 161 (March 2000), pp. 95–123; Fravel, "China's Military Rise," p. 32; and Secretary of State Hillary Rodham Clinton, joint press availability with Japanese Foreign Minister Seiji Maehara, Honolulu, Hawaii, October 27, 2010, http://www.state.gov/secretary/rm/2010/10/150110.htm.

17. See Hillary Rodham Clinton, "Remarks on Regional Architecture in Asia: Principles and Priorities," Honolulu, Hawaii, January 12, 2010, http://www.state.gov/secretary/rm/2010/01/135090.htm; and Hillary Rodham Clinton, "America's Pacific Century," *Foreign Policy*, No. 189 (November 2011), pp. 56–63. See also Avery Goldstein, "U.S.-China Interactions in Asia," in David Shambaugh, ed., *Tangled Titans: The United States and China* (Lanham, Md.: Rowman and Littlefield, 2012), pp. 263–291.

United States adheres to its long-standing principle of freedom of navigation in and above waters beyond the 12-mile territorial limit that it defines as the high seas. China, by contrast, asserts that the waters in which unrestricted freedom of navigation extends to military vessels begin only outside the country's exclusive economic zone (EEZ)—precluding unconstrained U.S. air and naval operations beyond 12 miles but still within the 200-mile EEZ limit.[18] This disagreement is not merely an academic dispute about international law. On the contrary, both sides know that U.S. intelligence gathering in and above the waters within China's EEZ has important military implications. Moreover, the prospect for confrontations resulting from U.S.-Chinese disagreement about these activities is more than just conceivable. There have already been incidents precipitating angry standoffs between Chinese and American vessels, followed by each side restating its principled position.[19] Most notably, the refusal of either side to revise its position contributed to the April 2001 collision between a U.S. surveillance plane and a trailing Chinese fighter jet that led to the death of the Chinese pilot, the emergency landing of the U.S. EP-3 on China's Hainan Island, and difficult negotiations to release the American crew and craft.

The fundamental disagreement between the United States and China about rights of passage through and over maritime areas could also have volatile implications for vital sea lines of communication in the South China Sea near territories that Beijing claims as its own. The extensiveness of China's claims to the Spratly Islands, in particular, provides a basis for insisting that much of the

18. On the conflicting positions, see Peter Dutton, ed., *Military Activities in the EEZ: A U.S.-China Dialogue on Security and International Law in the Maritime Commons* (Newport, R.I.: China Maritime Studies Institute, U.S. Naval War College, 2010). China denies that its claims would affect freedom of navigation through the South China Sea, though it has not yet clarified the extent of its claims or the implications for the transit of military vessels. See "Foreign Ministry Press Release: No Wholesale Claims over S. China Sea Sovereignty," *China.org.cn*, March 1, 2012, http://www.china.org.cn/world/2012-03/01/content_24767658.htm. For American and Chinese perspectives on rights within and over the EEZ, especially relevant perspectives on maritime law, see Dutton, *Military Activities in the EEZ;* Raul Pedrozo, "Preserving Navigational Rights and Freedoms: The Right to Conduct Military Activities in China's Exclusive Economic Zone," *Chinese Journal of International Law,* Vol. 9, No. 1 (March 2010), pp. 9–29; and Zhang Haiwen, "Is It Safeguarding the Freedom of Navigation or Maritime Hegemony of the United States? Comments on Raul (Pete) Pedrozo's Article on Military Activities in the EEZ," *Chinese Journal of International Law,* Vol. 9, No. 1 (March 2010), pp. 31–47.

19. See Swaine and Fravel, "China's Assertive Behavior, Part Two." China's frequent use of nonmilitary ships to assert its maritime claims could embolden action that seems safer, but actually courts the risk of provoking a response from other claimants that could escalate and trigger a crisis. See Fravel, "China's Military Rise," p. 31. On the March 8, 2009, harassment of the USNS *Impeccable,* see Oriana Skylar Mastro, "Signaling and Military Provocation in Chinese National Security Strategy: A Closer Look at the *Impeccable* Incident," *Journal of Strategic Studies,* Vol. 34, No. 2 (April 2011), pp. 219–244; and Andrew S. Erickson and Michael Chase, "An Undersea Deterrent?" *U.S. Naval Institute Proceedings,* Vol. 135, No. 6 (June 2009), pp. 36–41.

South China Sea falls within China's EEZ, which, according to Beijing, obligates foreign military vessels to seek consent before passing through its sealanes. The sensitivity of this issue and its potential for Sino-American friction were underscored during the 2010 Association of Southeast Nations Regional Forum in Hanoi, when China's foreign minister reacted in an unexpectedly harsh way to Secretary of State Hillary Clinton's rather mild diplomatic expressions of U.S. hopes for a peaceful resolution of sovereignty disputes in the South China Sea and her suggestion that multilateral forums could be useful in this regard.[20]

Planning for military contingencies in these maritime settings shapes the forces that the United States and China deploy and their likely uses in the initial stages of fighting, should that become necessary, a point that much of the existing literature has addressed. My focus, however, is on a prior question: What incentives would China and the United States face if they had to choose between continuing to bargain and initiating the use of force during a crisis that results from their maritime disagreements? Force deployments and planning will, of course, affect their choices and the likelihood that such a confrontation escalates to military action before a diplomatic solution is achieved.[21] But during a crisis, at least during one that is not merely engineered as a pretext for launching a war, the adversaries will share an interest in discovering an acceptable resolution of their differences without fighting. As the now extensive

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20. Mark Landler, "Offering to Aid Talks, U.S. Challenges China on Disputed Islands," *New York Times,* July 24, 2010, http://www.nytimes.com/2010/07/24/world/asia/24diplo.html. China insists that each sovereignty dispute be handled on a bilateral basis. See also Swaine and Fravel, "China's Assertive Behavior, Part Two"; and Douglas H. Paal, "South China Sea: Plenty of Hazards for All," Asia Pacific Brief (Washington, D.C.: Carnegie Endowment of International Peace, July 7, 2011), http://www.carnegieendowment.org/2011/07/07/south-china-sea-plenty-of-hazards-for-all/2w00. In August 2012, the U.S. State Department more strongly asserted U.S. interests in the South China Sea and explicitly expressed U.S. concern about China's announcement that it was establishing Sansha as a new administrative unit for the Xisha, Zhongsha, and Nansha Islands in South China Sea while assigning new responsibilities to a military garrison focused on the region. China's foreign ministry quickly responded with a public reiteration of China's interests and its strong objections to the American statement. See Patrick Ventrell, "South China Sea," press statement, Office of Press Relations, U.S. State Department, August 3, 2012, http://www.state.gov/r/pa/prs/ps/2012/08/196022.htm; and "Statement by Spokesperson Qin Gang of the Ministry of Foreign Affairs of China on the U.S. State Department Issuing a So-Called Press Statement on the South China Sea" (Beijing: Ministry of Foreign Affairs of the People's Republic of China, August 4, 2012), http://www.fmprc.gov.cn/eng/xwfw/s2510/t958226.htm.

21. The literature about the effects of nuclear forces and doctrine on deterrence stability during the Cold War, for example, identifies the tension between a force structure optimized for deterrent stability (desirable during a crisis before war begins) and one optimized for limiting the costs of warfighting (desirable if deterrence fails). Forces that might limit damage or provide incentives for restraint during a nuclear exchange once war begins, critics argue, reduce the stabilizing fear of uncontrolled escalation and unacceptable damage that discourages the use of force during a crisis. See Lawrence Freedman, *The Evolution of Nuclear Strategy* (New York: St. Martin's, 1981); and Fred Kaplan, *The Wizards of Armageddon* (New York: Simon and Schuster, 1983).

literature on bargaining theories of war indicates, for a variety of reasons (e.g., information and commitment problems as well as difficulties in devising workable compromises that reflect the nature of the issue in dispute), states may be unable to discover a diplomatic solution.[22] During a crisis, however, the search is on and it is intense. The incentives to use force and the time pressures that states face—incentives and pressures that can short-circuit diplomacy and lead to military conflict—will determine the degree of crisis instability.

U.S.-Soviet crises during the Cold War

To assess the risks of crisis instability, I draw in part on ideas that emerged during the Cold War. This approach does not, however, rest on a belief that the U.S.-China relationship in the current era is as adversarial as the Soviet-American relationship was.[23] Instead, I invoke these ideas because of the relevance of their logic and because the Cold War experience suggests insights into the choices that national leaders face. In applying these lessons from the past, however, it is necessary to take into account some of the important ways in which the contemporary U.S.-China case differs. Perhaps counterintuitively, these differences suggest additional reasons to worry about the current possibility of a dangerous U.S.-China crisis. The risk of a serious Sino-American confrontation exists despite, and perhaps is underappreciated because of, the absence of the zero-sum, life-and-death struggle between two archrivals that characterized Soviet-American relations.

As armed adversaries, the United States and the Soviet Union expected that their opposed interests would generate crises. Over time, this recognition encouraged both sides to anticipate and avoid risky confrontations and to improve their ability to manage them when they did occur. This salutary trend was not just the result of intellectual enlightenment and prudence; it was also catalyzed by nerve-rattling experience. During the first fifteen years of the Cold War, Washington and Moscow had faced the danger of military escalation in three crises over the status of Berlin and one over the presence of Soviet nuclear forces in Cuba. Through these frightening experiences, each side reluctantly came to accept that it could not challenge what were clearly understood to be the other's vital interests beyond its homeland without triggering a confrontation that could escalate to a catastrophic war.

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22. James D. Fearon, "Rationalist Explanations for War," *International Organization,* Vol. 49, No. 3 (Summer 1995), pp. 379–414. For a careful critique of this approach, see Jonathan Kirshner, "Rationalist Explanations for War?" *Security Studies,* Vol. 10, No. 1 (Autumn 2000), pp. 143–150.
23. On the contrary, China and the United States have robust economic ties and cooperate on a range of international issues, reflecting common interests that shape a bilateral relationship that is far from zero-sum.

U.S.-China Crises After the Cold War

The growing Soviet and U.S. recognition of the international status quo in areas where each country had vital interests reduced the probability of actions triggering major crises.[24] No similarly shared understanding has yet been reached in the case of China and the United States. Most important, there is much less clarity about the delimitation of U.S. and Chinese vital interests beyond their homelands, especially in the Western Pacific. Ambiguity has been reflected in China's varying statements about its "core interests" aside from the territorial and political integrity of its recognized borders on the mainland and its relatively clear claim to Taiwan.[25] Ambiguity has also been reflected in the United States' broadly construed position on the future of Taiwan as well as on the resolution of maritime-territorial disputes in the East and South China Seas.

Vagueness or uncertainty about "red lines" that cannot be crossed without risking conflict increases the possibility that states may take steps that elicit an unexpectedly firm response. Such actions can trigger a crisis by clarifying previously vague interests that states then become determined to ensure.[26] Uncertainty about the issues for which each would dare run the risk of escalation to military conflict could lead China or the United States to act in ways that it believes merely solidify the status quo and are therefore safe. But because the red lines are unclear, the other side might instead view such steps as provocative, triggering a crisis.[27]

The danger of actions that unexpectedly trigger a Sino-American crisis resulting from ambiguity about the definition of vital interests might seem least

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24. On the links between uncertainty and the dynamics of crisis behavior, see Snyder and Diesing, *Conflict among Nations,* p. 8; and Thomas C. Schelling, *The Strategy of Conflict* (New York: Oxford University Press, 1960), pp. 96–97.

25. See "China's Peaceful Development," Information Office of the State Council of the People's Republic of China, Beijing, September 7, 2011, http://www.fmprc.gov.cn/eng/zxxx/t856325.htm; and Michael D. Swaine, "China's Assertive Behavior, Part One: On 'Core Interests,'" *China Leadership Monitor,* No. 34 (Winter 2011).

26. It took the North Korean invasion of South Korea and Iraq's invasion of Kuwait to clarify U.S. thinking about the extent of the United States' interests in 1950 and 1990, respectively. China's leaders were apparently surprised by the public U.S. reaction to the 2009 confrontation with the USNS *Impeccable,* but once it became publicized, Beijing apparently felt constrained by domestic political considerations to escalate the stridency of its rhetoric and to detail the reasons for its opposition to U.S. surveillance within the EEZ. See Mastro, "Signaling and Military Provocation in Chinese National Security Strategy," pp. 223, 228. See also Frank Miller and Andrew Scobell, "'Decisionmaking under Stress' or 'Crisis Management?' In Lieu of a Conclusion," in Scobell and Wortzel, *Chinese National Security Decisionmaking under Stress,* p. 232.

27. Thomas J. Christensen suggests another reason to worry about the distinctive dangers inherent in a Sino-American crisis that results from a disagreement in which both sides believe they are defending the status quo. Drawing on prospect theory, he indicates that the belief that they are acting to avoid losses would increase the risks they would be willing to run. Christensen, "The Meaning of the Nuclear Evolution: China's Strategic Modernization and U.S.-China Security Relations," *Journal of Strategic Studies,* Vol. 35, No. 4 (August 2012), p. 465.

likely to be a problem in the Taiwan Strait. After all, both sides seem content with the status quo for now. Unfortunately, even here potentially dangerous ambiguity prevails. China's acceptance of the status quo is contingent on preserving the possibility of national unification. The United States insists that the status quo defined by de facto political separation must continue unless a change is peacefully agreed to by people on both sides of the Taiwan Strait. This ostensibly small difference opens the door to miscalculation that could trigger a crisis. Moreover, recent experience may actually be increasing the danger that both sides underestimate the chance that actions they see as supporting the status quo would instead be viewed as a challenge.

Since the mid-1990s, when Beijing became worried that U.S. support for Taiwan might tempt it to push for independence, China has deployed more and better forces along, in, and over the strait to credibly signal its determination to discourage challenges to the status quo (for Beijing, this means formal sovereignty over Taiwan that it cannot yet exercise). These deployments, especially the buildup of missiles across from Taiwan, have elicited sharp criticism from Washington. Because these missiles can be used to coerce Taiwan, the United States labels China's buildup a threat to the peaceful status quo. At the same time, it has continued to periodically provide Taiwan with arms, aiming to discourage a Chinese challenge to the status quo (for Washington, this means continuation of the island's political autonomy as long as its residents want it). These U.S. arms sales have elicited sharp criticism from Beijing. Because these arms can provide a "shield" emboldening Taiwan to seek independence, China labels them the real threat to the peaceful status quo. Such rhetoric from Beijing and Washington might seem to suggest that each side's actions are provocative and risk triggering a crisis. Neither, however, has evinced much concern that they are actually running a very serious risk. And since 1996, experience has reinforced this belief. Each time tensions from their disagreement about the future status of Taiwan have spiked, the United States and China have exercised restraint. Such restraint is welcome, but it may also be contributing to an underestimation of risks. If China and the United States believe that it is relatively safe to test the limits of each other's tolerance, they may be more likely to stumble into a dangerous crisis in the Taiwan Strait.[28]

Because China's periodic pressure on Taiwan since the mid-1990s has not triggered a U.S. reaction that increased the risk of confrontation, Beijing may conclude that the dangers it faces are low and manageable. But there are plau-

28. On missed "warning signs" about the dangers of a U.S.-China confrontation over surveillance prior to the EP-3 incident, see Zhang Tuosheng, "The Sino-American Aircraft Collision: Lessons for Crisis Management," in Swaine and Zhang, with Cohen, *Managing Sino-American Crises*, pp. 412–413, 420 n. 42.

sible circumstances, different from those that have recently prevailed, under which a renewed attempt by China to thwart what it sees as a challenge to the status quo could instead trigger an unexpectedly firm American response that precipitates a crisis.[29] For example, Beijing's expectations of progress toward improved cross-strait political relations while President Ma Yingjiu is in office could be frustrated. Or Taiwan's voters could grow more supportive of a policy on sovereignty and independence that is unacceptable to Beijing, a situation in which the United States might be unwilling to rein in a popularly elected leader. Similarly, because periodic U.S. arms sales to Taiwan have elicited strong protests from Beijing rather than action that increases the risk of confrontation, Washington may conclude that China's responses signal not resolve, but the self-restraint of a country more concerned about broader international economic and diplomatic interests.[30] Even if this inference about China's reactions thus far is correct, it is unclear whether it is safe to assume that the pattern of the recent past will hold in the future. Analysts in the West and within China have observed that Beijing's leaders are becoming increasingly sensitive to domestic political voices that express unhappiness with their government's restraint and that demand a more forceful response to future U.S. arms sales to Taiwan.[31] Especially if, as suggested above, Beijing believed that previous U.S. reactions to China's firmness had signaled Washington's reluctance to risk a confrontation over Taiwan, even relatively cautious leaders in China might decide that more assertive actions catering to domestic political pressure were not just necessary but safe.[32] If so, American arms sales that

29. On the difficulty and dangers inherent in drawing inferences about a prospective adversary's resolve based on past experience, see Jonathan Mercer, *Reputation and International Politics* (Ithaca, N.Y.: Cornell University Press, 1996); and Daryl G. Press, *Calculating Credibility: How Leaders Evaluate Military Threats* (Ithaca, N.Y.: Cornell University Press, 2005).

30. The U.S. view that China's interest in preserving a robust economic relationship with Taiwan and good relations with neighboring states and major trading partners, including the United States, may bolster confidence that China's warnings are little more than cheap talk. The tendency to interpret information so that it is consistent with one's existing cognitive framework is, of course, a staple of cognitive dissonance theory and its application to the study of perception and misperception in international relations, most notably by Robert Jervis. See Jervis, "Hypotheses on Misperception," *World Politics,* Vol. 20, No. 3 (April 1968), pp. 454–479; and Jervis, *Perception and Misperception in International Politics* (Princeton, N.J.: Princeton University Press, 1976).

31. See Susan L. Shirk, *China: Fragile Superpower* (New York: Oxford University Press, 2007); Mastro, "Signaling and Military Provocation in Chinese National Security Strategy," pp. 223, 228; Dennis C. Blair and David V. Bonfili, "The April 2001 EP-3 Incident: The U.S. Point of View," in Swaine and Zhang, with Cohen, *Managing Sino-American Crises,* p. 384; Zhang, "The Sino-American Aircraft Collision," p. 401; Avery Goldstein, "Parsing China's Rise: International Circumstances and National Attributes," in Robert S. Ross and Zhu Feng, eds., *China's Ascent: Power, Security, and the Future of International Politics* (Ithaca, N.Y.: Cornell University Press, 2008), pp. 55–86; Christensen, "Posing Problems without Catching Up"; and Zhang, "Zhongguo guoji junshi anquan weiji xingwei yanjiu," p. 116.

32. The temptation to embrace a dramatic new option would be strengthened if China's leaders also believed that they could portray their action—perhaps a decision to deploy ships near Taiwan and declare China's right to inspect cargo entering its territorial waters—as a justifiable and rela-

Washington believed were a prudent way to signal U.S. determination, while eliciting little more than pro forma condemnations from Beijing, could provoke an unprecedented and unexpectedly strong Chinese reaction, triggering a Sino-American crisis.

Sino-American Crises: Dangerous?

If the United States and China do stumble into a serious crisis, it could be as dangerous as, and perhaps more dangerous than, crises that the United States and the Soviet Union peacefully managed during the Cold War. This again reflects differences between the situation that the United States and China face today and the situation that the United States and the Soviet Union faced in the last century. Below I highlight five specific differences and their implications for the dangers in plausible U.S.-China crises.

STARK ASYMMETRY

First, the balance of military capabilities is much more lopsided in the contemporary Sino-American dyad than it was between the United States and the Soviet Union. Both China and the United States recognize the profound asymmetry (along quantitative and qualitative dimensions) in conventional and nuclear capabilities favoring the United States that would bear on crisis behavior.[33] I focus on the troubling implications of this imbalance in the next section.

CRISIS COMMUNICATIONS

Second, China and the United States have not yet jointly accumulated the hard lessons that Soviet and American leaders learned by managing nerve-wracking crises early in the Cold War when preferences, doctrine, and contingency planning bumped up against tough choices with real consequences. Absent that experience, especially on the Chinese side, Sino-American crises may well prove similar to the dangerous Soviet-American confrontations of the early Cold War years.[34] In particular, the challenges of crisis communica-

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tively restrained response, given that Washington had ignored Beijing's many previous warnings about the unacceptability of arms sales. Both the EP-3 incident and the *Impeccable* incident partly reflected China's determination to more forcefully signal its frustration and displeasure with continued U.S. surveillance.

33. Although the strategic nuclear balance favored the United States during the Cold War, especially in the early decades, the Soviet Union held a significant advantage in conventional military forces arrayed near the central front that divided Europe, especially around Berlin. Moreover, Soviet nuclear capabilities were sufficiently robust that America's best-designed disarming first strike could not provide confidence in preventing unacceptable retaliation. See Freedman, *The Evolution of Nuclear Strategy;* and Kaplan, *The Wizards of Armageddon.*

34. In addition, China has not been in a war-threatening crisis since 1969, and it has not engaged in major combat since 1979. This reality raises a host of questions about inexperience among

tions raise troubling concerns about the way a Sino-American crisis might play out.

The most serious U.S.-China confrontations thus far (following the U.S. accidental bombing of the Chinese embassy in Belgrade in 1999 and, as mentioned earlier, the 2001 collision between a Chinese fighter jet and a U.S. EP-3 reconnaissance aircraft) cast doubt on the adequacy of existing channels for communication during a crisis. Despite the availability of a hotline established in 1998, on both occasions the United States had difficulty making direct contact with China's top leadership in as timely a fashion as a potential crisis demands. Whether because China's leaders are reluctant to use the available channels for top-level contacts until they have reached an internal consensus or they have consulted widely with the relevant military units, or because their policy coordination is hampered by the lack of a counterpart to the U.S. National Security Council, recent experience suggests that frustrating delays in direct communication are likely during what could be the crucial early moments of an unfolding crisis with the United States.[35]

During the earliest stages of a crisis, communications may be limited to public statements or tacit signals sent through actions. Such methods are problematic. First, the usefulness of public statements is constrained by the recognition that multiple audiences (domestic and international) are being addressed. Even though an interest in exploiting audience costs may sometimes

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its political leaders, military officers, and soldiers that could affect behavior. For a brief survey of China's experience with, and limited learning from, military-security crises, see Zhang, "Zhongguo guoji junshi anquan weiji xingwei yanjiu."

35. To improve its crisis management after the 1999 Belgrade embassy bombing, China established a "national security leading small group." Since then, however, the group has not been the key body for crisis decisionmaking, which remains the Standing Committee of the Chinese Communist Party's Politburo, sometimes supplemented with additional central party, state, and military actors. See ibid., pp. 115–116. On enduring problems with China's decisionmaking process during crises, see Mastro, "Signaling and Military Provocation in Chinese National Security Strategy," p. 229; Swaine, "Chinese Crisis Management," pp. 22–28; Xu, "Lengzhanhou Zhongmei weiji chuli jizhi de guanli yu goujian"; Gao, "Weiji guanli shijiao xiade Taihai weiji tanxi"; and Guo, "Guoji weiji guanli yu juece moshi fenxi." In 2008 China and the United States agreed to add another hotline, one that linked their defense departments. On the potential value of such hotlines, see Glaser, "Armed Clash in the South China Sea," p. 7. The principle of civilian control in both countries, however, makes it unlikely that direct military communications would be a primary locus for managing a crisis in its earliest moments, while political leaders on both sides are struggling to assess the nature of the challenge they face. On this complication for U.S.-China crisis communications, see Kurt M. Campbell and Richard Weitz, "The Chinese Embassy Bombing: Evidence of Crisis Management?" in Swaine and Zhang, with Cohen, *Managing Sino-American Crises*, especially pp. 338, 347 n. 42.; Wu Baiyi, "Chinese Crisis Management during the 1999 Embassy Bombing Incident," in ibid., pp. 358–359; Blair and Bonfili, "The April 2001 EP-3 Incident," in ibid., pp. 380, 387; cf. Zhang, "The Sino-American Aircraft Collision," pp. 395, 410, 414; and Michael D. Swaine, "Conclusion: Implications, Questions, and Recommendations," in Swaine and Zhang, with Cohen, *Managing Sino-American Crises*, pp. 424–426, 448–449. On coordination problems for China when managing maritime disputes, see Swaine and Fravel, "China's Assertive Behavior, Part Two," p. 32 n. 79; and Zhu, "Nanhai zhengduan, Zhongguo keyi zuode gengduo."

make this an attractive way to send credible signals of resolve, a competing interest in controlling escalation may require messages that are more effectively sent through confidential channels.[36] Second, the reliability and effectiveness of tacitly signaling through actions depend on both the clarity with which the sender's message is translated into action and the probability that the recipient interprets the signal as intended. Technical or administrative problems in the chain linking the two sides can produce distortion or misperception.[37]

More troubling still are indications that Chinese analysts overestimate the ease with which military actions can be used to send signals, and that they underestimate the escalation risks that could result if the signaling action goes awry or is misunderstood.[38] At least three of the envisioned uses of China's much discussed antiship ballistic missiles (ASBMs) are illuminating in this respect.[39] Two are equivalent to "shots across the bow." The ASBM's maneuverable warheads would either be sent just over a U.S. carrier and its escorts or be targeted to splash down on one side to indicate the direction away from which the ships should steer. In some ways, this would be an updated version

36. For a sample of the debate about audience costs, see James D. Fearon, "Domestic Political Audiences and the Escalation of International Disputes," *American Political Science Review,* Vol. 88, No. 3 (September 1994), pp. 577–592; Kenneth A. Schultz, "Looking for Audience Costs," *Journal of Conflict Resolution,* Vol. 45, No. 1 (February 2001), pp. 32–36; Jessica L. Weeks, "Autocratic Audience Costs: Regime Type and Signaling Resolve," *International Organization,* Vol. 62, No. 1 (Winter 2008), pp. 35–64; and Keren Yarhi-Milo, "Tying Hands behind Closed Doors: The Logic and Practice of Secret Reassurance," Princeton University, 2011.

37. See Thomas C. Schelling, *Arms and Influence* (New Haven, Conn.: Yale University Press, 1966); and Robert Jervis, *The Logic of Images in International Relations* (Princeton, N.J.: Princeton University Press, 1970). On the way doctrinal differences can complicate signaling, see Twomey, *The Military Lens,* pp. 246–250.

38. U.S. signaling of this sort carries risks as well. Because of the many advantages that the United States enjoys in this asymmetric dyad, ambiguity in the reasons for its use of force could lead the more vulnerable China to envision a worst-case scenario and react with unexpectedly escalatory consequences. See M. Elaine Bunn and Vincent A. Manzo, "Conventional Prompt Global Strike: Strategic Asset or Unusable Liability?" Strategic Forum, No. 263 (Washington, D.C.: Institute for National Strategic Studies, National Defense University, February 2011); and Iskander Rehman, "A Step Too Far: Why CPGS Is the Wrong Answer to China's Anti-Access Challenge," *Asia Pacific Bulletin,* March 24, 2011. The trade-off between reassuring the adversary about the limits of one's actions and coercing the adversary who fears escalation may affect states' willingness to improve and then rely on available channels of communication.

39. The ASBM, expected to be a modification of the DF-21 medium-range ballistic missile, would be a land-based missile with a maneuverable warhead that could adjust course to compensate for its target's movement and perhaps to foil missile defenses. Its principal mission is to threaten U.S. carrier battle groups in parts of the western Pacific that are of concern to China. See Andrew S. Erickson and David D. Yang, "On the Verge of a Game-Changer," *U.S. Naval Institute Proceedings,* Vol. 135, No. 5 (May 2009), pp. 26–32. In describing strategies for using the ASBM, Erickson and Yang draw on authoritative Chinese sources such as Yu Jixun, ed., *Di er pao bing zhanyi xue* [The science of second artillery campaigns] (Beijing: People's Liberation Army, 2004). See also Erickson and Yang, "Using the Land to Control the Sea?" *Naval War College Review,* Vol. 62, No. 4 (Autumn 2009), pp. 53–86. On the many hurdles that China must clear before the ASBM is effective, see Eric Hagt and Matthew Durnin, "China's Antiship Ballistic Missile," *Naval War College Review,* Vol. 62, No. 4 (Autumn 2009), pp. 87–115.

of a technique China used in 1995–96, when it conducted military exercises and launched missiles that impacted sites well offshore key ports on Taiwan to signal displeasure with political trends on the island. Although those simpler missile launches, aimed at open waters and preceded by announcements that warned ships to avoid the test area, carried some risk of accidentally hitting unintended targets, the operation did not require anywhere near the level of precision that would be necessary to strike near but still miss all of the elements of a moving carrier battle group. As Owen Coté notes, even a fully operational ASBM capability that performs to specifications will have a margin of error determined not only by the warhead's terminal guidance, but also by the time that passes between tracking, targeting, launching, and impact.[40] If the intent were to hit the ships, the Chinese could compensate for this error by launching multiple salvos and combining them with attacks using other kinds of missiles from land-, air-, and sea-based platforms (especially cruise missiles). But when the intent is to frighten, coerce, and signal without actually striking the ships, redundancy is counterproductive. Indeed, even the smallest salvo entails accepting the risk that targeting error can result in inadvertent damage and unintended escalation.

The other signaling role envisioned for China's ASBMs during a crisis is to have the warheads hit specific parts of the carrier itself (such as the command tower) to warn of increasing danger, simultaneously demonstrating Chinese resolve and restraint, perhaps by relying on submunitions less likely to destroy the carrier and its aircraft.[41] To an even greater extent than a shot across the bow, but for the same technical reasons, this use would run the unavoidable risk of a destructive attack that sends a more provocative message than intended, resulting in inadvertent escalation.[42]

STRATEGIC BELIEFS

Third, unlike the Soviet Union, China's public statements and official policy appear to reflect a belief in the stability-instability paradox. The paradox sug-

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40. See Owen R. Coté Jr., "Assessing the Undersea Balance between the U.S. and China," SSP Working Paper, WP11-1 (Cambridge, Mass.: Security Studies Program, Massachusetts Institute of Technology, February, 2011), p. 23, http://web.mit.edu/ssp/publications/working_papers/Undersea%20Balance%20WP11-1.pdf.

41. Erickson and Yang, "Using the Land to Control the Sea?" p. 61.

42. See ibid., pp. 62–63. Dissenting Chinese analysts argue that the risks of unintended consequences would inhibit the Chinese from using the ASBMs in a crisis or conflict. See Huo Fei and Luo Shiwei, "Arrows without Bows? An Evaluation of the Effectiveness and Employment of Anti-Aircraft Carrier Ballistic Missiles," *Modern Ships*, No. 325 (April 2008), cited in Erickson and Yang, "Using the Land to Control the Sea?" pp. 68–69. More typically, however, Chinese writings emphasize seizing and maintaining the initiative during a crisis or conflict and, when using force, shocking and coercing the adversary, often with little attention to escalation dangers. See Morgan et al., *Dangerous Thresholds*, chap. 3.

gests that stability at the highest level of general nuclear war increases instability at lower levels by making lesser conflicts seem safe to fight. Because adversaries readily understand that the likelihood of mutual devastation precludes resort to general nuclear war, each has an interest in restricting itself to conventional conflict or only very small, carefully calibrated nuclear strikes.[43]

Especially early in the Cold War, Soviet leaders repeatedly rejected the logic of the stability-instability paradox, a logic that informed the U.S. shift to a flexible response doctrine in the early 1960s, and instead indicated that they would observe no restrictions on the military means they used if war came. By contrast, China's strategic analysts embrace its logic when they assert that the fear of China's nuclear capabilities will limit U.S. willingness to escalate beyond conventional weapons in a military confrontation. Chinese military writings emphasize the decisive use of conventional force with little apparent concern that such fighting would risk nuclear escalation.[44] China's official nuclear no-first-use policy, which guides the military's preparation and training for conflict, may also breed unwarranted confidence that the clear firebreak between limited and total war would not be crossed.[45] To the extent that Chinese leaders think that escalation, especially nuclear escalation, can be controlled because the adversary understands that China would not be the first to use nuclear forces, they may not only be more willing to take steps that risk triggering a crisis, but they may also underestimate the actual escalation risks inherent in using conventional military forces during a crisis. In short, the combination of China's strategic beliefs and doctrine may make crises both more likely and more dangerous.

TECHNOLOGY

Fourth, developments in technology since the third quarter of the twentieth century have dramatically improved the offensive conventional military capa-

43. On the stability-instability paradox, see its locus classicus, Glenn Snyder, "The Balance of Power and the Balance of Terror," in Paul Seabury, ed., *The Balance of Power* (San Francisco, Calif.: Chandler, 1965), pp. 196–201. For a detailed exploration of the logic and limits of the stability-instability paradox and its reflection in U.S. nuclear strategy during the Cold War, see Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, N.Y.: Cornell University Press, 1986), especially pp. 29–34.

44. See Morgan et al., *Dangerous Thresholds,* pp. 58–71. Lonnie Henley sees a misplaced confidence in Chinese strategic writings about escalation control that reflects a presumption that the era of unlimited war is over. Henley, "Evolving Chinese Concepts of War Control and Escalation Management," pp. 86, 100–101, 105. See also Swaine, "Chinese Crisis Management," pp. 18, 30; Christensen, "The Meaning of the Nuclear Evolution"; Twomey, *The Military Lens,* pp. 244–246; and Andrew Erickson and Lyle Goldstein, "Gunboats for China's New 'Grand Canals?'" *Naval War College Review,* Vol. 62, No. 2 (Summer 2009), p. 67.

45. On China's no-first-use policy, see M. Taylor Fravel and Evan S. Medeiros, "China's Search for Assured Retaliation: The Evolution of Chinese Nuclear Strategy and Force Structure," *International Security,* Vol. 35, No. 2 (Fall 2010), pp. 48–87.

bilities available to states.[46] In the European theater during the Cold War, the strategic advantage that would derive from a conventional first strike, especially during a Soviet-American crisis in which both sides were mobilized, was far from clear. Put another away, the weapons available did not clearly confer a decisive edge to either offense or defense.[47] By contrast, in the early twenty-first century, although the United States enjoys a huge advantage over China in conventional military power, both sides possess capabilities that are much more effective, indeed perhaps only effective, if used to attack before the other side has either attacked or adopted countermeasures.

In particular, to the extent the effectiveness of the most advanced conventional weapons is tied to sophisticated command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) networks that can be degraded through kinetic strikes or electronic and cyberwarfare, their distinctive usefulness for striking the adversary, or for signaling resolve and warning of escalation, may evaporate once the ability to confidently track and target is damaged. If, as is generally believed, emerging cyber- and space-warfare capabilities favor the attacker over the defender, once peacetime restraint based on mutual vulnerability gives way to the search for advantage in a crisis, neither side can be confident about the durability of its C4ISR.[48] The weaker Chinese side will have especially powerful incentives to use its most sophisticated capabilities before the integrity of elements essential to command and control over them is compromised. This may induce pressures to initiate the use of force that are as great as those induced by more traditional concerns about losing the weapons themselves.[49] The stronger U.S. side, too, will face incentives to act first, though its considerations would be different.

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46. For discussion and debate about the significance of the offense/defense distinction, see Robert Jervis, "Cooperation under the Security Dilemma," *World Politics,* Vol. 30, No. 2 (January 1978), pp. 167–214; Stephen Van Evera, "Offense, Defense, and the Causes of War," *International Security,* Vol. 22, No. 4 (Spring 1998), pp. 5–43; Charles L. Glaser and Chaim Kaufmann, "What Is the Offense-Defense Balance and Can We Measure It?" *International Security,* Vol. 22, No. 4 (Spring 1998), pp. 44–82; Karen Ruth Adams, "Attack and Conquer? International Anarchy and the Offense-Defense-Deterrence Balance," *International Security,* Vol. 28, No. 3 (Winter 2003/04), pp. 45–83; and Richard K. Betts, "Must War Find a Way? A Review Essay," *International Security,* Vol. 24, No. 2 (Fall 1999), pp. 166–198.

47. See Joshua M. Epstein, "Policy Focus: The European Conventional Balance: Dynamic Analysis and the Conventional Balance in Europe," *International Security,* Vol. 12, No. 4 (Spring 1988), pp. 154–165; John J. Mearsheimer, "Policy Focus: The European Conventional Balance: Numbers, Strategy, and the European Balance," *International Security,* Vol. 12, No. 4 (Spring 1988), pp. 174–185; and Eliot A. Cohen, "Toward Better Net Assessment: Rethinking the European Conventional Balance," *International Security,* Vol. 13, No. 1 (Summer 1988), pp. 50–89.

48. On mutual vulnerabilities, see Gompert and Saunders, *Paradox of Power.* For doubts about the strategic significance of such vulnerability, see Thomas Rid, "Think Again: Cyberwar," *Foreign Policy,* No. 192 (March/April 2012), pp. 80–84; cf. John Arquilla, "Cyberwar Is Already upon Us: But Can It Be Controlled?" *Foreign Policy,* No. 192 (March/April 2012), pp. 84–85.

49. Such implications are explored in Bruce G. Blair, *Strategic Command and Control: Redefining the Nuclear Threat* (Washington, D.C.: Brookings Institution Press, 1985). See also the Chinese critique

Redundancy in American surveillance and targeting methods, together with the United States' dominance of the seas and skies well off the Chinese coast, makes the U.S. military less dependent than China on the most vulnerable space-based C4ISR components for the effectiveness of its wider array of more advanced military weapons. As such, the United States can more readily devise workarounds.[50] This also means, however, that the United States would face an incentive to strike first (relying on kinetic or nonkinetic approaches) against China's satellites that could outweigh the incentive to exercise restraint as a way to encourage China to refrain from antisatellite (ASAT) attacks of its own.

If China's touted ASBM system becomes truly operational, the U.S. incentive to attack China's C4ISR, and China's incentive to use its best forces before its C4ISR is attacked, will become a crucial consideration. The ASBM's effectiveness beyond the "first island chain" (roughly defined as Japan, Taiwan, the Philippines, and the Greater Sunda Islands) will be critically dependent on timely satellite reconnaissance and efficient communications with key decisionmakers.[51] In a crisis, especially one where military hostilities seem imminent, China will face pressure to consider using its ASBMs while it still can, knowing that the United States has a strong incentive to spoof, jam, or otherwise disable China's space-based sensors and computer networks before they can relay data and guide an attack.[52]

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of Saddam Hussein's failure to attack concentrated U.S. forces in 1991 before U.S. attacks disrupted Iraq's ability to respond. Christensen, "Posing Problems without Catching Up," pp. 26–27.

50. On the advantages of the United States that reflect its air superiority in the operating environment well off China's coast, and the implications for a U.S., rather than a Chinese, temptation to attack satellites, see Coté, "Assessing the Undersea Balance between the U.S. and China," pp. 24–26.

51. On the technical and organizational challenges that China's normally slow-footed, loosely integrated civilian-party and military bureaucracies must overcome if their most advanced capabilities are to be used in a timely fashion, see Hagt and Durnin, "China's Antiship Ballistic Missile," pp. 88–89, 106; and Andrew S. Erickson, "Eyes in the Sky," *U.S. Naval Institute Proceedings*, Vol. 136, No. 4 (April 2010), pp. 36–41.

52. See Harry Kazianis, "Behind the China Missile Hype: Interview with Roger Cliff," *Diplomat*, January 20, 2012, http://the-diplomat.com/2012/01/20/behind-the-china-missile-hype/; and Spencer Ackerman, "How to Kill China's 'Carrier-Killer' Missile: Jam, Spoof, and Shoot," *Wired*, March 16, 2012, http://www.wired.com/dangerroom/2012/03/killing-chinas-carrier-killer/. See also McDevitt, "The PLA Navy's Antiaccess Role in a Taiwan Contingency," pp. 209–210. If the United States decides on kinetic strikes, Chinese satellites are likely to be more tempting targets than vulnerable over-the-horizion-backscatter radar sites, another crucial command and control asset. Destroying the radar installations would require an attack on the Chinese mainland, a step that would constitute a more dramatic escalation of a Sino-American crisis or conflict than attacks restricted to air, sea, and space outside China's sovereign territory. Attacks on land-based sites would also require accepting the likelihood of Chinese casualties, something obviously avoided with strikes against satellites. See Raoul Heinrichs, "America's Dangerous Battle Plan," *Diplomat*, August 17, 2011, http://the-diplomat.com/2011/08/17/america%E2%80%99s-dangerous-battle-plan/?all=true. Nevertheless, some early descriptions of the AirSea Battle concept suggest an em-

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Fifth, geographic locations where the most plausible U.S.-Chinese crises would emerge—maritime settings in the Western Pacific and seas adjacent to the Chinese mainland—suggest dangers in U.S.-China crises that would distinguish them from the U.S.-Soviet experience, which principally focused on continental contingencies.

In particular, the implications of maritime geography for the usefulness of China's improving submarine forces will require some fateful choices early in a crisis. China's small fleet of ballistic missile submarines (SSBNs) and its larger, more rapidly growing, quieter, and increasingly lethal attack submarines, including those armed with missiles that can pose serious threats against U.S. surface ships, are most secure when they remain in the shallow and noisy littoral waters near the mainland. As long as these attack submarines remain there, poor acoustics compromise the effectiveness of generally superior American undersea antisubmarine warfare (ASW) capabilities, while proximity to Chinese land-based aircraft and air defenses complicates U.S. airborne and surface ASW operations.[53] But for China's submarine forces to play their key roles in a Sino-American crisis, they must move south and east, out of these safer littoral waters.

The role of China's SSBNs is to enhance the deterrent threat of nuclear retaliation. To fulfill this role, China's SSBNs need to leave their coastal home waters. Until this fleet grows larger and China is able to routinely keep part of its force on long-range patrol, its principal contribution to China's nuclear deterrent is not the incremental addition of survivable warheads (the much larger fraction of which will continue to be based on land-mobile systems) but its usefulness as a hedge against U.S. missile defenses, whose effectiveness would be challenged by the less predictable trajectories of widely dispersed, submarine-launched ballistic missiles (SLBMs).[54] This role, along with the limited range of the current generation of Chinese SLBMs, requires the SSBNs to deploy in more distant waters. China's conventionally armed attack submarines must do the same if they are to play their key strategic role—increasing the dangers that confront American naval forces as they approach areas that

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phasis on military effectiveness rather than escalation control. See van Tol, with Gunzinger, Krepinevich, and Thomas, *AirSea Battle;* and Williams, "Air-Sea Battle."

53. See Coté, "Assessing the Undersea Balance between the U.S. and China," pp. 3, 8–9. On China's recognition of American superiority in submarine and antisubmarine capabilities, see Gabriel Collins, Andrew Erickson, Lyle Goldstein, and William Murray, "Chinese Evaluations of the U.S. Navy Submarine Force," *Naval War College Review,* Vol. 61, No. 1 (Winter 2008), pp. 68–86. See also Fravel, "China's Military Rise," p. 12.

54. Andrew S. Erickson and Lyle J. Goldstein, "China's Future Nuclear Submarine Force," *Naval War College Review,* Vol. 60, No. 1 (Winter 2007), pp. 65–66.

Beijing contests. Only by leaving China's coastal seas can these submarines discourage U.S. naval forces from reaching the point where the latter's superior long-range power projection capabilities would threaten China while remaining out of reach of its counterpunch. But this means that, in a crisis, China's leaders face a choice. They can maximize the survivability of their submarines by keeping them in nearby waters, or they can maximize their coercive impact by moving the submarines out to deeper seas, where they must face superior American ASW operations no longer constrained by the poor acoustics in coastal waters or by land-based Chinese aircraft and antiair fire.[55] Whichever choice China makes, early in a Sino-American crisis the prospect of China's submarines breaking out will present both sides with potentially destabilizing incentives to consider initiating the use of force.

Although American ASW would be more effective against China's attack submarines operating in less noisy open waters (where the United States also enjoys air superiority), the submarines would still pose a challenge to American naval forces. ASW can reduce, but cannot eliminate, the vulnerability of U.S. naval assets that come within range of Chinese submarines. Therefore, during a crisis the United States will have an incentive both to attack as many submarines as possible if they attempt to leave their littoral home waters and to counter China's C4ISR assets that would provide the necessary cueing information for successful ballistic and cruise missile strikes against U.S. surface forces.[56] If the United States does not take such action, or if some attack submarines nevertheless manage to break out, the surviving Chinese submarines, deprived of the relative security they enjoy in coastal waters, will face familiar "use'em or lose'em" pressures for early escalation to the use of force.[57]

With respect to China's SSBNs, the risks for instability are different, but still significant. The United States would again have an improved ability to track and target these Chinese submarines once they enter deeper waters. It is less clear, however, that the United States would be as willing to consider initiating an attack on what is unquestionably an element of China's strategic nuclear forces unless it were part of a broader U.S. plan for a disarming first strike that also sought to eliminate China's larger, land-based missile force. Especially be-

55. Coté, "Assessing the Undersea Balance between the U.S. and China," p. 9. China's submarines would need to exit the waters within the first island chain. Although the usage of "island chains" is imprecise and contested, Coté notes that the key distinction is between two operating environments—shallow waters closer to China and deeper waters, especially in the Philippine Sea, but also some areas of the South China Sea within the first island chain, where better acoustics enhance American ASW and distance degrades China's ability to employ land-based fighter jets to contest airspace. See ibid., p. 6.

56. Specifically, the United States would be tempted to "physically or electronically attack the sources of such cueing, whether they be over-the-horizon-B radars today, or MTI (moving target indication) radar satellites in the future." Ibid., pp. 12, 16–17.

57. Ibid. See also Twomey, *The Military Lens,* p. 251.

cause an attack on strategic forces is one of the scenarios that China has set forth as justifying abandonment of its no-first-use policy, the United States could not target China's SSBNs simply to signal resolve in a crisis without accepting a clear risk of nuclear retaliation.[58] This means that, in a crisis, the United States would likely tolerate the increased credibility of China's retaliatory capability that dispersed SLBMs would provide. Recognizing this, China would have incentives to deploy its SSBNs to distant, deeper waters early in a crisis. Such deep-water deployment, however, would introduce two other dangers.

One danger is the (presumably small) possibility that the United States might not recognize a vessel as an SSBN and use force against what it thinks is an attack submarine. Intending a serious but still presumably safe signal of resolve during an intensifying crisis, the United States would have inadvertently escalated to a strike against China's strategic nuclear forces.[59] The other, more plausible, danger is the possible failure of China's command and control over its SSBNs. The balance between negative control to prevent unauthorized use and positive control to ensure that one's threats can be carried out is notoriously delicate for SSBNs, which limit their communications to avoid detection. The challenge is most daunting during a crisis and becomes still more formidable if either side begins using military force, or if uncertainty about the durability of communications requires delegating decisions to submarine commanders who have limited information about how a confrontation is evolving and which standing orders they should execute. These problems pose challenges even for the United States, which has more than half a century's experience of working on solutions. China's search for solutions to command and control dilemmas that are exacerbated by the small size and greater vulnerability of its small SSBN fleet is in its early stages.[60] The challenges for China be-

58. See Fravel and Medeiros, "China's Search for Assured Retaliation"; Chase, Erickson, and Yeaw, "Chinese Theater and Strategic Missile Force Modernization and Its Implications for the United States," pp. 94–98; and Jeffrey Lewis, "China and No First Use," *Arms Control Wonk,* January 14, 2011, http://lewis.armscontrolwonk.com/archive/3446/china-and-no-first-use-3.

59. In general, the escalation risk would depend most importantly on the management of U.S. "trailing and surveillance operations in support of strategic ASW against those assets [SSBNs]. Depending on the aggressiveness of the strategic ASW operations and PLAN [China's naval] countermeasures, such a situation has the potential to dramatically and unexpectedly escalate the crisis." Chase, Erickson, and Yeaw, "Chinese Theater and Strategic Missile Force Modernization and Its Implications for the United States," p. 101. For a comparable concern about the dangers inherent in the comingling of ASW and strategic nuclear and conventional submarines during the Cold War, see Barry R. Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, N.Y.: Cornell University Press, 1991). On the distinctive risks that a tactical interest in striking first introduces to most naval confrontations, see Bouchard, *Command in Crisis,* pp. xxiv, xxviii–xxix.

60. On concerns about the feasibility of maintaining centralized control over China's strategic forces once they have been alerted, see Chase, Erickson, and Yeaw, "Chinese Theater and Strategic Missile Force Modernization and Its Implications for the United States," pp. 104–105; and Andrew S. Erickson and Michael S. Case, "Information Technology and China's Naval Modernization," *Joint Force Quarterly,* No. 50 (Summer 2008), pp. 24–30. See also Stephen Polk, "China's Nuclear

come more daunting as its fleet is deployed to deeper, distant waters where the communication requirements for maintaining command and control conflict with the need for SSBNs to remain silent as they try to evade detection by superior American ASW.

This potential for instability early in a crisis that reflects maritime geography is further increased by the limited routes through which Chinese submarines must exit if they are to reach deeper waters. The predictability and narrowness of these paths means that, at the outset of a crisis, the United States would face a crucial choice should the Chinese decide to move out: either risk escalation by resorting to military force when it has the clearest advantage or accept an increased risk to U.S. naval forces by permitting the Chinese to operate more freely.[61] The Chinese would also face tough choices early on. They could risk the loss of submarines by running the gauntlet, or they could keep the submarines in their relatively safe coastal home waters, but only by sacrificing much of their coercive value, as explained above. Moreover, Beijing's decision would almost certainly be read as an early signal of its resolve in the crisis, opening another door to crisis instability.

If China's leaders chose not to attempt to push beyond maritime choke points, the United States would likely view this as a sign that they were risk averse. But if that interpretation led U.S. leaders to press harder in crisis bargaining, Beijing could then decide that ensuring China's interests required the risky escalation of an attempted breakout to deeper waters. It might seem that China could avoid this scenario by undertaking visible preparations for such a move early in the crisis to signal to the United States that it faced a resolute adversary. If, however, China's leaders doubted that such signaling would be effective, they would want to preserve the option to execute a submarine breakout and minimize the attrition it would entail.[62] Because the latter requires achieving tactical surprise, China would avoid maneuvers the Americans could detect, unintentionally increasing the likelihood that the United States would read apparent inaction as signaling China's lack of resolve.[63] Nor could Beijing preclude such a misinterpretation by issuing stern statements. Hearing words but not seeing action, the United States would be inclined to discount firm language as "cheap talk." If so, China's leaders might then conclude that they had

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Command and Control," in Lyle J. Goldstein and Andrew S. Erickson, eds., *China's Nuclear Force Modernization* (Newport, R.I.: Naval War College, 2005), pp. 7–21.

61. Coté, "Assessing the Undersea Balance between the U.S. and China," pp. 9, 12, 18. Coté also notes that this geographic constraint will not be eliminated, even if China shifts to quiet nuclear submarines that "would still be vulnerable to detection while exiting and entering their bases, and while transiting between the first and second operating areas." Ibid., pp. 9–10, 26, 27.

62. On the importance of Chinese submarines covertly exiting the coastal waters, see ibid., p. 11.

63. Morgan et al., *Dangerous Thresholds,* pp. 54–55.

to send a clearer message through actions, escalating the crisis in ways the United States did not anticipate.[64]

However unlikely such a sequence of events might seem, it is not without precedent. It would in fact be similar to what happened prior to China's entry in the Korean War, an instance of failed signaling and escalation initially described in the seminal work of Allen Whiting and recently reexamined by Branislav Slantchev.[65] In the fall of 1950, as China moved forces near the Korean border, the tactical need for secrecy to maximize military effectiveness, if it intervened, prevented Beijing from pointing to its buildup as a credible signal of its resolve to respond if U.S.-led UN forces moved north of the 38th parallel and approached the Yalu River border with China. The competing Chinese goals of deterrence and military effectiveness, in case deterrence failed, contributed to Washington underestimating Beijing's resolve, which China instead tried, unsuccessfully, to communicate indirectly through diplomatic channels.[66] When U.S.-led military operations pressed ahead, China's leaders ultimately decided that they had to accept the costs of intervention to ensure their country's vital interests near its northeastern border. The United States had failed to grasp China's determination, in part because tactical considerations made it difficult for Beijing to send a more credible signal of resolve.

In sum, the potential for dangerous Sino-American crises in maritime East Asia over the next decade or beyond cannot be lightly dismissed. The next section suggests how the combination of conventional and nuclear arms that the United States and China possess would shape the incentives to resort to force in such crises. Because any resort to force would entail an unavoidable possibility of nuclear escalation, the consequences of even limited instability are worrisome.

Power Asymmetry, Targeting Information, and Crisis Stability

The following discussion presents a more stylized examination of stability in crises between two states where the balance of military power is sharply asymmetric, as it currently is in the case of the United States and China. I look at

64. The incentive for China's leaders to take action could increase if such "cheap talk" turned out to be costly, tying their hands by generating domestic political pressures that require them to shift their focus from maintaining crisis stability to maximizing the military effectiveness of their planned actions.

65. Allen S. Whiting, *China Crosses the Yalu: The Decision to Enter the Korean War* (Stanford, Calif.: Stanford University Press, 1960); and Branislav L. Slantchev, "Feigning Weakness," *International Organization*, Vol. 64, No. 3 (Summer 2010), pp. 357–388. See also Zhang Baijia, "'Resist America': China's Role in the Korean and Vietnam Wars," in Swaine and Zhang, with Cohen, *Managing Sino-American Crises*, p. 191.

66. See Xia, "Meiguo guanyu weiji guanli de lilun yu shijian," pp. 75–76, 84–85.

variation along only two additional dimensions—the type of military capabilities (nuclear or conventional) available to each side and the adequacy of military intelligence. This simplification helps to illuminate two important influences on crisis stability, but at the price of omitting many other considerations that would be relevant in a real crisis (including some that are more easily contained in the kinds of descriptions presented above).[67] Although the United States and China possess both nuclear and conventional weapons, it is helpful first to consider their effects separately to clarify how these different types of military forces, together with variation in military intelligence, affect crisis stability.

Figure 1 depicts variation in crisis stability between two adversaries, X and Y. In this asymmetric dyad, X's military capabilities greatly exceed Y's. The columns distinguish among three different settings—one in which leaders consider only the role of conventional forces, one where they consider the role of nuclear forces, and a third in which they consider conventional and nuclear forces together. The rows distinguish between settings in which the stronger side has good intelligence about the weaker adversary's military forces that it would target during a crisis, if it opts to resort to the use of force, and those in which such information is lacking. During a crisis, stability is determined by each side's decision whether to initiate the use of force.[68] Both sides are assumed to be rational actors in the basic sense that they use force only when they expect it to advance their interests.

The decision about the use of force is shaped by X's belief about the probability (P) of an effective military strike, and Y's capabilities (C) that Y can use against X. An effective military strike by X is one that reduces Y's ability to launch punishing retaliation to an acceptable level, or that improves X's military advantage over Y, strengthening its crisis bargaining position. If X attacks, Y can agree to a negotiated settlement that X prefers (ending the crisis), bargain in an effort to reach a settlement more to its own liking (continuing the crisis), or use its remaining forces to ensure its interests (escalating the military conflict and risking war). If X has launched an effective strike, Y retains neither the capabilities it would need to credibly threaten the use of force in support of a tough negotiating posture nor the capabilities it would need to use force to

67. Any analysis chooses some subset of factors from the nearly limitless list of considerations that could be relevant to crisis stability—a list that would include not just details about the military forces that each side deploys, but also the organizational framework for crisis decisionmaking, domestic political constraints (economic conditions, ideological, and other normative influences on foreign policy), and the role of leaders' backgrounds and personalities. The selectiveness reflected in this section is justified if it illuminates an important aspect of crisis stability—a complement to, rather than a substitute for, work that aims at a more exhaustive description.

68. This analysis does not examine the important, but logically distinct, matter of which side prevails in the crisis, only the likelihood that the outcome will be preceded by the use of force.

Figure 1. Crisis Stability in Asymmetric Dyad X,Y (X >> Y)

X's information about Y's capabilities (military intelligence)	types of available military capabilities: conventional	nuclear	conventional + nuclear
poor	unstable	very stable	stable
good	very stable	stable	less stable

P X's expected probability of effective use of force

conventional forces only

C_c Y's conventional capabilities for a military response against X
D_c X's expected cost of ineffective use of force
[damage from Y's conventional retaliation or Y's remaining conventional capabilities that it can use in fighting X: $D_c = (1 - P) \times C_c$]

nuclear forces only

C_n Y's nuclear capability to retaliate or compete with X in generating autonomous risk
D_n X's expected cost of ineffective use of force
[damage from nuclear retaliation, or Y's remaining nuclear capabilities that it can use to generate risk of escalation: $D_n = (1 - P) \times C_n$]

conventional and nuclear together

C_{cn} Y's conventional and nuclear capabilities that can be used to generate autonomous risk of escalation in crisis between nuclear-armed states
D_{cn} X's expected cost of ineffective use of force
[damage from Y's military response or Y's remaining capabilities that it can use to generate risk of nuclear escalation: $D_{cn} = (1 - P) \times C_{cn}$]

gain leverage over X. By contrast, if X's use of force is ineffective, Y retains military capabilities ($D = [1 - P] \times C$) that it can use to advance its interests by threatening or attacking X. As explained below, Y cannot initiate the use of force to enhance its bargaining position by improving its military strength, but only to signal its resolve.

CONVENTIONAL ASYMMETRY AND INSTABILITY

Where only conventional forces are in play, as shown in the first column of figure 1, asymmetry generally contributes to the temptation to use force, and improved targeting intelligence exacerbates this source of instability.

In the upper left cell of the figure, doubts about the adequacy of intelligence reduce the stronger side's confidence that overwhelming military superiority will permit it to use force effectively. This uncertainty tempers the expected benefits of attacking rather than continuing crisis bargaining. But, in contrast to an analogous confrontation between peer competitors, asymmetry in military capabilities enables the stronger side to compensate for shortcomings in its intelligence (and ever present concerns about the performance of weapons and personnel) by building redundancy into its attack plan. This possibility increases the attractiveness of the option to use force during a crisis. Either the military strike will so significantly reduce the weaker side's capabilities that it simply settles the crisis on terms the stronger side prefers, or it will fight before settling, but with lesser capabilities that have been further degraded by the initial strike.

The weaker side may also be tempted to initiate the use of force, though for a different reason. It may anticipate that it will be able to use its military forces only if they are employed before they are destroyed. This use'em or lose'em dilemma does not create instability because the weaker side believes it can prevail militarily by striking first (a situation that can arise in a crisis between peer competitors with good targeting intelligence). Instead, instability can arise if the weaker side believes that initiating the use of force will improve its bargaining position by more clearly signaling its resolve to the stronger adversary.[69] Such action may be especially likely if the weaker side believes not just that it has vital interests at stake in the crisis, but also that it values them more than its stronger adversary values its interests. If the stronger side is aware of the weaker side's belief, but values its own interests more than its outgunned rival thinks, this will increase the temptation for the stronger side to initiate the resort to force. Preemption would greatly reduce or even forestall the damage that would result from absorbing the first blow, however ineffectual, from its weaker adversary.

The lower left cell of figure 1 depicts circumstances in which the pressures to initiate the use of force are even higher and crisis instability is therefore greater. The stronger side no longer needs to rely on redundancy to compensate for shortcomings in targeting information. Confidence in its intelligence about its outgunned rival increases the expectation that the use of military force will be effective, which in turn increases the use'em or lose'em pressures on the weaker side. Such a crisis situation, then, is at the unstable end of the

69. On the use of force to signal resolve, even if it does not shift the military balance in one's favor, see Jervis, *The Illogic of American Nuclear Strategy*, p. 129. See also Snyder and Diesing, *Conflict among Nations*, pp. 456–457.

spectrum, in which the incentives to preempt for both sides may be nearly irresistible, and bargaining is most likely to give way to the use of force.

If only conventional forces were in play, a crisis between the United States and China in the near future would occur under conditions of asymmetry such as those represented in the first column of figure 1. Moreover, the combination of sophisticated U.S. intelligence capabilities and what is generally regarded as a desirable push for China to be more transparent about its military posture increases the risk that a Sino-American crisis would approximate the dangerously unstable conditions depicted in the lower cell.

In the sort of maritime scenarios described above, the United States would face temptations to initiate the use of force early, in part because the adequacy of targeting information provided by peacetime intelligence would degrade as China began dispersing its naval forces to deeper waters. China's leaders would also face temptations to use force, though for a different reason. They would likely believe that their interests at stake were higher than those for the United States, precisely the belief that provides an incentive for a clearly outgunned rival to initiate the use of force to signal resolve before its capabilities and options can be further diminished.[70]

Beijing would, in its view, be defending China's sovereign territorial and maritime interests in nearby seas. Even though such crises would also engage U.S. interests, these would differ in two respects. First, the United States would be seeking to preserve a regional interest in upholding its reputation as a resolute ally that cannot be intimidated, even by a determined and increasingly potent (if still relatively weak) Chinese military, as well as a global interest in upholding the principle of freedom of navigation on the high seas. Although not inherently less important than China's concerns, the U.S. stake reflects extrinsic interests in reputation and principle, whereas China's stake reflects intrinsic interests in the territory and waters themselves.[71] Second, because the theaters in which these crises would play out are much closer to China than to the United States, geography makes it likely that Beijing could more readily claim that its stakes touch on vital interests. A comparably credible American claim would depend on the persuasiveness of the United States' explanation about the nature and importance of its interests in this distant

70. See Xia Liping, "Meiguo guanyu weiji guanli de lilun yu shijian," p. 81.

71. This distinction can be overdrawn. The growing importance of East Asia's economies and its vital maritime lines of communication, along with the usefulness of military bases available to the United States, establishes tangible interests for the United States in the region that go beyond concerns about its reputation for resolve. See Yoichi Kato, "Patrick Walsh: South China Sea Could Be a New 'Strategic Pivot,'" *Asahi*, March 21, 2012, http://ajw.asahi.com/article/views/opinion/AJ201203210024.

region.[72] These fundamental distinctions suggest why China could believe, even if incorrectly, that it values its stakes in Asia-Pacific maritime disputes more than the United States does—a belief that would increase the temptation during a crisis for the weaker Chinese side to resort to force while it still has forces it can use.[73] It could expect that a demonstration of its willingness to run risks over the stakes it treasures so dearly would convince the U.S. government to cut a deal rather than to escalate to a more serious military conflict—one that the United States could clearly win, but only by accepting the costs of fighting over stakes that Beijing believes Washington values less.[74] If, however, China were incorrect in its assessment of the American understanding of the U.S. stakes, Washington would be tempted to preempt China's use of force by tapping the United States' superior military capabilities and targeting intelligence, whose reliability would be at its peak early in the crisis.

Nuclear Asymmetry and Stability

The prospects for stability in a Sino-American crisis look bleak when only conventional forces are considered. In reality, of course, both countries also possess nuclear weapons. How would such weapons affect crisis stability? I first isolate their effects on crisis stability partly because of the possibility that, in a serious crisis, the United States and China would focus narrowly on nuclear considerations. But, even if that is unlikely, it is helpful for teasing out the distinctive pressures on crisis stability that these weapons introduce.

Again, stability is determined by each side's decision whether to continue bargaining or to use force against the adversary. As in the conventional case, this decision is shaped by beliefs about the probability that initiating the use of force would be effective and by the capabilities its adversary could use in response. But where the relevant forces are nuclear, the substantive meaning of effectiveness is different. The use of force can be effective in one of two ways. One is if it reduces the adversary's ability to inflict retaliatory punishment to levels that are deemed acceptable. Given the catastrophic damage that even modest nuclear capabilities can impose, however, this essentially requires that the use of force somehow preclude, rather than merely diminish, the retalia-

72. Snyder and Diesing discuss difficulties in comparing resolve between actors in a crisis when their interests at stake are not self-evident, objectively measured things, but rather reputations. See Snyder and Diesing, *Conflict among Nations,* pp. 456–457. See also Schelling, *Arms and Influence,* pp. 35–36.

73. In a U.S.-China crisis, the stakes could also be shaped by the way the crisis begins. A crisis triggered by U.S. actions that China perceived as an open challenge would increase domestic political pressures in China, dramatically raising the stakes for Beijing. A crisis that began with an unprovoked challenge by China would dramatically raise the stakes for Washington by engaging U.S. concerns about the credibility of its international commitments in East Asia.

74. Morgan et al., *Dangerous Thresholds,* chap. 3.

tory blow that even a weaker rival's relatively small nuclear arsenal can deliver. A second way in which force can be effective is if it increases the attacker's bargaining advantage during the crisis in a sense that is distinctive to a nuclear confrontation.

Between nuclear-armed adversaries, bargaining is driven by the ability of each side to credibly threaten escalation that the adversary finds intolerable. When both adversaries can inflict catastrophic punishment on each other, neither can credibly threaten to launch an attack that invites the certain disaster of a full nuclear exchange.[75] Instead, in what Thomas Schelling termed a "competition in risk taking," gaining an advantage depends on the ability to generate a level of shared risk of catastrophe that the adversary cannot tolerate. To be effective in the second sense, then, the resort to nuclear force during a crisis must meaningfully reduce the adversary's ability to compete in any subsequent risk taking.

Even with great confidence in one's military intelligence, it is very difficult to design the use of nuclear forces that meets either test of effectiveness. To fully disarm even an outgunned rival, the use of force has to be so large that anything short of perfection requires accepting the near certainty that the adversary would launch a full retaliatory strike with its surviving forces; when these weapons are nuclear, not many need survive to make this prospect unacceptable ($D_n = [1 - P] \times C_n$). The alternative is to initiate a more limited nuclear strike designed only to neutralize the adversary's command and control necessary for launching its nuclear forces or only to degrade the adversary's nuclear arsenal such that it lacks the means to compete in risk taking. These options, however, face practical challenges that are not significantly less daunting. If the strike is carefully limited to be so small that it is sure to avoid triggering a full retaliatory response, it is unclear whether it will suffice to strip the adversary of its ability to compete in nuclear risk taking. If the strike is large enough to do so, it increases the danger of triggering catastrophic retaliation—because it will be harder for the adversary to distinguish such a large attack from one that is an unrestrained strike.

Moreover, during a crisis the challenge of designing an effective attack in

75. Although massive retaliation can be a rational choice by a state absorbing an unrestrained nuclear attack, a state cannot rationally choose to trigger mutual destruction. A rational actor can, however, take steps that create the risk that escalation could escape the control of the two sides. See Schelling, *The Strategy of Conflict,* pp. 199–201; Robert Powell, "The Theoretical Foundations of Strategic Nuclear Deterrence," *Political Science Quarterly,* Vol. 100, No. 1 (Spring 1985), pp. 75–96; and Robert Powell, *Nuclear Deterrence Theory: The Search for Credibility* (New York: Cambridge University Press, 1990). On the central role that risk plays in the deterrent strategies of weaker states in asymmetric dyads, see Avery Goldstein, *Deterrence and Security in the 21st Century: China, Britain, France, and the Enduring Legacy of the Nuclear Revolution* (Stanford, Calif.: Stanford University Press, 2000).

either sense increases. Where nuclear-armed rivals are already locked in a crisis, the attack would not be a surprising "bolt out of the blue," but rather would take place when the dark clouds of war had already gathered. As such, the attacker would have to assume that its adversary is more vigilant and readier to respond than when its military is on day-to-day alert. The adversary will almost certainly have put its arsenal on a higher level of readiness and perhaps redeployed it in ways that undermine confidence in targeting information based on peacetime intelligence (even if efforts were made to update it). Heightened alert would also reduce the plausibility of the most enticing attack option—one that incorporates decapitation of the adversary's national command so as to render any surviving nuclear forces unusable. Because the logic of such targeting is so clear, the stronger side would have to assume that its adversary will have taken steps to reduce this obvious vulnerability. Aside from attempting to actually protect its national leadership through sheltering or missile defenses, the weaker side can lessen its vulnerability by establishing redundant chains of command, by preparing for prompt delegation of decisionmaking authority once an attack is detected (perhaps even predelegating launch authority prior to attack), or by dispersing the national command and making it mobile.[76]

The daunting challenges of using nuclear force effectively mean that although crisis stability is not guaranteed ($P > 0$), even in an asymmetric nuclear dyad it is very robust. Unlike the conventional case, despite impressively dominant capabilities the stronger side cannot exploit redundancy to compensate for a lack of adequate targeting information (upper cell in figure 1). And even with better targeting information (lower cell), it is difficult to increase the probability that the use of nuclear forces would be effective enough to offset the costs the weaker adversary could impose if the attack were ineffective. The stakes in a crisis would have to be implausibly high to clearly match or exceed this expected cost. Because the temptation for the stronger side to use force is so greatly muted, the pressures that drive the weaker side's use'em or lose'em logic when its adversary is conventionally armed are less relevant when it is nuclear armed.

Yet, what if a crisis intensified and nuclear war seemed not just possible, but likely? Would the temptation to strike before being struck—a recipe for insta-

76. See Desmond Ball, *Can Nuclear War Be Controlled?* (London: International Institute for Strategic Studies, 1981); Blair, *Strategic Command and Control;* Bruce G. Blair, *The Logic of Accidental Nuclear War* (Washington, D.C.: Brookings Institution Press, 1993); Paul J. Bracken, *The Command and Control of Nuclear Forces* (New Haven, Conn.: Yale University Press, 1983); and Vipin Narang, "Posturing for Peace? Pakistan's Nuclear Postures and South Asian Stability," *International Security,* Vol. 34, No. 3 (Winter 2009/10), pp. 38–78.

bility in the conventional case—become irresistible? How would asymmetry affect this temptation? After all, despite their many disagreements about nuclear strategy and policy during the Cold War, analysts generally agreed that the only thing worse than being struck second was being struck first.[77] If war were inevitable, it was argued, even a small chance that a first strike could cripple the adversary or tilt the balance of damage in one's favor could make this a rational choice. The relevance of this claim, however, requires what is arguably a theoretically useful, but misleadingly unrealistic, assumption about the perceived inevitability of war during a crisis.[78] The presence of nuclear weapons alters the plausibility of this assumption. Before the advent of nuclear weapons, war was seen as a viable if usually undesirable alternative to diplomacy. There is little to suggest that nuclear-armed adversaries have ever viewed the prospect of war in the same light. On the contrary, contingency plans and hypothetical scenarios notwithstanding, the limited history of crises in which the focus was on nuclear weapons suggests that leaders have stubbornly resisted viewing nuclear war as imminent, let alone inevitable.[79]

In the most serious crisis between the Cold War superpowers, the confrontation over Cuba in 1962, the balance of nuclear capabilities was asymmetric; the stakes were high; the rivalry was intense; and both the Americans and Soviets knew that the United States had a doctrine, targeting plans, and the intelligence to facilitate a preemptive strike against Soviet forces. Yet neither side acted as though it believed war was inevitable. Instead, when war seemed imminent, both sides focused on crisis bargaining and resisted the military option.[80]

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77. See Powell, *Nuclear Deterrence Theory;* and Betts, *Nuclear Blackmail and Nuclear Balance.*

78. Perceived inevitability is defined as a subjective judgment that the probability of war is 100 percent. Short of 100 percent, war is perceived as imminent, not inevitable.

79. See Snyder and Diesing, *Conflict among Nations,* pp. 451–452. In the presence of nuclear weapons, uncertainty about the inevitability of war generates sturdy, rather than delicate, deterrent balances. See Bernard Brodie, "The Development of Nuclear Strategy," *International Security,* Vol. 2, No. 4 (Spring 1978), pp. 65–83; Kenneth N. Waltz, "Nuclear Myths and Political Realities," *American Political Science Review,* Vol. 84, No. 3 (September 1990), pp. 731–745; Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, N.Y.: Cornell University Press, 1989); cf. Albert Wohlstetter, "The Delicate Balance of Terror," *Foreign Affairs,* Vol. 37, No. 2 (January 1959), pp. 211–234. For debate about the inhibitions on warfighting that nuclear weapons have introduced in crises and limited conflicts between India and Pakistan, see Ashley J. Tellis, C. Christine Fair, and Jamison Jo Medby, *Limited Conflicts under the Nuclear Umbrella: Indian and Pakistani Lessons from the Kargil Crisis* (Santa Monica, Calif.: RAND, 2001); Scott Sagan and Kenneth Waltz, *The Spread of Nuclear Weapons: A Debate Renewed* (New York: W.W. Norton, 2003), pp. 88–124; Sumit Ganguly and Devin T. Hagerty, *Fearful Symmetry: India-Pakistan Crises in the Shadow of Nuclear Weapons* (Seattle: University of Washington Press, 2005); S. Paul Kapur, *Dangerous Deterrent: Nuclear Weapons Proliferation and Conflict in South Asia* (Stanford, Calif.: Stanford University Press, 2007); and Peter R. Lavoy, *Asymmetric Warfare in South Asia: The Causes and Consequences of the Kargil Conflict* (New York: Cambridge University Press, 2009).

80. President John F. Kennedy did not seem to accept the idea that the United States' decisive nuclear edge conferred a big strategic advantage during either the Berlin or Cuban crises. See "First

What does the Cuban missile crisis suggest about the prospects for nuclear stability in a U.S.-China crisis? The United States commands a nuclear arsenal that is far larger, more diverse, and more sophisticated than China's. In addition, U.S. military intelligence about China's arsenal today rests on much more reliable technical means than were available during most of the Cold War. Consequently, the United States likely has better information about the smaller nuclear target set it faces in contemporary China than it had about the larger target set the Soviet nuclear arsenal represented. If the weapons in play were only conventional, as noted above, the U.S. advantage in terms of capabilities and military intelligence would make the use of force during a crisis very tempting, something that would also increase the incentives for China to resort to force first. But where the forces are nuclear weapons, the situation is quite different.

During a crisis, asymmetry clarifies the incentives for the Chinese to augment the costs of an ineffective use of force by the United States. The availability of nuclear weapons makes this possible in ways that are not feasible when only conventional weapons are in play. The possibilities include the measures described above—enhancing the readiness to respond and complicating the targeting challenge by redeploying nuclear forces, or perhaps by fostering doubts about their actual number and disposition by dispersing them to alternate locations; frequently relocating mobile delivery systems; and issuing claims about previously undisclosed forces. As a result, even if the U.S. objective were only to greatly reduce rather than to eliminate China's nuclear options, an American strike designed to compensate for uncertainty about the target set would need to be very large. In addition, other steps that the Chinese could be expected to take during a crisis—such as raising alert levels or predelegating launch authority as a hedge against decapitation—would increase the risk for the United States that detection of a sufficiently large attack

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Strike Options and the Berlin Crisis, September 1961," in William Burr, ed., *National Security Archive Electronic Briefing Book,* No. 56 (Washington, D.C.: National Security Archive, 2001), http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB56/; and Marc Trachtenberg, "The Influence of Nuclear Weapons in the Cuban Missile Crisis," *International Security,* Vol. 10, No. 1 (Summer 1985), p. 148. Despite asymmetry, the logic of nuclear preemption did not drive military preparations on either side as the Cuban crisis intensified. If bargaining failed, the United States did not plan to initiate the use of force with a comprehensive counterforce first strike against the Soviets. Nor did Moscow ready its nuclear forces in ways that might have enabled it to use them before they could be destroyed by the United States. The Kremlin was apparently more concerned about triggering a U.S. decision for war that could still be avoided. See Trachtenberg, "The Influence of Nuclear Weapons in the Cuban Missile Crisis"; and Powell, "Crisis Stability in the Nuclear Age," p. 72. Kennedy and Soviet leader Nikita Khrushchev may, however, have underestimated other risks—especially the risk of escalation being generated by nonnuclear forces formally under their command, but in practice beyond their complete control. See Michael Dobbs, *One Minute to Midnight: Kennedy, Khrushchev, and Castro on the Brink of Nuclear War* (New York: Alfred A. Knopf, 2008).

could lead to a full retaliatory response before China's forces were destroyed. Retaliation could result from a loss of control over vulnerable forces put on higher alert to improve their survivability, or it could be ordered by China's leaders if they mistakenly believed that their country was absorbing an unrestrained nuclear attack, the one situation in which rationality would no longer bar the weaker side from launching its nuclear weapons.[81]

In contrast to a purely conventional crisis, then, preemptive pressures would be unlikely to lead the United States to resort to force if only nuclear weapons were in play. Nor would China be likely to initiate the use of force. As in the conventional case, China could not gain a military advantage. But unlike the conventional case, Beijing could not use nuclear forces to signal resolve without accepting a qualitatively greater risk of triggering quickly catastrophic escalation. The only circumstance under which it would clearly be rational for Beijing to order the use of its nuclear forces during a crisis would be if China's leaders believed that the United States had already launched an unlimited nuclear strike. Because this circumstance requires the United States to resort to force first, however, this is equivalent to saying that the real threat to crisis stability would come from the United States, not China. But as noted above, the risk that the United States would generate by initiating a nuclear strike, including the most plausible limited strike that aims to avoid triggering a full Chinese response, reduces its attractiveness. The stakes for the United States would have to be extraordinarily high to justify the danger represented by the expected cost incurred if its use of force proved ineffective ($D_n = [1 - P] \times C_n$). Moreover, in this unlikely scenario, the United States would have to be so confident in the quality of its intelligence that it could resist the temptation to enlarge the attack to minimize the risks of ineffectiveness (which could result not only from misplaced confidence in intelligence about the target set in China, but also from shortcomings in the performance of American weapons and personnel). The temptation to enlarge the scope of the attack would be strong. Resisting the impulse would require leaders in the United States to believe that their intelligence enabled them to correctly anticipate all the steps that China would take during a crisis to reduce the effectiveness of a U.S. attack. The only hedge against such concerns would be the redundancy provided by an enlarged strike.

Thus, the United States would face a dilemma. If it chose to initiate a carefully limited use of nuclear force, it might be able to resolve the crisis in its

81. Given the vulnerability of its arsenal, China would have incentives to launch a retaliatory strike once it had warning of the incoming U.S. attack or soon after the first Chinese targets were destroyed. See Goldstein, *Deterrence and Security in the 21st Century*, chap. 2.

favor, but only if all went according to plan. Because it is hard to imagine that a political leader would decide to initiate a nuclear attack without also trying to ensure that it achieves its purpose, an enlarged strike would seem to be the more prudent choice. Enlarging the scope of its attack as a hedge against the risks of ineffectiveness, however, would increase the danger of triggering unrestrained nuclear retaliation from an alert Chinese adversary. Thus, the ostensibly more prudent choice has an expected cost—a small probability of unrestrained nuclear retaliation—that makes it difficult to embrace. This dilemma reflects the daunting challenge of devising an effective option for the use of force when the adversaries are nuclear armed—even if one enjoys vast superiority and excellent information about the other's capabilities that must be targeted. It indicates why crisis stability is so much more likely to endure when only nuclear, rather than conventional, weapons are in play.[82] Short of an implausible belief that war is not just imminent but inevitable, neither side would be likely to choose to initiate the use of force.

The robustness of nuclear crisis stability, however, should be compared not only to the conventional alternative. The more relevant comparison is one in which the adversaries in a crisis have both nuclear and conventional forces. After all, every existing nuclear weapons state, including China and the United States, possesses conventional weapons as well. Although the considerations outlined in the purely conventional and nuclear crisis scenarios presented above remain relevant, their interaction has a distinctive effect on crisis stability.

Nuclear and Conventional Asymmetry and Crisis Stability

The right column in figure 1 depicts variation in crisis stability between adversaries when both have nuclear as well as conventional forces. An effective military strike need not meet the stiff test described in the purely nuclear case. When conventional forces are included, the stronger side can instead choose to use these typically more discriminating weapons to minimize the danger that an attack would trigger catastrophic nuclear retaliation. Nevertheless, an effective military strike would have to meet a stiffer test than the one described in the purely conventional case. In that case, the use of force is effective if it either

82. These considerations suggest that Lieber and Press's claim—that U.S. nuclear superiority increases the attractiveness of a first strike—is overstated. See Keir A. Lieber and Daryl G. Press, "The End of MAD? The Nuclear Dimension of U.S. Primacy," *International Security,* Vol. 30, No. 4 (Spring 2006), pp. 7–44; and Lieber and Press, "The Nukes We Need," pp. 39–51. For criticisms that touch on considerations discussed here, as well as more technical issues, see James M. Acton, "Managing Vulnerability," *Foreign Affairs,* Vol. 89, No. 2 (March/April 2010), pp. 146–148; Hans M. Kristensen, Matthew McKinzie, and Ivan Oelrich, "Failure to Yield," ibid., pp. 148–150; Jan Lodal, "The Counterforce Fantasy," ibid., pp. 145–146; and Keir Lieber and Daryl Press, "Lieber and Press Reply," ibid., pp. 150–152.

disarms the adversary or shifts the balance of military capabilities such that the attacker's initial military advantage is increased, even if the adversary does not immediately accede to its crisis demands. When the adversary has nuclear weapons, however, unless the use of conventional forces is certain to fully destroy the adversary's ability to inflict horrific retaliatory punishment, an effective strike must strengthen the attacker's bargaining position in a very specific way; it must reduce the adversary's ability to engage in a competition in nuclear risk taking. But to gain such an advantage in the brinkmanship that could follow a conventional strike, either the use of force must strip the adversary of its ability to match the attacker in bids to manipulate risk, or it must expose the adversary's lack of resolve to tolerate the level of risk that its remaining mix of forces could generate, including the risk of escalation to a catastrophic nuclear exchange that neither side could rationally and deliberately choose to initiate.[83] Although a conventional strike need not fully deprive the adversary of its ability to manipulate the risk of nuclear escalation, to be effective it must leave the attacker with options that trump those available to its rival. The greater the ability to use force in a way that meets this test of effectiveness, the greater the degree of crisis instability between adversaries armed with nuclear and conventional weapons.[84]

Thus, the standard of effectiveness for the use of force against the conventional capabilities of a nuclear-armed state is very high. Shortcomings in targeting intelligence make it unlikely that even a richly redundant attack relying only on conventional weapons would eliminate the weaker state's ability to tap its surviving forces to manipulate the risk of nuclear escalation. And for reasons outlined above, relying on nuclear forces to offset concerns about the adequacy of one's targeting intelligence is not likely to be an attractive option. Better intelligence increases confidence in the probability that a conventional strike would be effective. But when the adversary also possesses nuclear arms, it is insufficient to merely reduce the adversary's ability to prevail in conventional fighting that might follow this initial use of force. The attack must deprive the adversary of even the more meager conventional and nuclear

83. One clear consequence of China's military modernization has been an increase in the number and variety of military means to generate risk. Its increased conventional capabilities are thus strategically useful, even though they do not yet greatly improve China's odds for defeating the superior U.S. forces that its military could confront. See Christensen's discussion of relevant passages of Yu, *Di er pao bing zhanyi xue*. Christensen, "The Meaning of the Nuclear Evolution," especially pp. 475–479.

84. The decision to attack also depends on the value of the stakes in the crisis. If even a diminished expected cost of using force exceeds the value of prevailing in the crisis, a lower risk of failure may suffice to discourage an attack. For war-threatening crises of the sort discussed here, however, the values for the states are presumed to be very high.

capabilities necessary for generating and manipulating the risk of nuclear escalation. To invoke Schelling's apt language, for this purpose the adversary does not need to retain a "war winning force" but only a "war threatening force."[85] Because this is the expected cost of an ineffective use of force, the temptation to attack is lower than in the conventional case, though not as obviously low as in the purely nuclear case.

If its interests at stake in the crisis are sufficiently great, however, the more powerful state in an asymmetric dyad might be willing to accept the risk that a conventional strike would be ineffective and would result in a shift from crisis diplomacy to nuclear brinkmanship. Especially if its leaders believed that they were prepared to run a higher risk of uncontrollable escalation than was their weaker adversary, they might be willing to gamble and lose their bet that a conventional strike would be effective. Under such circumstances, they might see the use of force as a way both to reduce the adversary's capabilities and to demonstrate their own resolve. Although the weaker side could not use force to effectively reduce its adversary's military capabilities, if it believed that its stakes in the crisis were greater and, consequently, that it was prepared to run the higher risk of escalation, it, too, could decide to use a conventional strike to signal resolve.

These temptations to resort to force would increase if leaders on either side believed that war were imminent. Under such circumstances, the relevant consideration shifts to the benefits of striking before being struck. If the side striking first were expected to gain an advantage in the conventional forces that it could tap to generate and manipulate the risk of nuclear escalation, the temptation to initiate the use of force would be strong. The strength of the temptation would depend on the extent to which an attack has a meaningful effect on the forces that would remain available to each side in the nuclear brinkmanship that could follow. Because the principal purpose of surviving conventional forces would not be fighting and winning battles, but instead confronting the adversary with the risk of nuclear escalation, it would be difficult for the use of force to have such a meaningful effect. Yet, the stronger side could believe that it had the capabilities and intelligence to significantly reduce the conventional forces its outgunned adversary needs to compete in risk taking, and that it could design a strike that safely avoids triggering unrestrained retaliation. Moreover, even if the strike were ineffective, the stronger side would still have a larger array of capabilities to press its weaker rival, either in conventional fighting or in manipulating the risk of nuclear escalation. When the expected cost of an ineffective use of force is reduced, crisis stability is weakened.

85. See Schelling, *Arms and Influence,* chap. 3.

For at least the next decade, the advantage of the United States in terms of the number and accuracy of its conventional weapons, together with its technically superior and more redundant sources of targeting intelligence, enhance the feasibility of such a strike during the kinds of crises in the Western Pacific described above. The higher the value the United States places on its interests at stake, and the more imminent war seems, the greater the temptation would be for it to use force. China, too, if it believed it had the more vital interests at stake, would have an incentive to act first, before such a U.S. attack could either eliminate or reduce its lesser capabilities to manipulate the risk of nuclear escalation. This scenario echoes the classic recipe for crisis instability in which a reciprocal fear of surprise attack takes hold. The resulting degree of instability is limited, however, by the strategic role that any use of conventional force plays in a crisis between states with nuclear weapons—manipulating the risk that refusing to settle the crisis would lead to escalation that escapes the rivals' control and results in a catastrophe. The inescapable danger of prompt catastrophe exerts a dissuasive effect on both sides that is absent in purely conventional dyads. The effect is strong, but it is not certain.

During a Sino-American crisis, the shadow of nuclear escalation would likely inhibit the United States from using force, perhaps even from undertaking a limited conventional strike against militarily valuable targets on the mainland, such as missile bases and radar installations vital to the effectiveness of China's operations in the Western Pacific.[86] Other American uses of conventional force, however, including the ASW and ASAT operations mentioned above, and especially nonkinetic cyber- and information warfare, might be tempting because they seem less risky. They probably would be less risky, but they would not be risk free, and crisis stability would not be fully assured. On the contrary, as analysts who have begun to examine the implications of growing cyber- and space-warfare capabilities have indicated, the advantages that the attacker enjoys in these realms and the integration of such assets with both nuclear and conventional forces generate distinctive but still unknown "cross-domain" escalation risks. During peacetime, mutual vulnerability of important satellite and computer systems encourages restraint. If that restraint is breached, however, the lack of self-evident firebreaks in cyber- and space-warfare operations, and the lack of historical experience with military operations in these domains during a crisis, will require both sides to improvise, raising novel challenges for crisis management.[87]

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86. As noted, however, some visions of the AirSea Battle concept incorporate such strikes.
87. For the most thorough discussion of the strategic challenges facing the United States and China that reflect mutual vulnerability and cross-domain concerns about operations in nuclear, space, and cyberspace, see Gompert and Saunders, *Paradox of Power.* See also Kenneth Lieberthal and Peter W. Singer, "Cybersecurity and U.S.-China Relations" (Washington, D.C.: Brookings

In a crisis, the U.S. and Chinese interests at stake will be high, and either side could decide that the risk of escalation introduced by conventional, space, or cyberattacks was worth running. Even though no stake in a crisis would be high enough for either the United States or China to choose an unrestrained nuclear exchange, some stakes might be high enough for either one to choose to initiate military actions that elevate the risk of escalation to such a disastrous outcome.[88] As discussed above, both China and the United States have important interests over which they could find themselves locked in a war-threatening crisis in the Western Pacific. The recent pattern of pointed Chinese and U.S. statements about the handling of persistent disputes in the South China Sea, for example, suggests that both sides attach a high and perhaps increasing value to their stakes in this region. Whether that value is high enough to contribute to crisis instability is an empirical question that cannot be answered in advance. The most worrisome source of instability, however, is clear—the temptation to use nonnuclear strikes as a way to gain bargaining leverage, even if doing so generates an unknowable risk of nuclear catastrophe that both China and the United States will have incentives to manipulate.

Conclusion

Sino-American crises that could erupt in the near future, while China remains militarily outclassed by the United States, present distinctive dangers. The preceding analysis offers some reassurance that the interaction of conventional and nuclear capabilities would limit the degree of instability. Because it is so difficult to fully eliminate the adversary's ability to use military force to generate a shared risk of catastrophe, the incentives that can make striking first so tempting in a conventional world are diminished. But because instability in a nuclear world could result in disaster, even a small chance that the parties would initiate the use of force is troubling. During a crisis, the desire to achieve a favorable outcome will provide incentives to manipulate risk and may encourage the use of force if only to signal resolve as each side seeks the upper hand. This suggests that the most worrisome possibility is a crisis in which the United States and China fail to grasp each other's view about the importance of its interests at stake. If one side believes that its stronger interests ensure that it will be more resolute, it could be tempted to signal resolve

Institution, 2012), pp. 29–31; and Vincent Manzo, "Deterrence and Escalation in Cross-Domain Operations: Where Do Space and Cyberspace Fit?" Strategic Forum, No. 272 (Washington, D.C.: Institute for National Strategic Studies, National Defense University, December 2011).
88. See Schelling, *Arms and Influence*, chap. 3.

through the limited use of conventional force to manipulate risk. Because the risk being manipulated is ultimately the genuine risk of escalation to a nuclear exchange, this should be sufficient reason for scholars to provide policymakers with a better understanding of the current prospects for such dangerous instability in U.S.-China crises.

Concerns raised by the possibility that China could one day grow strong enough to become a true peer competitor facing the United States have received much attention. Although clearly important, that is a discussion about the distant future. In the meantime, greater attention needs to be paid to the immediate danger of instability in the kinds of crises that could ensnare the United States and China while China is still relatively weak. Ironically, perhaps, whatever new security challenges a much stronger China could one day pose, the end of China's currently profound military weakness would at least mitigate the key near-term problem identified here—the potential for crisis instability exacerbated by asymmetry in Sino-American power. But before any such major shift in power occurs, there is a real, if limited, possibility that a mismanaged Sino-American crisis will render all speculation about the long term tragically moot.